Department of Design and Construction

# CITY OF NEW YORK
# DEPARTMENT OF DESIGN AND CONSTRUCTION
# DIVISION OF PUBLIC BUILDINGS
# VOLUME 1 – BID BOOKLET

## SINGLE PLA CONTRACT VERSION

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# Introduction

This Bid Booklet is intended to provide general information necessary for bidding on a DDC public works project and is part of the Contract Documents, as per Article 1.1 of the Standard Construction Contract.

As this contract is solicited via the PASSPort system, the bidder will be required to complete all of the PASSPort forms and questionnaires. These forms and questionnaires, along with the bidder's responses, will become part of the Bid Booklet.

Additional information on the PASSPort system can be found at the following website:
https://www1.nyc.gov/site/mocs/systems/passport-user-materials.page

# Bid Submission Requirements

THE FOLLOWING MUST BE COMPLETED AND SUBMITTED FOR THE BID TO BE CONSIDERED RESPONSIVE:

1. Completed electronic bid submission in PASSPort;
    a. All required fields in PASSPort must be completed.
2. Bid security, if required.
    a. If Bid security is in a form of a bid bond, bidders must include it with their electronic PASSPort submission.
    b. If Bid security is in a form of a certified check, bidders must hand deliver the certified check.

**BIDDERS ARE ADVISED THAT PAPER BID SUBMISSIONS WILL BE DEEMED NON-RESPONSIVE. BIDDERS MUST SUBMIT THEIR BIDS ELECTRONICALLY IN PASSPORT AND PROVIDE THE BID SECURITY FOR THE BID TO BE CONSIDERED RESPONSIVE.**

THE FOLLOWING MAY RESULT IN THE BID BEING FOUND NON-RESPONSIVE:

1. Failure to upload required files or documents as part of a mandatory PASSPort Questionnaire response.
2. Uploading an incorrect file as part of a mandatory PASSPort Questionnaire response.

# Notices to Bidders

## Project Labor Agreement & Single Contract

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 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 must be submitted to the Agency Contact Person via PASSPort (in the RFx Discussions with buyer section) within the timeframe indicated in the PASSPort procurement.

## NYC Contract Financing Loan Fund

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.

For more information: Call 311 or visit https://www1.nyc.gov/nycbusiness/article/contract-financing-loan-fund

# M/WBE Notice to Prospective Contractors

**PARTICIPATION BY MINORITY-OWNED AND WOMEN-OWNED BUSINESS ENTERPRISES IN CITY PROCUREMENT (9/2020 version)**

**ARTICLE I. M/WBE PROGRAM**

Section 6-129 of the Administrative Code of the City of New York ("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. Contracts solicited through the Procurement and Sourcing Solutions Portal (PASSPort) will contain a Schedule B in the format outlined in the Schedule B – M/WBE Utilization Plan & PASSPort rider. The provisions of this notice will apply to contracts subject to the M/WBE Program established by Section 6-129 regardless of solicitation source.**

**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.

References to MBEs or WBEs shall also include such businesses certified pursuant to the executive law where credit is required by section 311 of the New York City Charter or other provision of law.

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 1 to this Contract (see Page 1, Line 1 Total Participation Goals) or will be set forth on Schedule B, Part 1 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 DSBS 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 2 (see Pages1-2) 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; (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; as well as the name, addresses, and telephone numbers of the M/WBE subcontractors if required by the solicitation; and (d) the prospective contractor's required certification and affirmations. 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 2 (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 2 (see Pages 1-2) 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; (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; as well as the name, addresses, and telephone numbers of the M/WBE subcontractors if required by the solicitation; and (d) the prospective contractor's required certification and affirmations. 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 2). A SCHEDULE B SUBMITTED BY THE BIDDER/PROPOSER WHICH DOES NOT INCLUDE THE VENDOR CERTIFICATION AND REQUIRED AFFIRMATIONS WILL BE DEEMED TO BE NON-RESPONSIVE, UNLESS A FULL WAIVER OF THE PARTICIPATION GOALS IS GRANTED (SCHEDULE B, PART 3). 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 city-certified 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) 513-6451, or by visiting or writing DSBS at One Liberty Plaza, New York, New York, 10006, 11th 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 3 of Schedule B **and submit such request no later than seven (7) calendar days prior to the date and time the bids, proposals, or Task Orders are due, in writing to the Agency by email at MWBEModification@ddc.nyc.gov. Full or partial waiver requests that are received later than seven (7) calendar days prior to the date and time the bids, proposals, or Task Orders are due may be rejected as untimely**. Bidders, proposers, or contractors, as applicable, who have submitted timely 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 the Contractor was required to identify in its bid or proposal the MBEs and/or WBEs they intended to use in connection with the performance of the Contract or Task Order, substitutions to the identified firms may only be made with the approval of the Agency, which shall only be given when the Contractor has proposed to use a firm that would satisfy the **Participation Goals** to the same extent as the firm previously identified, unless the Agency determines that the Contractor has established, with appropriate documentary and other evidence, that it made reasonable, good faith efforts. In making such determination, the Agency shall require evidence of the efforts listed in Section 11(a) above, as applicable, along with any other relevant factors.

13. 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.

14. 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.

15. 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 a **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 a **M/WBE** Utilization Plan shall not be subject to the law governing Locally Based Enterprises set forth in Section 6-108.1 of the Administrative Code of the City of New York.

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

4. Prospective contractors are encouraged to enter into qualified joint venture agreements with MBEs and/or WBEs as defined by Section 6-129(c)(30).

5. By submitting a bid or proposal the Contractor hereby acknowledges its understanding of the M/WBE Program requirements set forth herein and the pertinent provisions of Section 6-129, and any rules promulgated thereunder, and if awarded this Contract, the Contractor hereby agrees to comply with the M/WBE Program requirements of this Contract and pertinent provisions of Section 6-129, and any rules promulgated thereunder, all of which shall be deemed to be material terms of this Contract. The Contractor hereby agrees to make all reasonable, good faith efforts to solicit and obtain the participation of MBEs and/or WBEs to meet the required **Participation Goals**.

**ARTICLE II. ENFORCEMENT**

1. If Agency determines that a bidder or proposer, as applicable, has, in relation to this procurement, violated Section 6-129 or the DSBS rules promulgated pursuant to Section 6-129, Agency may disqualify such bidder or proposer, as applicable, from competing for this Contract and the Agency may revoke such bidder's or proposer's prequalification status, if applicable.

2. Whenever Agency believes that the Contractor or a subcontractor is not in compliance with Section 6-129 or the DSBS rules promulgated pursuant to Section 6-129, or any provision of this Contract that implements Section 6-129, including, but not limited to any **M/WBE** Utilization Plan, Agency shall send a written notice to the Contractor describing the alleged noncompliance and offering the Contractor an opportunity to be heard. Agency shall then conduct an investigation to determine whether such Contractor or subcontractor is in compliance.

3. In the event that the Contractor has been found to have violated Section 6-129, the DSBS rules promulgated pursuant to Section 6-129, or any provision of this Contract that implements Section 6-129, including, but not limited to, any **M/WBE** Utilization Plan, Agency may determine that one of the following actions should be taken:

(a) entering into an agreement with the Contractor allowing the Contractor to cure the violation;

(b) revoking the Contractor's pre-qualification to bid or make proposals for future contracts;

(c) making a finding that the Contractor is in default of the Contract;

(d) terminating the Contract;

(e) declaring the Contractor to be in breach of Contract;

(f) withholding payment or reimbursement;

(g) determining not to renew the Contract;

(h) assessing actual and consequential damages;

(i) assessing liquidated damages or reducing fees, provided that liquidated damages may be based on amounts representing costs of delays in carrying out the purposes of the M/WBE Program, or in meeting the purposes of the Contract, the costs of meeting utilization goals through additional procurements, the administrative costs of investigation and enforcement, or other factors set forth in the Contract;

(j) exercising rights under the Contract to procure goods, services or construction from another contractor and charge the cost of such contract to the Contractor that has been found to be in noncompliance; or

(k) taking any other appropriate remedy.

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

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

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

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

# Affirmation

The 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 disclosed in PASSPort.

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

6. 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).

7. 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.

8. 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.

9. 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.

10. 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.

11. 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.

12. M/WBE UTILIZATION PLAN: By signing its bid, the bidder agrees to the M/WBE Vendor Certification and Required Affirmations set forth below, unless a full waiver of the Participation Goals is granted.

    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

    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.

# 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. Bid: In preparing its lump sum bid, the Contractor must include in its bid any costs for the purchase of the proprietary item, as well as any costs above and beyond the purchase price, including, without limitation, any costs for transportation, including delivery, shipping or special handling costs, any costs for installation, and any costs for related materials, as well as any mark-up for the Contractor's overhead and profit.

C. Required Proprietary Item(s):

**CONTRACT NO. 1:**

| | |
|---|---|
| 1.Proprietary Item: | Direct Digital Control System |
| Specification Section: | 23 09 00 Instrumentation and Controls for HVAC |
| Manufacturer: | Honeywell |
| 2.Proprietary Item: | Fire Alarm System |
| Specification Section: | 28 46 00 Fire Detection and Alarm |
| Manufacturer: | Siemens |

Bid Price

| item_code | item_label | itype_label | Bid Price |
|---|---|---|---|
| 1 | Lump Sum Bid Amount | Required Item | 16787000.00000000 |

Allowances

| item_code | item_label | itype_label | Additions | YOU MUST ENTER 1 IN THE BOXES BELOW | Additions _1 |
|---|---|---|---|---|---|
| i2_1 | ALLOWANCE for Expanded Work (Section 012100.20 of the DDC General Conditions) | Additional Fees | 776779.1600000000 | 1.00000000 | 776779.16000000 |
| i2_2 | ALLOWANCE for Project Work Acceleration (Section 012100.30 of the DDC General Conditions) | Additional Fees | 500000.0000000000 | 1.00000000 | 500000.00000000 |
| i2_3 | ALLOWANCE for Incidental Asbestos Abatement (Section 028013 of the Specifications) | Additional Fees | 15000.0000000000 | 1.00000000 | 15000.00000000 |

Unit Prices for Div 01 Work

| item_code | item_label | itype_label | Section | Quantity | Unit | Unit Price | Total |
|---|---|---|---|---|---|---|---|

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| i3_3 | Field Office | Required Item | 01 50 00 3.8.F | 24.000000000 | Month | 1200.00000000 | 28800.00000000 |
| i3_4 | Rodent and Insect Control | Required Item | 01 50 00 3.14.H | 18.000000000 | Month | 950.00000000 | 17100.00000000 |
| i3_5 | Security Guards | Required Item | 01 50 00 3.18.D | 18.000000000 | Month | 15000.00000000 | 270000.00000000 |
| i3_6 | Sidewalk Sheds | Required Item | 01 54 23 1.9 | 18.000000000 | Month | 14500.00000000 | 261000.00000000 |

Unit Prices for Extra Work

| item_code | item_label | itype_label | Section | Quantity | Unit | Unit Price | Total |
|---|---|---|---|---|---|---|---|
| i4-1_1 | New coping stone replacement | Required Item | 04 01 40.51 | 1.000000000 | EA | 800.00000000 | 800.00000000 |
| i4-1_2 | New stone window sill replacement | Required Item | 04 01 40.51 | 1.000000000 | EA | 600.00000000 | 600.00000000 |
| i4-1_3 | Stone cladding repairs | Required Item | 04 01 40.51 | 2.000000000 | SF | 250.00000000 | 500.00000000 |
| i4-1_4 | Tile for existing suspended ceiling | Required Item | 09 53 00 | 650.0000000000 | SF | 10.00000000 | 6500.00000000 |
| i4-1_5 | Grid for existing suspended ceiling | Required Item | 09 53 00 | 300.0000000000 | SF | 12.00000000 | 3600.00000000 |
| i4-1_6 | Replacement of roof drain only (at concrete or composite slab) includes: removal of existing roof drain body and setting of a new roof drain body. | Required Item | 22 14 26 | 2.000000000 | SET | 2000.00000000 | 4000.00000000 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| i4-1_7 | Replacement of piping only (at concrete and composite slab) includes: New roof drain 3" diameter piping with insulation | Required Item | 22 14 26 | 50.0000000000 | LF | 200.00000000 | 10000.00000000 |
| i4-1_8 | Replacement of piping only (at concrete and composite slab) includes: New roof drain 4" diameter piping with insulation | Required Item | 22 14 26 | 50.0000000000 | LF | 240.00000000 | 12000.00000000 |
| I4_9 | Remove & replace roof drain & piping at conc. slab: demo of existing, furnish & install new drain body, 4 LF of vertical & 20 LF of horizontal piping, pipe insulation, fittings & supports. | Required Item | 22 14 26 | 2.0000000000 | SET | 10000.00000000 | 20000.00000000 |
| I4_10 | Protection at roofs with ACM gravel | Required Item | (See Addendum to GC) | 2200.0000000000 | SF | 5.00000000 | 11000.00000000 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| I4_11 | Protection at roofs with gravel no ACM | Required Item | (See Addendum to GC) | 11000.0000000000 | SF | 5.00000000 | 55000.00000000 |
| I4_12 | Protection at roofs with single ply | Required Item | (See Addendum to GC) | 330.00000000 | SF | 8.00000000 | 2640.00000000 |
| I4_13 | Reinforced liquid flashing | Required Item | (See Addendum to GC) | 1100.00000000 | LF | 60.00000000 | 66000.00000000 |
| I4_14 | Pitch pocket filler | Required Item | (See Addendum to GC) | 55.0000000000 | EA | 250.00000000 | 13750.00000000 |
| I4_15 | Reinforced elastomeric coating | Required Item | (See Addendum to GC) | 2750.00000000 | SF | 25.00000000 | 68750.00000000 |

FORM OF BID BOND

KNOW ALL MEN BY THESE PRESENTS. That we, Corbex Inc.
351 Denton Avenue
New Hyde Park, NY 11040

hereinafter referred to as the "Principal", and Berkley Insurance Company
475 Steamboat Road
Greenwich, CT 06830

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

Ten Percent of Amount Bid

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

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

Bronx Family Criminal Courthouse Roof Upgrade, Project # CO294RF, Bronx, New York

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.

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

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

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

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

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers the 26th day of May, 2026.

(Seal)

Corbex Inc. (L.S.)
Principal

By: _____

(Seal)

Berkley Insurance Company
Surety

By: _____
Fern Perry, Attorney-In-Fact

## ACKNOWLEDGMENT OF PRINCIPAL, IF A CORPORATION

State of New York County of Nassau ss:
On this 27th day of May, 2026, before me personally came Adam Piotek to me known, who, being by me duly sworn, did depose and say that he/she/they resides at 73 Woodedge Road Manhasset NY that he/she/they is the President of Corbex Inc.

the corporation described in and which executed the foregoing instrument; that he/she/they 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/she/they signed his name thereto by like order.

EWELINA SOKOLOWSKI
STATE OF NEW YORK
NOTARY PUBLIC
Qualified in Suffolk County
Notary ID 01SO6341828
MY COMMISSION EXPIRES 05/16/2028

## 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/she/they acknowledged to me that he/she/they executed the same as and for the act and deed of said firm.

_____
Notary Public

## ACKNOWLEDGMENT OF PRINCIPAL, IF AN INDIVIDUAL

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

_____
Notary Public

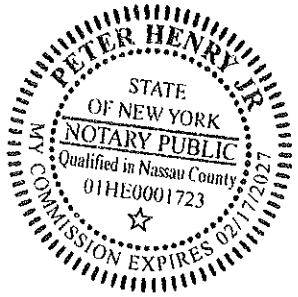
AFFIX ACKNOWLEDGMENTS AND JUSTIFICATION OF SURETIES

## Acknowledgment of Surety

State of New York )

County of Nassau ) ss.:

On the 26thday of May in the year 2026 before me Peter Henry , Notary Public personally came to me Fern Perry known, who, being by me duly sworn, did depose and say that he/she resides in 255 Executive Drive, Plainview, New York 11803
(if the place of residence is in a city, include the street and street number, if any, thereof); that he/she is the duly appointed Attorney-in-Fact of the ,
Berkley Insurance Company
the corporation described in and which executed the above instrument; that he/she knows the seal of said corporation; that the seal affixed to said instrument is such corporate seal; that it was so affixed by authority of the board of directors of said corporation, and that he/she signed his/her name thereto by like authority.




(Notary Seal)

Peter Henry Notary Public

2/17/2027
Notary Public Commission Expiration Date

No. BI-108c-el

POWER OF ATTORNEY
**BERKLEY INSURANCE COMPANY**
WILMINGTON, DELAWARE

KNOW ALL MEN BY THESE PRESENTS, that BERKLEY INSURANCE COMPANY (the "Company"), a corporation duly organized and existing under the laws of the State of Delaware, having its principal office in Greenwich, CT, has made, constituted and appointed, and does by these presents make, constitute and appoint: ***Peter T. Henry; Robert Finnell; Jennifer L. Johnston-Ogeka; or Fern Perry of Surre, Goldberg & Henry Associates, Inc. of Plainview, NY*** its true and lawful Attorney-in-Fact, to sign its name as surety only as delineated below and to execute, seal, acknowledge and deliver any and all bonds and undertakings, with the exception of Financial Guaranty Insurance, providing that no single obligation shall exceed **One Hundred Million and 00/100 U.S. Dollars (U.S.$100,000,000.00),** to the same extent as if such bonds had been duly executed and acknowledged by the regularly elected officers of the Company at its principal office in their own proper persons.

This Power of Attorney shall be construed and enforced in accordance with, and governed by, the laws of the State of Delaware, without giving effect to the principles of conflicts of laws thereof. This Power of Attorney is granted pursuant to the following resolutions which were duly and validly adopted at a meeting of the Board of Directors of the Company held on January 25, 2010:

**RESOLVED**, that, with respect to the Surety business written by Berkley Surety, the Chairman of the Board, Chief Executive Officer, President or any Vice President of the Company, in conjunction with the Secretary or any Assistant Secretary are hereby authorized to execute powers of attorney authorizing and qualifying the attorney-in-fact named therein to execute bonds, undertakings, recognizances, or other suretyship obligations on behalf of the Company, and to affix the corporate seal of the Company to powers of attorney executed pursuant hereto; and said officers may remove any such attorney-in-fact and revoke any power of attorney previously granted; and further

**RESOLVED**, that such power of attorney limits the acts of those named therein to the bonds, undertakings, recognizances, or other suretyship obligations specifically named therein, and they have no authority to bind the Company except in the manner and to the extent therein stated; and further

**RESOLVED**, that such power of attorney revokes all previous powers issued on behalf of the attorney-in-fact named; and further

**RESOLVED**, that the signature of any authorized officer and the seal of the Company may be affixed by facsimile to any power of attorney or certification thereof authorizing the execution and delivery of any bond, undertaking, recognizance, or other suretyship obligation of the Company; and such signature and seal when so used shall have the same force and effect as though manually affixed. The Company may continue to use for the purposes herein stated the facsimile signature of any person or persons who shall have been such officer or officers of the Company, notwithstanding the fact that they may have ceased to be such at the time when such instruments shall be issued.

IN WITNESS WHEREOF, the Company has caused these presents to be signed and attested by its appropriate officers and its corporate seal hereunto affixed this 30th day of March, 2023.

BERKLEY INSURANCE COMPANY CORPORATE SEAL 1975 DELAWARE

Attest:

By _____
Ira S. Lederman
Executive Vice President & Secretary

Berkley Insurance Company

By _____
Jeffrey M. Hafter
Senior Vice President

STATE OF CONNECTICUT )
) ss:
COUNTY OF FAIRFIELD )

Sworn to before me, a Notary Public in the State of Connecticut, this 30th day of March, 2023, by Ira S. Lederman and Jeffrey M. Hafter who are sworn to me to be the Executive Vice President and Secretary, and the Senior Vice President, respectively, of Berkley Insurance Company.

MARIA C RUNDBAKEN
NOTARY PUBLIC
CONNECTICUT
MY COMMISSION EXPIRES
APRIL 30, 2024

_____
Notary Public, State of Connecticut

CERTIFICATE

I, the undersigned, Assistant Secretary of BERKLEY INSURANCE COMPANY, DO HEREBY CERTIFY that the foregoing is a true, correct and complete copy of the original Power of Attorney; that said Power of Attorney has not been revoked or rescinded and that the authority of the Attorney-in-Fact set forth therein, who executed the bond or undertaking to which this Power of Attorney is attached, is in full force and effect as of this date.

BERKLEY INSURANCE COMPANY CORPORATE SEAL 1975 DELAWARE

Given under my hand and seal of the Company, this 26th day of May, 2026.

_____
Vincent P. Forte

# BERKLEY INSURANCE COMPANY

## STATUTORY BALANCE SHEET
## DECEMBER 31, 2025
(AMOUNTS IN THOUSANDS)

**Admitted Assets**

| | |
|---|---|
| Bonds | $ 18,994,824 |
| Common & Preferred Stocks | 6,735,186 |
| Cash & Short Term Investments | 1,345,985 |
| Premiums Receivable | 3,001,206 |
| Other Assets | 4,128,062 |
| Total Admitted Assets | $ 34,205,262 |

**Liabilities & Surplus**

| | |
|---|---|
| Loss & LAE Reserves | $ 17,857,131 |
| Unearned Premium Reserves | 5,320,581 |
| Other Liabilities | 1,170,413 |
| Total Liabilities | $ 24,348,125 |
| Common Stock | $ 43,000 |
| Preferred Stock | 10 |
| Additional Paid In Capital | 3,047,887 |
| Unassigned Surplus | 6,766,240 |
| Total Policyholders' Surplus | $ 9,857,138 |
| Total Liabilities & Surplus | $ 34,205,262 |

**Officers:**
President: William Robert Berkley, Jr.
Secretary: Philip Stanley Welt
Treasurer: Richard Mark Baio
Asst. Treasurer: Bertman Adam Braud, Jr.
Asst. Secretary: Michelle Rene Rodemyer
Asst. Treasurer: Ted William Rogers

**Directors:**
William Robert Berkley
(Executive Chairman)
William Robert Berkley, Jr.
Philip Stanley Welt
Richard Mark Baio
Paul James Hancock
Carol Josephine LaPunzina
James Gerald Shiel

## SPECIAL EXPERIENCE REQUIREMENTS

**Special Experience Requirements apply as indicated below.**

Special Experience Requirements are **not** applicable to **the Bidder** for this contract since the Department of Design and Construction has established a pre-qualified list ("**PQL"**) of contractors for furnishing all labor, materials and equipment, necessary and required to perform work on facilities determined by the City to be General Construction – Large Projects. This procurement for the specified work is being advertised and let solely to bidders who were previously pre-qualified based on their prior experience, and placed on the General Construction – Large Projects PQL. Bids submitted by other than such pre-qualified bidders will be rejected as non-responsive bids. The below listed Special Experience Requirements apply solely to the Contractor/Sub-contractor performing the specific area(s) of work shown and the manufacturer that will supply or fabricate specific material or equipment.

**Specific Areas of Work: General Construction Work ___X___ YES _____ NO**

**(A)** **SPECIAL EXPERIENCE REQUIREMENTS FOR SPECIFIC AREAS OF WORK**: The special experience requirements set forth below apply to the contractor or subcontractor that will perform specific areas of work. Compliance with such experience requirements will be evaluated after an award of contract. Within two (2) weeks of such award, the contractor will be required to submit the qualifications of the contractor or subcontractor that will perform these specific areas of work. If the bidder intends to perform these specific areas of work with its own forces, it must demonstrate compliance with the special experience requirements. If the bidder intends to subcontract these specific areas of work, its proposed subcontractor(s) must demonstrate compliance with the special experience requirements. Once approved, no substitution will be permitted, unless the qualifications of the proposed replacement have been approved in writing in advance by the City. The bidder is advised to carefully review these special experience requirements prior to submitting its bid, as such experience requirements will be strictly enforced.

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

General Construction Work

- Section 075600: Fluid-Applied Roofing
- Section 237400: Packaged Outdoor HVAC Equipment

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

- For Section 237400, the contractor or subcontractor performing the work of this section must meet the requirements of DDC General Conditions Section 014000 "Quality Requirements," Article 1.7.C.1.

- For Section 075600, the contractor or subcontractor performing the work of this section must meet the requirements of DDC General Conditions Section 014000 "Quality Requirements," Article 1.7.C.3.

(3) For each project submitted to demonstrate compliance with the special experience requirements for specific areas of work, the contractor or proposed subcontractor will be required to complete the Qualification Form included in PASSPort.

a. The City will only evaluate a project if the following criteria are met: (1) the project is described on the Qualification Form, and (2) all information on the Qualification Form is provided. The City will not evaluate any project which does not comply with the criteria set forth herein, including any project which is referred to only on the resume of an individual.

b. For Section 075600, the contractor or subcontractor must specify, for each qualifying project submitted, the type of roofing system utilized and provide proof that the manufacturer's warranty for that project was issued. The City will only evaluate a project if the following criteria are met: (1) the project is described on the Qualification Form, and (2) all information required to be provided by the contractor or subcontractor on the Qualification Form is actually provided. The City will not evaluate any project which does not comply with the criteria set forth herein, including any project which is referred to only on the resume of an individual.

# Notice to Bidders
# Bidder's Identification of Subcontractors

Please be advised that pursuant to GML § 101(5) each 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 subcontractor:

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

The list of subcontractors is to be submitted by completing the Bidder's Identification of Subcontractors form ("BIDS Form") on the next page. The BIDS Form provides for the identification of any subcontractors intended to be used in any of the three trades listed above. If the bidder intends to use its own forces for any of the above listed work, the bidder must indicate so on the BIDS Form.

**The completed BIDS Form must be uploaded in the Sealed Subcontractor List subtab of the Subcontractors and Joint Ventures tab of the RFx. Failure to submit the properly completed BIDS Form including the names of subcontractors and the agreed-upon amounts to be paid to each will result in the rejection of the bid as non-responsive.**

**Please Note**: For any contract that is subject to M/WBE Participation Goals under Section § 6-129 of the Administrative Code of the City of New York, if the bidder's intention to use its own forces to do any of the above-referenced work would result in failure to attain the Participation Goals identified in the M/WBE Utilization Plan, the bidder must request and obtain a full or partial waiver of the Participation Goals (Schedule B – Waiver) in advance of bid submission. The bidder must submit the approved waiver determination or otherwise agree to the Participations Goals as stated in the Schedule B (Parts I and II) as part of a responsive bid submission.

After the low bid is announced, the sealed list submitted by the low bidder will be opened and the names of the subcontractors will be announced. The sealed lists of subcontractors submitted by all other bidders will be maintained by the Agency unopened unless such bidder becomes the low bidder (e.g., the initial low bidder is found non-responsive). All unopened lists of subcontractors will be deleted from PASSPort after the contract is awarded.

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

**Bidder's Identification of Subcontractors (BIDS Form)**

Please list the subcontractors and agreed-upon amounts to be paid to each. Please note if any trade is not applicable to this project. If any of the work in the trade categories below is split between two or more subcontractors, please provide a description of the work to be performed by each subcontractor. If self-performing, please list your own name.

**Please Note**: Bidder may satisfy any required M/WBE Subcontractor Participation Goals by proposing one or more M/WBE subcontractors for any portion of the work to be performed by the below trades.

1. Plumbing and Gas Fitting Contractor(s):

   Leviathan Mechanical Corporation
   (Subcontractor Name)

   $ 409,500.00
   (Agreed-upon amount to be paid to Subcontractor)

   _____
   (Subcontractor Name)

   $ _____
   (Agreed-upon amount to be paid to Subcontractor)

   Description of work for each subcontractor:

   Plumbing work

2. Steam Heating, Hot Water Heating, Ventilating and Air Conditioning Apparatus Contractor(s):

   Tameer Inc
   (Subcontractor Name)

   $ 670,000.00
   (Agreed-upon amount to be paid to Subcontractor)

   _____
   (Subcontractor Name)

   $ _____
   (Agreed-upon amount to be paid to Subcontractor)

   Description of work for each subcontractor:

   HVAC work

3. Electric Wiring and Standard Illuminating Fixtures Contractor(s):

   Labco Electric Contracting Corp.
   (Subcontractor Name)

   $ 1,060,000.00
   (Agreed-upon amount to be paid to Subcontractor)

   _____
   (Subcontractor Name)

   $ _____
   (Agreed-upon amount to be paid to Subcontractor)

   Description of work for each subcontractor:

   Electrical work

**Prime Vendor M/WBE Certification :**

| Group | Percentage |
|---|---|
| Black American | 7.00 |
| Hispanic American | 2.00 |
| Asian American | |
| Native American | |
| Unspecified | 7.00 |
| Women | |
| Total Participation Goals | 16.00 |

## Subcontractor Information

| M/WBE Certification | Subcontractor Dollar Amount | EIN | Estimated End Date | Estimated Start Date | Purpose | Subcontractor Address | Subcontractor Phone | Subcontractor Name |
|---|---|---|---|---|---|---|---|---|
| Black American | 270,000.00 | 474437161 | 12/31/2017 | 6/1/2026 | security | 432 Nuber Ave Mount Vernon New York UNITED STATES 10553-1915 | N/A | Blue Iron Security services llc |
| Women | 800,000.00 | 200874885 | 12/31/2027 | 6/1/2026 | asbestos abatement | 105 Maxess RdSuite N206 Melville New York UNITED STATES 11747 | 7186061076 | ATCO CONTRACTING GROUP INC. |
| Hispanic American | 900,000.00 | 262193518 | 12/31/2027 | 6/1/2026 | sidewalk shed | 129 Old Turnpike Rd WAYNE New Jersey UNITED STATES 07470 | 7184841711 | PJP INSTALLERS INC |
| Women | 450,000.00 | 260349635 | 12/31/2027 | 6/1/2026 | metal fabrication and installation | 832 Bethlynn Ct East Meadow New York UNITED STATES 11554-4911 | 5162808252 | Triple H. Construction, Inc. |
| Asian American | 670,000.00 | 273640481 | 12/31/2027 | 6/1/2026 | HVAC | 151 Hempstead Turnpike West Hempstead New York UNITED STATES 11552 | 5168580555 | TAMEER INC |
| Black American | 1,060,000.00 | 452160403 | 12/31/2027 | 6/1/2026 | electrical | 124-14 20th Ave College Point New York UNITED STATES 11356 | 6467841255 | LABCO ELECTRIC CONTRACTING CORP |

6 Result(s)

**CONTRACTOR'S DETAILED SCHEDULE OF VALUE BREAKDOWN**

**FMS/Project ID:** CO294RF
**Project Name:** Bronx Family & Criminal Courthouse Roof Upgrade
**Contractor:**

| No. | Sub Work (*) | UniFormat Code | CSI Division: | CSI Sub Division: | RSMeans 12-digit item code: | Vendor Quote (Yes/ No): | Description: | Qty | Unit: | Total Cost of Material $ | Total Cost of Labor $ | Total Cost of Equipment $ | Unit Cost | Total Cost of Material, Labor & Eqp.$ | COMMENTS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | A | | B | C | D | E / A | E = B+C+D | |
| | | | DIVISION 01 - GENERAL REQUIREMENTS | | | | | | | | | | | | |
| | | | | | | | DIVISION 01 - GENERAL REQUIREMENTS EXCLUDING the following 6 items:<br>1) 01 50 00; 3.4-Temporary Electrical Service.<br>2) 01 50 00; 3.5-Temporary Heat.<br>3) 01 50 00; 3.8-Field Office.<br>4) 01 50 00; 3.14-Rodent and Insect Control.<br>5) 01 50 00; 3.18-Security Guards.<br>6) 01 54 23; 1.9-Sidewalk Sheds.<br>These 6 items must be filled out separately on the Bid Submission Form and PASSPort Item Grid. | | | | | | | |
| 1 | | Z10 | | 01 30 00 Administrative Requirements | | | ADMINISTRATIVE REQUIREMENTS (3 CONSTRUCTION MANAGEMENT by CONTRACTOR) | $ 1.00 | JOB | $ 360,000.00 | | | $ 360,000.00 | $ 360,000.00 | |
| 2 | | Z10 | | 01 40 00 Quality Requirements | | | QUALITY REQUIREMENTS | $ 1.00 | JOB | $ 50,000.00 | | | $ 50,000.00 | $ 50,000.00 | |
| 3 | | Z10 | | 01 50 00 Temporary Facilities and Controls | | | TEMPORARY FACILITIES AND CONTROLS (4 TEMPORARY FACILITIES AND CONTROLS) | $ 1.00 | JOB | $ 1,425,000.00 | | | $ 1,425,000.00 | $ 1,425,000.00 | |
| 4 | | Z10 | | 01 60 00 Product Requirements | | | PRODUCT REQUIREMENTS | $ 1.00 | JOB | $ 25,000.00 | | | $ 25,000.00 | $ 25,000.00 | |
| 5 | | Z10 | | 01 70 00 Execution and Closeout Requirements | | | EXECUTION AND CLOSEOUT REQUIREMENTS (6 PROJECT EXECUTION) | $ 1.00 | JOB | $ 350,000.00 | | | $ 350,000.00 | $ 350,000.00 | |
| 6 | | Z10 | | 01 90 00 Life Cycle Activities | | | LIFE CYCLE ACTIVITIES (7 COMMISSIONING AND CLOSEOUT by CONTRACTOR) | $ 1.00 | JOB | $ 15,000.00 | | | $ 15,000.00 | $ 15,000.00 | |
| 7 | | Z10 | | 01 41 23 Fees | | | LICENSE FEES (5 PROJECT START-UP PART B) | $ 1.00 | JOB | $ 25,000.00 | | | $ 25,000.00 | $ 25,000.00 | |
| 8 | | Z70 | | 01 41 26 Permit Requirements | | | PERMIT COSTS (5 PROJECT START-UP PART A) | $ 1.00 | JOB | $ 20,000.00 | | | $ 20,000.00 | $ 20,000.00 | |
| 9 | | Z70 | | 01 78 33 Bonds | | | BOND FEES (1 BOND) | $ 1.00 | JOB | $ 185,000.00 | | | $ 185,000.00 | $ 185,000.00 | |
| 10 | | Z70 | | 00 73 16 Insurance Requirements | | | INSURANCE (2 INSURANCE) | $ 1.00 | JOB | $ 1,750,000.00 | | | $ 1,750,000.00 | $ 1,750,000.00 | |
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| | | | | | | | **DIVISION 01 - GENERAL REQUIREMENTS SUB TOTAL** | | | **$ 4,205,000.00** | | | | **$ 4,205,000.00** | |
| | | | **DIVISION 02 - EXISTING CONDITIONS** | | | | | | | | | | | | |
| | | F30 | | 02 41 19 Selective Demolition | | | | | | | | | | $ - | |
| | | | | | | | **Misc. Demo** | | | | | | | $ - | |
| 11 | | F30 | | | | | Remove gravel ballast (2" thick layer over 43,600 SF of roofing) at Main Roof and all other roofs | 270 | CY | $ 40,500.00 | $ 210,000.00 | | $ 927.78 | $ 250,500.00 | |
| 12 | | F30 | | | | | Remove BUR-type roofing system at main and all other roofs | 23,600 | SF | $ 47,200.00 | $ 330,400.00 | | $ 16.00 | $ 377,600.00 | |
| 13 | | F30 | | | | | Remove TPO-type roofing system at main and all other roofs | 23,000 | SF | $ 46,000.00 | $ 322,000.00 | | $ 16.00 | $ 368,000.00 | |
| 14 | | F30 | | | | | Remove concrete wearing course at cooling tower Courtyard (7" average thickness over 1,800 SF of roofing) | 39 | CY | $ 5,850.00 | $ 101,400.00 | | $ 2,750.00 | $ 107,250.00 | |
| 15 | | F30 | | | | | Remove membrane roofing under wearing course at cooling tower courtyard | 1,800 | SF | $ 5,400.00 | $ 16,200.00 | | $ 12.00 | $ 21,600.00 | |
| 16 | | F30 | | | | | Remove concrete encasement of columns at cooling tower courtyard | 160 | SF | $ 1,280.00 | $ 2,400.00 | | $ 23.00 | $ 3,680.00 | |
| 17 | | F30 | | | | | Remove coping stones at elevator bulkhead and cooling tower courtyard parapet walls | 210 | LF | $ 3,150.00 | $ 7,350.00 | | $ 50.00 | $ 10,500.00 | |
| 18 | | F30 | | | | | Remove existing metal counter flashings at cooling tower courtyard and main roof | 940 | LF | $ 5,640.00 | $ 11,280.00 | | $ 18.00 | $ 16,920.00 | |
| 19 | | F30 | | | | | Remove concrete encasement of roof stair steel beam | 30 | SF | $ 450.00 | $ 1,800.00 | | $ 75.00 | $ 2,250.00 | |
| 20 | | F30 | | | | | Remove wooden ramp | 1 | EA | $ 400.00 | $ 1,200.00 | | $ 1,600.00 | $ 1,600.00 | |
| 21 | | F30 | | | | | Remove crossover stairs/ steps | 1 | EA | $ 600.00 | $ 1,600.00 | | $ 2,200.00 | $ 2,200.00 | |
| 22 | | F30 | | | | | Remove scupper | 2 | EA | $ 200.00 | $ 400.00 | | $ 300.00 | $ 600.00 | |
| 23 | | F30 | | | | | Remove rooftop unit (w/HVAC) and replaced w/ new dunnage | 105 | SF | $ 15,750.00 | $ 34,650.00 | | $ 480.00 | $ 50,400.00 | |
| 24 | | F30 | | | | | Remove antennas from elevator bulkhead wall to temporarily reinstall them (by Owner's Vendor) | 14 | EA | $ 8,400.00 | $ 16,800.00 | | $ 1,800.00 | $ 25,200.00 | |
| | | | | | | | **1 free standing antenna at SE quadrant (included above)** | | | | | | | $ - | |
| | | | | | | | **2 antennas attached along west parapet wall of main roof (included above)** | | | | | | | $ - | |
| | | | | | | | **2 antennas attached to west wall of elevator bulkhead (included above)** | | | | | | | $ - | |
| | | | | | | | **9 antennas attached to south wall of elevator bulkhead (included above)** | | | | | | | $ - | |
| | | | | | | | **1 camera attached to top of south low parapet wall of elevator bulkhead (included above)** | | | | | | | $ - | |
| 25 | | F30 | | | | | Remove existing metal railings at landing of roof stair approx. 7LF | 1 | LS | $ 140.00 | $ 245.00 | | $ 385.00 | $ 385.00 | |
| | | | | 02 80 13 Incidental Asbestos Abatement | | | | | | | | | | | |
| | | | | | | | **GC Allowance for Incidental Asbestos Abatement (carried with Contract Allowance)** | | | | | | | $ - | |
| | | F20 | | 02 82 13 Asbestos Abatement | | | | | | | | | | $ - | |
| 26 | | F20 | | | | | ACM abatement (allowance based on ACM consultant cost estimate dated 1/11/2024) | 1 | EA | $ 350,000.00 | | | $ 350,000.00 | $ 350,000.00 | |
| | | | | | | | | | | | | | | $ - | |
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| | | | | **02 82 13 Asbestos Abatement** | | | **DIVISION 02 - EXISTING CONDITIONS SUB TOTAL** | | | **$ 530,960.00** | **$ 1,057,725.00** | | | **$ 1,588,685.00** | |
| | | | **DIVISION 03 - CONCRETE** | | | | | | | | | | | | |
| | | A10 | | 03 01 30 Maintenance of Cast-in-Place Concrete | | | | | | | | | | $ - | |
| | | | | | | | **Ext. Maintenance of Concrete** | | | | | | | $ - | |
| 27 | | A10 | | | | | Concrete repair/encasement at two steel columns and six pilasters at cooling tower courtyard | 160 | SF | $ 4,800.00 | $ 14,400.00 | | $ 120.00 | $ 19,200.00 | |
| 28 | | A10 | | | | | Concrete repair/encasement for beam at roof stairway | 30 | SF | $ 900.00 | $ 2,700.00 | | $ 120.00 | $ 3,600.00 | |
| 29 | | A10 | | | | | Polymer concrete spall/crack repairs at main roof parapet wall | 260 | SF | $ 9,100.00 | $ 24,700.00 | | $ 130.00 | $ 33,800.00 | |
| 30 | | A10 | | | | | Polymer concrete spall/crack repairs at cooling tower wall | 300 | SF | $ 10,500.00 | $ 30,000.00 | | $ 135.00 | $ 40,500.00 | |
| | | | | | | | **Int. Maintenance of Concrete** | | | | | | | $ - | |
| 31 | | A10 | | | | | Sound out entire underside of slab | 29,000 | SF | $ 15,000.00 | $ 45,000.00 | | $ 2.07 | $ 60,000.00 | |
| 32 | | A10 | | | | | Sound out entire surface area of underside of concrete roof stair No. 5 | 200 | SF | $ 150.00 | $ 400.00 | | $ 2.75 | $ 550.00 | |
| 33 | | A10 | | | | | Sound out entire surface area of designated CMU walls of roof stair No. 5 well. | 850 | SF | $ 600.00 | $ 1,600.00 | | $ 2.59 | $ 2,200.00 | |
| 34 | | A10 | | | | | Polymer concrete spall/crack repairs at underside ceiling of main roof | 4,524 | SF | $ 158,340.00 | $ 450,000.00 | | $ 134.47 | $ 608,340.00 | |
| 35 | | A10 | | | | | Polymer concrete spall/crack repairs at underside ceiling of roof stair | 100 | SF | $ 3,500.00 | $ 8,500.00 | | $ 120.00 | $ 12,000.00 | |
| 36 | | A10 | | | | | Polymer concrete spall/crack repairs at CMU walls of Roof Stair No. 5 well | 100 | SF | $ 3,500.00 | $ 8,000.00 | | $ 115.00 | $ 11,500.00 | |
| | | A10 | | 03 01 50.61 Resurfacing of Cast Decks and Underlayment | | | | | | | | | | $ - | |
| | | | | | | | **Resurfacing Conc. Deck** | | | | | | | $ - | |
| 37 | | A10 | | | | | Concrete screed | 7,020 | SF | $ 42,120.00 | $ 112,320.00 | | $ 22.00 | $ 154,440.00 | |

**FMS/Project ID:** CO294RF
**Project Name:** Bronx Family & Criminal Courthouse Roof Upgrade
**Contractor:**

| No. | Sub Work (*) | UniFormat Code | CSI Division: | CSI Sub Division: | RSMeans 12-digit item code: | Vendor Quote (Yes/ No): | Description: | Qty | Unit: | Total Cost of Material $ | Total Cost of Labor $ | Total Cost of Equipment $ | Unit Cost | Total Cost of Material, Labor & Eqp.$ | COMMENTS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | A | | B | C | D | E / A | E = B+C+D | |
| | | | | | | | **@ Main Roof structural slab and other pitching slabs (15% of 45,000 SF), included above** | 6,750 | SF | | | | | | |
| | | | | | | | **@ Cooling Tower Courtyard structural slab (15% of 1,800 SF), included above** | 270 | SF | | | | | | |
| | | A10 | | 03 11 13 Structural Cast-in-Place Concrete Forming | | | | | | | | | | | |
| 38 | | A10 | | | | | Forms at concrete curb's and pedestal for Antenna | 102 | SF | $ 4,000.00 | $ 6,500.00 | | $ 102.94 | $ 10,500.00 | |
| | | A40 | | 03 30 53 Miscellaneous Cast-in-Place Concrete | | | | | | | | | | $ - | |
| | | | | | | | **Cast-in-Place Concrete** | | | | | | | $ - | |
| 39 | | A40 | | | | | High concrete blocks at antenna dunnage with plate, 15"x15"x12" | 10 | EA | $ 2,000.00 | $ 5,000.00 | | $ 700.00 | $ 7,000.00 | |
| 40 | | A40 | | | | | Concrete encasement upto 48" at columns | 131 | SF | $ 5,895.00 | $ 11,135.00 | | $ 129.68 | $ 17,030.00 | |
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| | | | | | | | **DIVISION 03 - CONCRETE SUB TOTAL** | | | **$ 260,405.00** | **$ 720,255.00** | | | **$ 980,660.00** | |
| | | | **DIVISION 04 - MASONRY** | | | | | | | | | | | | |
| | | B20 | | 04 01 20.51 Unit Masonry Maintenance | | | | | | | | | | $ - | |
| | | | | | | | **Misc. Unit Masonry Work** | | | | | | | $ - | |
| 41 | | B20 | | | | | CMU masonry repairs at N+W walls at courtyard | 450 | SF | $ 11,250.00 | $ 49,500.00 | | $ 135.00 | $ 60,750.00 | |
| 42 | | B20 | | | | | New CMU double wall, low parapet curb at Elevator bulkhead | 141 | SF | $ 9,165.00 | $ 21,855.00 | | $ 220.38 | $ 31,020.00 | |
| 43 | | B20 | | | | | Brick replacement at penthouse and parapet at courtyard | 750 | SF | $ 33,750.00 | $ 71,250.00 | | $ 140.00 | $ 105,000.00 | |
| 44 | | B20 | | | | | Brick replacement at chimneys | 300 | SF | $ 13,500.00 | $ 28,500.00 | | $ 140.00 | $ 42,000.00 | |
| 45 | | B20 | | | | | Brick repointing at penthouse and parapet at courtyard | 750 | SF | $ 6,000.00 | $ 21,000.00 | | $ 36.00 | $ 27,000.00 | |
| 46 | | B20 | | | | | Brick repointing at chimneys | 300 | SF | $ 2,400.00 | $ 8,400.00 | | $ 36.00 | $ 10,800.00 | |
| | | B20 | | 04 01 40.51 Stone Maintenance | | | | | | | | | | $ - | |
| | | | | | | | **Misc. Stone Work** | | | | | | | $ - | |
| 47 | | B20 | | | | | Remortar bed joint of all coping stones at main roof | 1,670 | LF | $ 13,360.00 | $ 26,720.00 | | $ 24.00 | $ 40,080.00 | |
| 48 | | B20 | | | | | Remortar bed joint of all coping and window sill stones at all setback and corner roofs | 2,900 | LF | $ 23,200.00 | $ 46,400.00 | | $ 24.00 | $ 69,600.00 | |
| 49 | | B20 | | | | | Remortar bed joint of all coping and window sill stones at 9th floor window sills | 280 | LF | $ 2,240.00 | $ 4,480.00 | | $ 24.00 | $ 6,720.00 | |
| 50 | | B20 | | | | | New coping stone replacement | 24 | EA | $ 13,200.00 | $ 26,400.00 | | $ 1,650.00 | $ 39,600.00 | |
| 51 | | B20 | | | | | New stone window sill replacement | 2 | EA | $ 1,200.00 | $ 2,200.00 | | $ 1,700.00 | $ 3,400.00 | |
| 52 | | B20 | | | | | Stone cladding repairs | 18 | SF | $ 450.00 | $ 2,160.00 | | $ 145.00 | $ 2,610.00 | |
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| | | | | | | | **DIVISION 04 - MASONRY SUB TOTAL** | | | **$ 129,715.00** | **$ 308,865.00** | | | **$ 438,580.00** | |
| | | | **DIVISION 05 - METALS** | | | | | | | | | | | | |
| | | B10 | | 05 41 00 Structural Metal Stud Framing | | | | | | | | | | $ - | |
| | | | | | | | **Misc. Metal Stud Structural Work** | | | | | | | $ - | |
| 53 | | B10 | | | | | 4" structural metal stud framing for new roof stair enclosure | 390 | SF | $ 9,750.00 | $ 21,450.00 | | $ 80.00 | $ 31,200.00 | |
| | | B20 | | 05 50 00 Metal Fabrications | | | | | | | | | | $ - | |
| | | | | | | | **Misc. Metal Fabrications** | | | | | | | $ - | |
| | | | | | | | **Temporarily reinstall antennas - install only (by Owner's Vendor)** | 14 | EA | | | | $ - | $ - | |
| | | | | | | | **New vertical steel dunnage for permanent installations of 14 antennas as per design** | | | | | | | $ - | |
| 54 | | B20 | | | | | Angles and bracing (L2x2, L3x3, L3-1/2"x3-1/2") | 167 | LF | $ 2,004.00 | $ 29,225.00 | | $ 187.00 | $ 31,229.00 | |
| 55 | | B20 | | | | | Steel pipe 1-1/2" | 85 | LF | $ 1,275.00 | $ 9,775.00 | | $ 130.00 | $ 11,050.00 | |
| 56 | | B20 | | | | | Steel Post HSS 4x4x1/4 | 26 | LF | $ 650.00 | $ 4,500.00 | | $ 198.08 | $ 5,150.00 | |
| 57 | | B20 | | | | | Steel plate at concrete blocks PL 1'x1' | 10 | EA | $ 450.00 | $ 900.00 | | $ 135.00 | $ 1,350.00 | |
| 58 | | B20 | | | | | Incidental weld plate repair of corroded steel beam at underside of roof stair | 1 | EA | $ 100.00 | $ 800.00 | | $ 900.00 | $ 900.00 | |
| 59 | | B20 | | | | | 2" composite metal deck at stair enclosure | 100 | SF | $ 240.00 | $ 8,000.00 | | $ 82.40 | $ 8,240.00 | |
| 60 | | B20 | | | | | Metal wall guard 1' high | 140 | LF | $ 9,100.00 | $ 26,600.00 | | $ 255.00 | $ 35,700.00 | |
| | | B20 | | 05 52 00 Metal Railings | | | | | | | | | | $ - | |
| | | | | | | | **Roof Railings** | | | | | | | $ - | |
| 61 | | B20 | | | | | Install new kickback braces to reinforce 1,275 LF of existing guard railing | 233 | EA | $ 10,485.00 | $ 23,300.00 | | $ 145.00 | $ 33,785.00 | |
| 62 | | B20 | | | | | Install new railing along full south side of main roof w/24 kickback braces | 122 | LF | $ 14,640.00 | $ 34,800.00 | | $ 405.25 | $ 49,440.00 | |
| 63 | | B20 | | | | | 35" high metal handrail | 16 | LF | $ 1,600.00 | $ 4,240.00 | | $ 365.00 | $ 5,840.00 | |
| 64 | | B20 | | | | | New 42" high metal guardrail at new enclosure for exist. Roof stair | 7 | LF | $ 100.00 | $ 1,540.00 | | $ 234.29 | $ 1,640.00 | |
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| | | | | | | | **DIVISION 05 - METALS SUB TOTAL** | | | **$ 50,394.00** | **$ 165,130.00** | | | **$ 215,524.00** | |
| | | | **DIVISION 06 - WOOD, PLASTICS, COMPOSITES** | | | | | | | | | | | | |
| | | B10 | | 06 10 63 Exterior Rough Carpentry | | | | | | | | | | $ - | |
| | | | | | | | **Ext. Rough Carpentry** | | | | | | | $ - | |
| 65 | | B10 | | | | | Nailers at bulkhead roof | 280 | LF | $ 5,040.00 | $ 15,400.00 | | $ 73.00 | $ 20,440.00 | |
| 66 | | B10 | | | | | Nailers at Cooling Tower courtyard walls | 220 | LF | $ 4,400.00 | $ 12,100.00 | | $ 75.00 | $ 16,500.00 | |
| | | B10 | | 06 16 00 Sheathing | | | | | | | | | | $ - | |
| 67 | | B10 | | | | | Sheathing at new enclosure for roof stair | 486 | SF | $ 12,150.00 | $ 43,740.00 | | $ 115.00 | $ 55,890.00 | |
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| | | | | | | | **DIVISION 06 - WOOD, PLASTICS, COMPOSITES SUB TOTAL** | | | **$ 21,590.00** | **$ 71,240.00** | | | **$ 92,830.00** | |
| | | | **DIVISION 07 - THERMAL AND MOISTURE PROTECTION** | | | | | | | | | | | | |
| | | B30 | | 07 18 13 Pedestrian Traffic Coatings | | | | | | | | | | $ - | |
| | | | | | | | **Pedestrian Traffic** | | | | | | | $ - | |
| 68 | | B30 | | | | | Pedestrian traffic coating at roof concrete stairs | 65 | SF | $ 975.00 | $ 5,525.00 | | $ 100.00 | $ 6,500.00 | |
| | | A20 | | 07 21 16 Blanket Insulation | | | | | | | | | | $ - | |

**FMS/Project ID:** CO294RF
**Project Name:** Bronx Family & Criminal Courthouse Roof Upgrade
**Contractor:**

| No. | Sub Work (*) | UniFormat Code | CSI Division: | CSI Sub Division: | RSMeans 12-digit item code: | Vendor Quote (Yes/ No): | Description: | Qty | Unit: | Total Cost of Material $ | Total Cost of Labor $ | Total Cost of Equipment $ | Unit Cost | Total Cost of Material, Labor & Eqp.$ | COMMENTS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | A | | B | C | D | E / A | E = B+C+D | |
| 69 | | A20 | | | | | R-21 Batt Insulation at new enclosure for roof stair | 486 | SF | $ 4,374.00 | $ 5,832.00 | | $ 21.00 | $ 10,206.00 | |
| | | B31 | | 07 56 00 Fluid-Applied Roofing | | | | | | | | | | $ - | |
| | | | | | | | **Liquid Roofing/waterproofing** | | | | | | | $ - | |
| 70 | | B31 | | | | | Type A: New liquid applied roofing w/base flashings at main roof | 41,500 | SF | $ 747,000.00 | $ 2,490,000.00 | | $ 78.00 | $ 3,237,000.00 | |
| 71 | | B31 | | | | | Type B: New liquid applied roofing w/pedestal pavers at cooling tower courtyard | 1,800 | SF | $ 81,000.00 | $ 153,000.00 | | $ 130.00 | $ 234,000.00 | |
| 72 | | B31 | | | | | Type C: New liquid applied roofing, uninsulated | 150 | SF | $ 3,750.00 | $ 8,250.00 | | $ 80.00 | $ 12,000.00 | |
| 73 | | B31 | | | | | New liquid applied waterproofing/ roofing at inner side of all main roof parapet walls | 1,300 | SF | $ 23,400.00 | $ 71,500.00 | | $ 73.00 | $ 94,900.00 | |
| 74 | | B31 | | | | | Vacuum sealed insulation panels and polyiso rigid insulation boards | 41,500 | SF | $ 1,079,000.00 | $ 622,500.00 | | $ 41.00 | $ 1,701,500.00 | |
| 75 | | B31 | | | | | Tapered polyiso rigid insulation boards at cooling tower courtyard | 1,800 | SF | $ 18,000.00 | $ 32,400.00 | | $ 28.00 | $ 50,400.00 | |
| 76 | | B31 | | | | | Reinforced liquid flashing at dunnage supporting posts | 20 | EA | $ 2,000.00 | $ 6,000.00 | | $ 400.00 | $ 8,000.00 | |
| 77 | | B31 | | | | | Reinforced liquid flashing at pipe/roof penetrations | 18 | EA | $ 1,800.00 | $ 5,400.00 | | $ 400.00 | $ 7,200.00 | |
| 78 | | B31 | | | | | Reinforced liquid flashing at boxed pipes/conduits flashed into roofing system | 5 | EA | $ 250.00 | $ 750.00 | | $ 200.00 | $ 1,000.00 | |
| 79 | | B31 | | | | | Reinforced liquid applied waterproofing at 3 metal wells | 1,950 | SF | $ 35,100.00 | $ 48,750.00 | | $ 43.00 | $ 83,850.00 | |
| 80 | | B31 | | | | | 30" wide aggregate sand finish walking surface at roof | 825 | SF | $ 4,950.00 | $ 9,900.00 | | $ 18.00 | $ 14,850.00 | |
| | | B30 | | 07 62 00 Sheet Metal Flashing and Trim | | | | | | | | | | $ - | |
| | | | | | | | **Sheet Metal Flashing and Trim/Gutter** | | | | | | | $ - | |
| 81 | | B30 | | | | | Metal cut-in drip edge at main roof copings | 580 | LF | $ 17,400.00 | $ 26,100.00 | | $ 75.00 | $ 43,500.00 | |
| 82 | | B30 | | | | | New metal coping along Elevator bulkhead parapet walls and along cooling tower courtyard parapet walls. | 240 | SF | $ 8,400.00 | $ 19,200.00 | | $ 115.00 | $ 27,600.00 | |
| 83 | | B30 | | | | | Metal flashing to close gap at perimeter of metal wells | 200 | LF | $ 5,000.00 | $ 10,000.00 | | $ 75.00 | $ 15,000.00 | |
| 84 | | B30 | | | | | New 4-foot metal cover at existing expansion joints at main roof parapet walls | 20 | EA | $ 1,300.00 | $ 4,000.00 | | $ 265.00 | $ 5,300.00 | |
| 85 | | B30 | | | | | New metal kick plate along new, raised base flashing at cooling tower courtyard | 180 | LF | $ 8,100.00 | $ 10,800.00 | | $ 105.00 | $ 18,900.00 | |
| 86 | | B30 | | | | | New raised cut-in metal counter flashings at cooling tower courtyard | 180 | LF | $ 6,300.00 | $ 9,000.00 | | $ 85.00 | $ 15,300.00 | |
| 87 | | B30 | | | | | Low parapet flashing at main roof | 1,375 | LF | $ 48,125.00 | $ 68,750.00 | | $ 85.00 | $ 116,875.00 | |
| 88 | | B30 | | | | | Stone face base flashing | 1,900 | LF | $ 66,500.00 | $ 95,000.00 | | $ 85.00 | $ 161,500.00 | |
| 89 | | B30 | | | | | Gutter with leader and splash block at new roof stair enclosure | 54 | LF | $ 1,620.00 | $ 4,320.00 | | $ 110.00 | $ 5,940.00 | |
| | | B30 | | 07 64 13 Standing Seam Sheet Metal Wall Cladding | | | | | | | | | | $ - | |
| | | | | | | | **Standing Seam Metal Wall Cladding** | | | | | | | $ - | |
| 90 | | B30 | | | | | Standing seam metal cladding w/coping at 2 chimneys | 290 | SF | $ 10,150.00 | $ 31,900.00 | | $ 145.00 | $ 42,050.00 | |
| 91 | | B30 | | | | | Standing seam metal cladding w/coping at penthouse and parapet at courthouse and stairs | 1,575 | SF | $ 55,125.00 | $ 157,500.00 | | $ 135.00 | $ 212,625.00 | |
| 92 | | B30 | | | | | Standing seam wall panels at metal enclosure at roof stairway | 300 | SF | $ 10,500.00 | $ 30,000.00 | | $ 135.00 | $ 40,500.00 | |
| | | B30 | | 07 72 00 Roof Accessories | | | | | | | | | | $ - | |
| | | | | | | | **Roof Accessories** | | | | | | | $ - | |
| 93 | | B30 | | | | | Roof cross-over stair | 1 | EA | $ 4,500.00 | $ 3,000.00 | | $ 7,500.00 | $ 7,500.00 | |
| | | B30 | | 07 72 46 Roof Walkways | | | | | | | | | | $ - | |
| 94 | | B30 | | | | | Metal walkway outside new enclosure of roof stair | 30 | SF | $ 4,800.00 | $ 2,600.00 | | $ 246.67 | $ 7,400.00 | |
| | | B30 | | 07 76 16 Roof Decking Pavers | | | | | | | | | | $ - | |
| | | | | | | | **Roof Pavers** | | | | | | | $ - | |
| 95 | | B30 | | | | | New concrete pedestal pavers at courtyard | 1,700 | SF | $ 20,400.00 | $ 37,400.00 | | $ 34.00 | $ 57,800.00 | |
| | | C10 | | 07 84 13 Penetration Firestopping | | | | | | | | | | $ - | |
| 96 | | C10 | | | | | Wall openings, Cut, Patch, Sleeves & Fire Seal the openings | 2 | LOC | $ 200.00 | $ 800.00 | | $ 500.00 | $ 1,000.00 | |
| | | B20 | | 07 92 00 Joint Sealants | | | | | | | | | | $ - | |
| 97 | | B20 | | | | | Scrape and removing caulking and install new caulking at ventilation well | 170 | LF | $ 1,190.00 | $ 3,060.00 | | $ 25.00 | $ 4,250.00 | |
| 98 | | B20 | | | | | Re-sealing joints at parapet coping and window sills | 970 | LF | $ 5,820.00 | $ 17,460.00 | | $ 24.00 | $ 23,280.00 | |
| 99 | | B20 | | | | | Re-sealing expansion joints at main roof parapet walls | 80 | LF | $ 480.00 | $ 1,440.00 | | $ 24.00 | $ 1,920.00 | |
| 100 | | B20 | | | | | Re-sealing perimeter joints at windows & vent louvers at 10th floor vent louvers | 720 | LF | $ 4,320.00 | $ 12,960.00 | | $ 24.00 | $ 17,280.00 | |
| 101 | | B20 | | | | | Re-sealing perimeter joints at windows & vent louvers at 9th floor set back roofs | 810 | LF | $ 4,860.00 | $ 14,580.00 | | $ 24.00 | $ 19,440.00 | |
| 102 | | B20 | | | | | Re-sealing perimeter joints at windows & vent louvers at 8th floor set back roofs | 970 | LF | $ 5,820.00 | $ 17,460.00 | | $ 24.00 | $ 23,280.00 | |
| 103 | | B20 | | | | | Re-sealing joints of stone cladding at rising walls on setback roofs | 26,650 | SF | $ 106,600.00 | $ 533,000.00 | | $ 24.00 | $ 639,600.00 | |
| 104 | | B20 | | | | | R7-Furnish and install new copper scupper drains or new roof scupper drains with liquid applied flashing | 2 | EA | $ 300.00 | $ 900.00 | | $ 600.00 | $ 1,200.00 | |
| | | | | | | | | | | | | | | $ - | |
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| | | | | | | | **DIVISION 07 - THERMAL AND MOISTURE PROTECTION SUB TOTAL** | | | **$ 2,399,409.00** | **$ 4,571,037.00** | | | **$ 6,970,446.00** | |
| | | | **DIVISION 08 - OPENINGS** | | | | | | | | | | | | |
| | | C10 | | 08 13 13.13 Standard Hollow Metal Doors | | | | | | | | | | $ - | |
| 105 | | C10 | | | | | Standard hollow exterior metal door 36"x84" at new roof stair enclosure with alum saddle | 1 | EA | $ 4,500.00 | $ 3,800.00 | | $ 8,300.00 | $ 8,300.00 | |
| | | C10 | | 08 31 00 Access Doors and Panels | | | | | | | | | | $ - | |
| 106 | | C10 | | | | | Ceiling ccess doors for MEP, 18"x18" | 10 | EA | $ 5,000.00 | $ 8,000.00 | | $ 1,300.00 | $ 13,000.00 | |
| | | B20 | | 08 71 00 Door Hardware | | | | | | | | | | $ - | |
| 107 | | B20 | | | | | Door hardware, single door exterior | 1 | EA | $ 3,200.00 | $ 2,200.00 | | $ 5,400.00 | $ 5,400.00 | |
| | | B20 | | 08 91 00 Louvers | | | | | | | | | | $ - | |
| 108 | | B20 | | | | | Exhaust louver, fixed, 6-inch depth 3'-6"x10' | 2 | EA | $ 16,000.00 | $ 16,000.00 | | $ 16,000.00 | $ 32,000.00 | |
| | | | | | | | | | | | | | | $ - | |
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| | | | | | | | **DIVISION 08 - OPENINGS SUB TOTAL** | | | **$ 28,700.00** | **$ 30,000.00** | | | **$ 58,700.00** | |
| | | | **DIVISION 09 - FINISHES** | | | | | | | | | | | | |
| | | B20 | | 09 01 90 Maintenance of Painting and Coating | | | | | | | | | | $ - | |
| | | | | | | | **Re-paint Misc. Ext. Metal Components** | | | | | | | $ - | |
| 109 | | B20 | | | | | Repaint all metal components at main roof | 2,400 | SF | $ 14,400.00 | $ 21,600.00 | | $ 15.00 | $ 36,000.00 | |
| 110 | | B20 | | | | | Repaint miscellaneous pipes and/or conduits | 120 | SF | $ 720.00 | $ 1,440.00 | | $ 18.00 | $ 2,160.00 | |
| 111 | | B20 | | | | | Repaint Ventilation grates at main roof | 380 | SF | $ 3,040.00 | $ 3,420.00 | | $ 17.00 | $ 6,460.00 | |
| 112 | | B20 | | | | | Repaint railings, catwalks, ladders at cooling tower courtyard | 1,200 | SF | $ 7,200.00 | $ 9,600.00 | | $ 14.00 | $ 16,800.00 | |
| 113 | | B20 | | | | | Repaint "I" steel beams above cooling tower | 740 | SF | $ 4,440.00 | $ 8,880.00 | | $ 18.00 | $ 13,320.00 | |

**FMS/Project ID:** CO294RF
**Project Name:** Bronx Family & Criminal Courthouse Roof Upgrade
**Contractor:**

| No. | Sub Work (*) | UniFormat Code | CSI Division: | CSI Sub Division: | RSMeans 12-digit item code: | Vendor Quote (Yes/ No): | Description: | Qty | Unit: | Total Cost of Material $ | Total Cost of Labor $ | Total Cost of Equipment $ | Unit Cost | Total Cost of Material, Labor & Eqp.$ | COMMENTS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | A | | B | C | D | E / A | E = B+C+D | |
| 114 | | B20 | | | | | Repaint 15 doors/gates w/frames at all setback roofs | 590 | SF | $ 2,360.00 | $ 5,025.00 | | $ 12.52 | $ 7,385.00 | |
| | | A20 | | 09 21 16 Gypsum Board Assemblies | | | | | | | | | | $ - | |
| | | | | | | | **Gypsum Work** | | | | | | | $ - | |
| 115 | | A20 | | | | | 2-hr, 5/8" type X gypsum board exterior wall at roof stair enclosure | 490 | SF | $ 7,350.00 | $ 31,850.00 | | $ 80.00 | $ 39,200.00 | |
| | | C20 | | 09 91 23 Interior Painting | | | | | | | | | | $ - | |
| | | | | | | | **Interior Paint** | | | | | | | $ - | |
| 116 | | C20 | | | | | Interior wall and ceiling paint at roof stair enclosure | 490 | SF | $ 2,450.00 | $ 2,940.00 | | $ 11.00 | $ 5,390.00 | |
| | | C10 | | 09 53 00 Acoustical Ceiling Suspension Assemblies | | | | | | | | | | $ - | |
| | | | | | | | Tile for existing suspended ceiling | 5,850 | SF | | | | $ - | $ - | |
| | | | | | | | Grid for existing suspend ceiling | 2,700 | SF | | | | $ - | $ - | |
| | | C20 | | 09 96 53 Elastomeric Coatings | | | | | | | | | | $ - | |
| 117 | | C20 | | | | | Recoat underside of slabs (elastomeric coating) | 29,000 | SF | $ 116,000.00 | $ 232,000.00 | | $ 12.00 | $ 348,000.00 | |
| 118 | | C20 | | | | | New reinforced stucco at rising N+W walls of cooling tower courtyard | 1,600 | SF | $ 56,000.00 | $ 176,000.00 | | $ 145.00 | $ 232,000.00 | |
| 119 | | C20 | | | | | Protective coating at rising CMU walls at cooling tower courtyard | 4,900 | SF | $ 39,200.00 | $ 53,900.00 | | $ 19.00 | $ 93,100.00 | |
| 120 | | C20 | | | | | Apply elastomeric coating to underside ceiling of roof stair No. 5 | 200 | SF | $ 800.00 | $ 1,600.00 | | $ 12.00 | $ 2,400.00 | |
| 121 | | C20 | | | | | Apply elastomeric coating to CMU walls of Roof Stair No. 5 well | 780 | SF | $ 3,120.00 | $ 6,240.00 | | $ 12.00 | $ 9,360.00 | |
| | | | | | | | | | | | | | | $ - | |
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| | | | | | | | **DIVISION 09 - FINISHES SUB TOTAL** | | | **$ 257,080.00** | **$ 554,495.00** | | | **$ 811,575.00** | |
| | | | **DIVISION 22 - PLUMBING** | | | | | | | | | | | | |
| | | D20 | | 22 00 00 Plumbing | | | | | | | | | | $ - | |
| 122 | | D20 | | | | | Video inspection of all roof drains at all roof levels prior to any plumbing work | 84 | LOC | $ 2,000.00 | $ 14,000.00 | | $ 190.48 | $ 16,000.00 | |
| 123 | | D20 | | | | | Shop drawings, As-Built Drawings and submittals | 1 | SET | $ 1,500.00 | $ 16,000.00 | | $ 17,500.00 | $ 17,500.00 | |
| | | D20 | | 22 05 05 Selective Demolition for Plumbing | | | | | | | | | | $ - | |
| 124 | | D20 | | | | | Remove existing roof drain grate and cover to be retrofitted | 168 | EA | $ 2,000.00 | $ 15,500.00 | | $ 104.17 | $ 17,500.00 | |
| 125 | | D20 | | | | | Temporary roof drain cap | 84 | EA | $ 500.00 | $ 3,000.00 | | $ 41.67 | $ 3,500.00 | |
| 126 | | D20 | | | | | Remove existing 4" pipe and fittings | 840 | LF | $ 2,000.00 | $ 19,000.00 | | $ 25.00 | $ 21,000.00 | |
| 127 | | D20 | | | | | Carting and disposal for plumbing | 84 | LOC | $ 4,000.00 | $ 8,000.00 | | $ 142.86 | $ 12,000.00 | |
| | | D20 | | 22 05 29 Hangers and Supports for Plumbing Piping and Equipment | | | | | | | | | | $ - | |
| 128 | | D20 | | | | | Support leader as required | 84 | EA | $ 2,500.00 | $ 8,000.00 | | $ 125.00 | $ 10,500.00 | |
| | | D20 | | 22 05 17 Sleeves and Sleeve Seals for Plumbing Piping | | | | | | | | | | $ - | |
| 129 | | D20 | | | | | Sleeves & Fire Seal around existing opening | 84 | LOC | $ 8,000.00 | $ 18,000.00 | | $ 309.52 | $ 26,000.00 | |
| | | D20 | | 22 05 53 Identification for Plumbing Piping and Equipment | | | | | | | | | | $ - | |
| 130 | | D20 | | | | | Tagging and identification | 84 | LOC | $ 1,000.00 | $ 2,500.00 | | $ 41.67 | $ 3,500.00 | |
| | | D20 | | 22 07 19 Plumbing Piping Insulation | | | | | | | | | | $ - | |
| 131 | | D20 | | | | | 1-1/2" thick insulation for the new 4" pipe | 840 | LF | $ 11,000.00 | $ 32,000.00 | | $ 51.19 | $ 43,000.00 | |
| | | D20 | | 22 14 13 Facility Storm Drainage Piping | | | | | | | | | | $ - | |
| | | | | | | | **Piping, Fittings & Specialties** | | | | | | | $ - | |
| 132 | | D20 | | | | | 4" ST DI pipe, fittings, hangers, etc. | 840 | LF | $ 28,000.00 | $ 32,000.00 | | $ 71.43 | $ 60,000.00 | |
| 133 | | D20 | | | | | Connect new storm pipe to new retrofit drain stem below roof and connect to existing storm | 168 | LOC | $ 2,000.00 | $ 14,000.00 | | $ 95.24 | $ 16,000.00 | |
| | | D20 | | 22 14 23 Storm Drainage Piping Specialties | | | | | | | | | | $ - | |
| 134 | | D20 | | | | | 4" CO CI | 84 | LOC | $ 18,500.00 | $ 21,000.00 | | $ 470.24 | $ 39,500.00 | |
| | | D20 | | 22 14 26 Facility Storm Drains | | | | | | | | | | $ - | |
| | | | | | | | **Roof Drains** | | | | | | | $ - | |
| 135 | | D20 | | | | | Roof Drain - Leaving roof drains in place and install new retrofit (SS) with cast iron dome and clamping ring. Fully ins | 84 | EA | $ 41,000.00 | $ 29,000.00 | | $ 833.33 | $ 70,000.00 | |
| 136 | | D20 | | | | | Clean out existing drain pipe | 84 | EA | $ 4,000.00 | $ 8,000.00 | | $ 142.86 | $ 12,000.00 | |
| 137 | | D20 | | | | | Replacement of roof drain and piping at the concrete composite slab includes all removals, a new drain with 4 LF of v | 23 | SET | $ 46,000.00 | $ 55,000.00 | | $ 4,391.30 | $ 101,000.00 | |
| 138 | | D20 | | | | | Replacement of roof drain only (at concrete or composite slab) includes: removal of existing roof drain body and setti | 18 | SET | $ 28,000.00 | $ 31,000.00 | | $ 3,277.78 | $ 59,000.00 | |
| | | | | | | | Replacement of piping only (at concrete and composite slab) includes: New roof drain 3" diameter piping with insulat | 450 | LF | | | | $ - | $ - | Piping replacement already included in Piping, Fittings, Specialties |
| | | | | | | | Replacement of piping only (at concrete and composite slab) includes: New roof drain 4" diameter piping with insulat | 450 | LF | | | | $ - | $ - | |
| | | | | | | | | | | | | | | $ - | |
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| | | | | | | | **DIVISION 22 - PLUMBING SUB TOTAL** | | | **$ 202,000.00** | **$ 326,000.00** | | | **$ 528,000.00** | |
| | | | **DIVISION 23 - HEATING, VENTILATING, AND AIR CONDITIONING (HVAC)** | | | | | | | | | | | | |
| | | D30 | | 23 00 00 Heating, Ventilating, and Air Conditioning (HVAC) | | | | | | | | | | $ - | |
| 139 | | D30 | | | | | **Shop drawings, As-Built Drawings and submittals** | 1 | SET | $ 1,000.00 | $ 20,000.00 | $ - | $ 21,000.00 | $ 21,000.00 | |
| | | D30 | | 23 05 00 Common Work Results for HVAC | | | | | | | | | | $ - | |
| | | | | | | | **Misc. HVAC Work** | | | | | | | $ - | |
| 140 | | D30 | | | | | Mobilization | 2 | LOC | $ 20,000.00 | $ 20,000.00 | $ - | $ 20,000.00 | $ 40,000.00 | |
| | | | | | | | Miscellaneous HVAC works-Allowance | 2 | EA | $ - | $ - | $ - | $ - | $ - | |
| 141 | | D30 | | | | | Tagging & Identification | 2 | EA | $ 2,000.00 | $ 2,000.00 | $ - | $ 2,000.00 | $ 4,000.00 | |
| | | | | | | | Hoisting/Rigging condensing units | 1 | DAY | $ - | $ - | $ - | $ - | $ - | Included in GC |
| | | | | | | | Seismic Restraints | 2 | EA | $ - | $ - | $ - | $ - | $ - | Not required as per project documents |
| 142 | | D30 | | | | | Vibration Isolators | 2 | EA | $ 10,000.00 | $ 10,000.00 | $ - | $ 10,000.00 | $ 20,000.00 | |
| 143 | | D30 | | | | | Refrigerant charging | 2 | EA | $ 30,000.00 | $ 10,000.00 | $ - | $ 20,000.00 | $ 40,000.00 | |
| | | D30 | | 23 05 05 Selective Demolition for Heating, Ventilating, and Air Conditioning (HVAC) | | | | | | | | | | $ - | |
| 144 | | D30 | | | | | Disconnect and remove RTU-1 and associated condensate piping and appurtenances. Disconnect and protect exist | 2 | EA | $ 1,000.00 | $ 20,000.00 | $ - | $ 10,500.00 | $ 21,000.00 | Removal not included. Demo scope limited to cut & cap only |
| 145 | | D30 | | | | | Disconnect and remove supply and return ductwork up to the point of penetration through exterior wall (24 x 36, size | 199 | LBS | $ - | $ 10,000.00 | $ - | $ 50.20 | $ 10,000.00 | Removal not included. Demo scope limited to cut & cap only |

**FMS/Project ID:** CO294RF
**Project Name:** Bronx Family & Criminal Courthouse Roof Upgrade
**Contractor:**

| No. | Sub Work (*) | UniFormat Code | CSI Division: | CSI Sub Division: | RSMeans 12-digit item code: | Vendor Quote (Yes/ No): | Description: | Qty | Unit: | Total Cost of Material $ | Total Cost of Labor $ | Total Cost of Equipment $ | Unit Cost | Total Cost of Material, Labor & Eqp.$ | COMMENTS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | A | | B | C | D | E / A | E = B+C+D | |
| 146 | | D30 | | | | | Temporary cap @ RTU-1 ductwork | 2 | EA | $ - | $ 2,000.00 | $ - | $ 1,000.00 | $ 2,000.00 | |
| 147 | | D30 | | | | | Disconnect and remove existing supply / return duct & insulation to be cut back to elbow below - 68 x 18 (assumed 8' | 438 | LBS | $ - | $ 3,000.00 | $ - | $ 6.85 | $ 3,000.00 | Removal not included. Demo scope limited to cut & cap only |
| 148 | | D30 | | | | | Temporary cap @ RTU-2 ductwork | 2 | EA | $ - | $ 3,000.00 | $ - | $ 1,500.00 | $ 3,000.00 | |
| 149 | | D30 | | | | | Disconnect and remove motorized damper (68 x 18), including actuator and wiring | 1 | EA | $ - | $ 4,000.00 | $ - | $ 4,000.00 | $ 4,000.00 | |
| 150 | | D30 | | | | | Remove existing WMS - 68 x 18 | 1 | EA | $ - | $ 2,000.00 | $ - | $ 2,000.00 | $ 2,000.00 | |
| 151 | | D30 | | | | | Disconnect existing thermostat (to be reconnected to a new RTU's) | 2 | EA | $ - | $ 5,000.00 | $ - | $ 2,500.00 | $ 5,000.00 | |
| 152 | | D30 | | | | | Carting and disposal for HVAC | 2 | EA | $ - | $ 30,000.00 | $ - | $ 15,000.00 | $ 30,000.00 | Only Cut & cap and Refrigerant recovery included. Disposal by GC |
| | | D30 | | 23 05 13 Common Motor Requirements for HVAC Equipment | | | | | | | | | | $ - | |
| 153 | | D30 | | | | | 3/4" Galvanized, Sch 40, Condensate Drain Pipe, fittings, Hangers. Discharge into roof drain. | 35 | LF | $ 4,000.00 | $ 10,000.00 | $ - | $ 400.00 | $ 14,000.00 | |
| 154 | | D30 | | | | | 2" thick closed foam insulation and PVC jacketing | 35 | LF | $ 4,000.00 | $ 4,000.00 | $ - | $ 228.57 | $ 8,000.00 | |
| 155 | | D30 | | | | | 3/4" P-Trap | 2 | EA | $ 4,000.00 | $ 10,000.00 | $ - | $ 7,000.00 | $ 14,000.00 | |
| | | | | | | | Refrigerant piping connection | 2 | EA | $ - | $ - | $ - | $ - | $ - | Packaged Units - no refrigerant piping required |
| | | D30 | | 23 05 29 Hangers and Supports for HVAC Piping and Equipment | | | | | | | | | | | |
| 156 | | D30 | | | | | 12" tall equipment roof curbs - 72 x 60 | 1 | EA | $ 20,000.00 | $ 5,000.00 | $ - | $ 25,000.00 | $ 25,000.00 | |
| 157 | | D30 | | | | | 12" tall equipment roof curbs - 96 x 62 | 1 | EA | $ 20,000.00 | $ 5,000.00 | $ - | $ 25,000.00 | $ 25,000.00 | |
| 158 | | D30 | | | | | Roof pad pipe support block | 5 | EA | $ 10,000.00 | $ 5,000.00 | $ - | $ 3,000.00 | $ 15,000.00 | |
| | | D30 | | 23 05 93 Testing, Adjusting, and Balancing for HVAC | | | | | | | | | | $ - | |
| 159 | | D30 | | | | | Air & Water Balancing | 2 | EA | $ 1,000.00 | $ 8,000.00 | $ - | $ 4,500.00 | $ 9,000.00 | |
| | | D30 | | 23 07 13 Duct Insulation | | | | | | | | | | $ - | |
| 160 | | D30 | | | | | Interior sound lining Insulation @ RTU 1 & RTU-2 | 236 | SF | $ 6,000.00 | $ 4,000.00 | $ - | $ 42.37 | $ 10,000.00 | |
| 161 | | D30 | | | | | Interior sound lining Insulation @ RTU-1 & RTU-2 transitions | 208 | SF | $ 6,000.00 | $ 4,000.00 | $ - | $ 48.16 | $ 10,000.00 | |
| 162 | | D30 | | | | | Exterior ductwork insulation with weather proof jacket (all sides) | 199 | SF | $ 5,000.00 | $ 5,000.00 | $ - | $ 50.17 | $ 10,000.00 | |
| | | D30 | | 23 09 00 Instrumentation and Control for HVAC | | | | | | | | | | $ - | |
| | | | | | | | Electromechanical econo controller enthalpy ultra low leak econo w/baro relief. | 2 | EA | $ - | $ - | $ - | $ - | $ - | |
| 163 | | D30 | | | | | Control Points | 12 | EA | $ - | $ 29,000.00 | $ - | $ 2,416.67 | $ 29,000.00 | |
| 164 | | D30 | | | | | Re-Connect thermostat wring to new RTU- 01 & 02 | 2 | EA | $ 6,000.00 | $ 29,000.00 | $ - | $ 17,500.00 | $ 35,000.00 | |
| 165 | | D30 | | | | | Re-connect new damper to existing control wiring | 1 | EA | $ 3,000.00 | $ 5,000.00 | $ - | $ 8,000.00 | $ 8,000.00 | |
| | | D30 | | 23 09 93.11 Sequence of Operation for HVAC DDC | | | | | | | | | | $ - | |
| 166 | | D30 | | | | | Programming, Graphic Update & Tie in | 2 | EA | $ - | $ 25,000.00 | $ - | $ 12,500.00 | $ 25,000.00 | |
| | | D30 | | 23 31 13 Metal Ducts | | | | | | | | | | $ - | |
| | | | | | | | **Galvanized Duct & Accessories** | | | | | | | $ - | |
| 167 | | D30 | | | | | GI Duct @ RTU-2 | 354 | LB | $ 6,000.00 | $ 10,000.00 | $ - | $ 45.20 | $ 16,000.00 | |
| 168 | | D30 | | | | | GI Duct @ RTU-1 & RTU-2 transitions | 297 | LB | $ 6,000.00 | $ 10,000.00 | $ - | $ 53.95 | $ 16,000.00 | |
| 169 | | D30 | | | | | Roof mounted ductwork support: (2) angle iron 2" x 2" x 3/16" up to 36"long duct, (2) 2" diam. pipe support legs, bas | 3 | EA | $ 4,000.00 | $ 3,000.00 | $ - | $ 2,333.33 | $ 7,000.00 | |
| 170 | | D30 | | | | | Connection supply / Return duct to existing (24 x 36) @ RTU-1 | 2 | EA | $ 1,000.00 | $ 2,000.00 | $ - | $ 1,500.00 | $ 3,000.00 | |
| 171 | | D30 | | | | | Connection supply / return duct to existing (30 x 18 / 46 x12) @ RT-2 | 2 | EA | $ 1,000.00 | $ 2,000.00 | $ - | $ 1,500.00 | $ 3,000.00 | |
| 172 | | D30 | | | | | MD - 34 x 26, including actuator | 1 | EA | $ 6,000.00 | $ 7,000.00 | $ - | $ 13,000.00 | $ 13,000.00 | |
| | | D30 | | 23 74 00 Packaged Outdoor HVAC Equipment | | | | | | | | | | $ - | |
| 173 | | D30 | | | | | RTU-1, 4,000 cfm, single package air cooled RTU. | 1 | EA | $ 15,000.00 | $ 25,000.00 | $ 45,000.00 | $ 85,000.00 | $ 85,000.00 | |
| 174 | | D30 | | | | | RTU-2, 6,000 cfm, single package air cooled RTU. | 1 | EA | $ 15,000.00 | $ 25,000.00 | $ 45,000.00 | $ 85,000.00 | $ 85,000.00 | |
| | | | | | | | | | | | | | | $ - | |
| | | | copy above cell and insert copied cell above the row | | | | | | | | | | | | |
| | | | | | | | **DIVISION 23 - HEATING, VENTILATING, AND AIR CONDITIONING (HVAC) SUB TOTAL** | | | **$ 207,000.00** | **$ 373,000.00** | **$ 90,000.00** | | **$ 670,000.00** |
| | | | **DIVISION 26 - ELECTRICAL** | | | | | | | | | | | | |
| | | D50 | | 26 00 00 Electrical | | | | | | | | | | $ - | |
| | | | | | | | Remove - GFI - Duplex Receptacle | 4 | EA | | | | $ - | $ - | |
| | | | | | | | Remove - Junction Box | 5 | EA | | | | $ - | $ - | |
| | | | | | | | Remove - Disconnect Switch 60A | 1 | EA | | | | $ - | $ - | |
| | | | | | | | Remove - Disconnect Switch 30A | 1 | EA | | | | $ - | $ - | |
| | | | | | | | Remove - Motor Starter | 2 | EA | | | | $ - | $ - | |
| | | | | | | | Remove - 3/4" RGS | 120 | LF | | | | $ - | $ - | |
| | | | | | | | Remove - 1 1/4" RGS | 40 | LF | | | | $ - | $ - | |
| | | | | | | | Remove - #10 | 360 | LF | | | | $ - | $ - | |
| | | | | | | | Remove - #6 | 40 | LF | | | | $ - | $ - | |
| | | | | | | | Remove - #4 | 120 | LF | | | | $ - | $ - | |
| | | | | | | | **RTU - 1 Connection** | | | | | | | $ - | |
| | | | | | | | Remove existing feeders - Protect | 1 | EA | | | | $ - | $ - | |
| | | | | | | | **RTU - 2 Connection** | | | | | | | $ - | |
| | | | | | | | Remove existing feeders - Protect | 1 | EA | | | | $ - | $ - | |
| | | | | | | | Wall Mounted Disconnect Switch - Remove - Protect | 2 | EA | | | | $ - | $ - | |
| | | | | | | | Existing Light - Remove - Protect | 1 | EA | | | | $ - | $ - | |
| | | | | | | | **Misc Conditions** | | | | | | | $ - | |
| | | | | | | | Terminations at the Panel, Label Ckts. | 20 | EA | | | | $ - | $ - | |
| | | | | | | | CCTV - Remount - same location | 1 | EA | | | | $ - | $ - | |
| | | D50 | | 26 05 19 Low-Voltage Electrical Power Conductors and Cables | | | | | | | | | | $ - | |
| | | | | | | | **Bypass Connections, Conduits and Feeders** | | | | | | | $ - | |
| | | | | | | | #10 | 3,000 | LF | | | | $ - | $ - | |
| | | | | | | | #4/0 | 5,600 | LF | | | | $ - | $ - | |
| | | | | | | | #6 | 1,400 | LF | | | | $ - | $ - | |
| | | | | | | | **Wiring Devices** | | | | | | | $ - | |

**FMS/Project ID:** CO294RF
**Project Name:** Bronx Family & Criminal Courthouse Roof Upgrade
**Contractor:**

| No. | Sub Work (*) | UniFormat Code | CSI Division: | CSI Sub Division: | RSMeans 12-digit item code: | Vendor Quote (Yes/ No): | Description: | Qty | Unit: | Total Cost of Material $ | Total Cost of Labor $ | Total Cost of Equipment $ | Unit Cost | Total Cost of Material, Labor & Eqp.$ | COMMENTS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | A | | B | C | D | E / A | E = B+C+D | |
| | | | | | | | #10 | 300 | LF | | | | $ - | $ - | |
| | | | | | | | #12G | 150 | LF | | | | $ - | $ - | |
| | | | | | | | **Lighting** | | | | | | | $ - | |
| | | | | | | | #12 | 1,350 | LF | | | | $ - | $ - | |
| | | | | | | | **RTU - 1 Connection** | | | | | | | $ - | |
| | | | | | | | #8 | 60 | LF | | | | $ - | $ - | |
| | | | | | | | #12G | 20 | LF | | | | $ - | $ - | |
| | | | | | | | **RTU - 2 Connection** | | | | | | | $ - | |
| | | | | | | | #8 | 60 | LF | | | | $ - | $ - | |
| | | | | | | | #12G | 20 | LF | | | | $ - | $ - | |
| | | | | | | | **Disconnect Switches, Motor Starter Connections** | | | | | | | $ - | |
| | | | | | | | #4 | 120 | LF | | | | $ - | $ - | |
| | | | | | | | #6 | 40 | LF | | | | $ - | $ - | |
| | | D50 | | 26 05 26 Grounding and Bonding for Electrical Systems | | | | | | | | | | $ - | |
| | | | | | | | Grounding of the misc. system | 1 | EA | | | | $ - | $ - | |
| | | D50 | | 26 05 33 Raceway and Boxes for Electrical Systems | | | | | | | | | | $ - | |
| | | | | | | | **Bypass Connections, Conduits and Feeders** | | | | | | | $ - | |
| | | | | | | | 3/4" RGS | 750 | LF | | | | $ - | $ - | |
| | | | | | | | 2 1/2" RGS | 1,400 | LF | | | | $ - | $ - | |
| | | | | | | | **Wiring Devices** | | | | | | | $ - | |
| | | | | | | | 3/4" RGS | 150 | LF | | | | $ - | $ - | |
| | | | | | | | **Lighting** | | | | | | | $ - | |
| | | | | | | | 3/4" RGS | 450 | LF | | | | $ - | $ - | |
| | | | | | | | **RTU - 1 Connection** | | | | | | | $ - | |
| | | | | | | | 1" RGS | 20 | LF | | | | $ - | $ - | |
| | | | | | | | **RTU - 2 Connection** | | | | | | | $ - | |
| | | | | | | | 1" RGS | 20 | LF | | | | $ - | $ - | |
| | | | | | | | **Disconnect Switches, Motor Starter Connections** | | | | | | | $ - | |
| | | | | | | | 1 1/4" RGS | 40 | LF | | | | $ - | $ - | |
| | | D50 | | 26 05 44 Sleeves and Sleeve Seals for Electrical Raceways and Cabling | | | | | | | | | | $ - | |
| | | | | | | | Sleeve all conduits through exterior wall | 8 | EA | | | | $ - | $ - | |
| | | D50 | | 26 05 53 Identification for Electrical Systems | | | | | | | | | | $ - | |
| | | | | | | | Tagging and labeling | 8 | EA | | | | $ - | $ - | |
| | | D50 | | 26 09 23 Lighting Control Devices | | | | | | | | | | $ - | |
| | | | | | | | Switches | 2 | EA | | | | $ - | $ - | |
| | | D50 | | 26 27 26 Wiring Devices | | | | | | | | | | $ - | |
| | | | | | | | **Bypass Connections, Conduits and Feeders** | | | | | | | $ - | |
| | | | | | | | Junction Box | 2 | EA | | | | $ - | $ - | |
| | | | | | | | **Wiring Devices** | | | | | | | $ - | |
| | | | | | | | Duplex Receptacle - GFI - WP | 5 | EA | | | | $ - | $ - | |
| | | D50 | | 26 28 13 Fuses | | | | | | | | | | $ - | |
| | | | | | | | 30A fuse | 1 | EA | | | | $ - | $ - | |
| | | | | | | | 45A fuse | 1 | EA | | | | $ - | $ - | |
| | | D50 | | 26 28 16 Enclosed Switches and Circuit Breakers | | | | | | | | | | $ - | |
| | | | | | | | RTU - 2 Connection | | | | | | | $ - | |
| | | | | | | | Wall Mounted Disconnect Switch - Re install - Reconnect | 2 | EA | | | | $ - | $ - | |
| | | | | | | | Panelboard - Reconnecting the existing branch | 2 | EA | | | | $ - | $ - | |
| | | | | | | | Fused Disconnect Switch - 30A | 1 | EA | | | | $ - | $ - | |
| | | | | | | | Fused Disconnect Switch - 60A | 1 | EA | | | | $ - | $ - | |
| | | D50 | | 26 50 00 Lighting | | | | | | | | | | $ - | |
| | | | | | | | Downlight ceiling mounted LED | 2 | EA | | | | $ - | $ - | |
| | | | | | | | Wall mounted LED | 1 | EA | | | | $ - | $ - | |
| | | | | | | | Exterior wall mounted LED Weather Proof | 1 | EA | | | | $ - | $ - | |
| | | | | | | | High Bay LED 10.25" diameter | 4 | EA | | | | $ - | $ - | |
| | | | | | | | Wall Pack LED Weather Proof | 4 | EA | | | | $ - | $ - | |
| 175 | | D50 | | | | | Existing Light - Reconnect | 1 | EA | $ 65,000.00 | $ 162,000.00 | | $ 227,000.00 | $ 227,000.00 | |
| | | | | | | | | | | | | | | $ - | |
| | | | | copy above cell and insert copied cell above the row | | | | | | | | | | | |
| | | | | | | | **DIVISION 26 - ELECTRICAL SUB TOTAL** | | | **$ 65,000.00** | **$ 162,000.00** | | | **$ 227,000.00** | |
| | | | **DIVISION 28 - ELECTRONIC SAFETY AND SECURITY** | | | | | | | | | | | | |
| | | D70 | | 28 46 00 Fire Detection and Alarm | | | | | | | | | | $ - | |
| | | | | | | | Reconnect FA Device ckt | 2 | EA | | | | $ - | $ - | |
| | | | | | | | New Duct Detector and Associated work | 1 | EA | | | | $ - | $ - | |
| | | | | | | | | | | | | | | $ - | |
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| | | | | | | | **DIVISION 28 - ELECTRONIC SAFETY AND SECURITY SUB TOTAL** | | | | | | | | |
| | | | **DIVISION 31 - EARTHWORK** | | | | | | | | | | | | |
| | | | | | | | | | | | | | | $ - | |
| | | | | | | | | | | | | | | $ - | |
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| | | | | | | | **DIVISION 31 - EARTHWORK SUB TOTAL** | | | | | | | | |

**FMS/Project ID:** CO294RF
**Project Name:** Bronx Family & Criminal Courthouse Roof Upgrade
**Contractor:**

| No. | Sub Work (*) | UniFormat Code | CSI Division: | CSI Sub Division: | RSMeans 12-digit item code: | Vendor Quote (Yes/ No): | Description: | Qty | Unit: | Total Cost of Material $ | Total Cost of Labor $ | Total Cost of Equipment $ | Unit Cost | Total Cost of Material, Labor & Eqp.$ | COMMENTS: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | A | | B | C | D | E / A | E = B+C+D | |
| | | | DIVISION 32 - EXTERIOR IMPROVEMENTS | | | | | | | | | | | | |
| | | | | | | | | | | | | | | $ - | |
| | | | | | | | | | | | | | | $ - | |
| | | | | | | | | | | | | | | $ - | |
| | | | | | | | | | | | | | | $ - | |
| | | | | | | | | | | | | | | $ - | |
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| | | | | | | | DIVISION 32 - EXTERIOR IMPROVEMENTS SUB TOTAL | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | **Hard Cost** (without General Requirement): | | | $ 4,152,253.00 | $ 8,339,747.00 | $ 90,000.00 | | $12,582,000.00 | |
| | | | | | | | **Total Cost Summary** (Including General Requirement): | | | $ 8,357,253.00 | $ 8,339,747.00 | $ 90,000.00 | | $16,787,000.00 | ⚠ Value does not Match SOV Summary |

**Note:**

1. Schedule of Value (SOV) Detail: This template provides a detailed SOV line items in CSI Master Format.
2. Quantity includes expected material wastage
3. Sub Work(*) - Identify possible Sub Contract Work items
4. Shaded cell is where data must be entered
5. Ensure every cost item has a Uniformat Code in Column D; otherwise it will not roll up in the SOV Summary tab.
6. If MasterFormat codes are not listed in the dropdown, please contact DDC for support.

# 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 email and will specify the types of information which must be submitted directly to DDC.

## 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 in 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 must submit such additional information as the Commissioner may require, including without limitation, an additional bid breakdown file which is detailed to the CSI Section level, coordinated with the Contract specifications, as well as 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.

# Project References

## A. 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) |
|---|---|---|---|---|---|
| IS 88K<br>544 7th Ave, Bklyn NY 11215 | Prime- GC | $20,736,765.00 | October 2024 | Ravi Rajender, SPO<br>917-418-2851 | NYC SCA AOR<br>A&E In-house Design Studio<br>Christopher Belevan-<br>(718) 472-8536 |
| PS79Q<br>147-27 15th Drive,<br>Queens, NY 11357. | Prime- GC | $27,281,034.02 | October 2023 | Rosaly Lalane, PO<br>(347) 386-1604 | Sen Architects LLP<br>Hans Talledo<br>347 942 2549 |
| PS78X<br>1400 Needham Ave,<br>Bronx NY 10469 | Prime- GC | $15,342,154.60 | December 2022 | Jabran Hameed, PO<br>(917) 745-2848 | HDR Inc - James Aiken<br>212.542.6118 |
| IS162K<br>1390 Willoughby Avenue,<br>Brooklyn, NY 11237 | Prime- GC | $17,661,337.37 | September 2021 | Adinarayan Ramsundan (Adi),<br>Deputy for Brooklyn<br>(917-418-0804 | DMR Architects<br>F. Zewdou-201-288-2600 |
| PS246X<br>2641 Grand Concourse<br>Bronx NY 10468 | Prime- GC | $12,634,408.25 | October 2021 | Brendan Mullahy,SPO<br>347-723-0493 | STV Inc.-Leonard Sherman<br>(212) 777-4400 |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

## B. 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) |
|---|---|---|---|---|---|---|---|
| IS 98X<br>1619 Boston Road,<br>Bronx, NY 10460 | Prime-GC | $8,642,939 | $696,700 | $1,887,933 | December 2026 | Leandro Perez, PO<br>(929) 666-3032 | Sen Architects LLP<br>Hans Talledo<br>347-942-2549 |
| PS 334M<br>100 West 77th Street<br>New York, NY 10024 | Prime-GC | $20,036,594 | $4,802,000 | $6,657,662 | December 2026 | Neal Jackson, PO<br>(646)210-7427 | NYC SCA AOR<br>A&E In-house Design Studio<br>917-440-2119 |
| | | | | | | | |
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## C. 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) |
|---|---|---|---|---|---|
| SHCC Noble Maritime Collection Exterior Renovation Staten Island, NY | Prime-GC | $3,599,280 | TBD | Bart Winsko 917-732-3640 | Anthony Johnson Architect LLC 646-930-2135 |
| CUNY Queens College Parking Ramp Reconstruction Queens, NY | Prime-GC | $14,840,000 | TBD | Carola Martinez Finlay 518-918-6836 | Lakhani Jordan Engineers P.C. 212-338-9020 |
| | | | | | |
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## Questionnaire's answer

26 / 26

### Safety Questionnaire

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

**Company has previously worked for DDC**

**Answer**

No

**Company Size**

**Answer**

Greater than ten (10) employees

### 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. If the bidder has not performed the type of work in the last three years and the type of work is not part of this Contract, select N/A.*

**General Building Construction**

**Answer**

- [x] Last 3 Years
- [ ] This Project
- [ ] N/A

**Nonresidential Building Construction**

**Answer**

- [ ] Last 3 Years
- [ ] This Project
- [x] N/A

**Heavy Construction, except building**

**Answer**

- [ ] Last 3 Years
- [ ] This Project
- [x] N/A

**Highway and Street Construction**

**Answer**

- [ ] Last 3 Years
- [ ] This Project
- [x] N/A

**Heavy Construction, except highway**

**Answer**

- [ ] Last 3 Years
- [ ] This Project
- [x] N/A

**Plumbing, Heating, HVAC**

**Answer**

- [x] Last 3 Years
- [ ] This Project
- [ ] N/A

**Painting and Paper Hanging**

**Answer**

- [x] Last 3 Years
- [ ] This Project
- [ ] N/A

**Electric Work**

**Answer**

- [x] Last 3 Years
- [ ] This Project
- [ ] N/A

**Masonry, Stonework and Plastering**

**Answer**

- [x] Last 3 Years
- [ ] This Project
- [ ] N/A

**Carpentry and Floor Work**

**Answer**

- [x] Last 3 Years
- [ ] This Project

- [ ] N/A

**Roofing, Siding, and Sheet Metal**

**Answer**

- [x] Last 3 Years
- [ ] This Project
- [ ] N/A

**Concrete Work**

**Answer**

- [x] Last 3 Years
- [ ] This Project
- [ ] N/A

**Specialty Trade Contracting**

**Answer**

- [ ] Last 3 Years
- [ ] This Project
- [x] N/A

**Asbestos Abatement**

**Answer**

- [x] Last 3 Years
- [ ] This Project
- [ ] N/A

**Other**

*Please specify any other areas, or enter N/A*

**Answer**

N/A

## 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 mayobtain 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.*

**EMR**

*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].*

**Answer**

01/01/2025 intrastate 0.92, interstate N/A
01/01/2024 intrastate 0.92, interstate N/A
01/01/2023 intrastate 0.82, interstate N/A

**Are any INTRAstate and/or INTERstate EMRs provided above greater than 1.00**

**Answer**

No

## OSHA Information

**Willful Violation**

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

**Answer**

No

**Incidents**

*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 or loss of an eye).*

**Answer**

No

**OSHA Form 300 and OSHA Form 300A**

*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.*

**Answer**

I certify the required documents have been uploaded.

**Hours Worked and Incident Rate**

*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 = Total Number of Incidents X 200,000Total Number of Hours Worked by Employees*

**Answer**

1. 2023, 102,562, 1.95; 2. 2024, 78,335, 2.55; 3. 2025, 82,154, 4.87

**Incident Rate Confirmation**

*Is the Bidder's / Contractor's Incident Rate for any of the past three years one point higher than the Incident Rate for the type of construction it performs (listed below)?General Building Construction: 8.5Residential Building Construction: 7.0Nonresidential Building Construction: 10.2Heavy Construction, except building: 8.7Highway and Street Construction: 9.7Heavy Construction, except highways: 8.3Plumbing, Heating, HVAC: 11.3Painting and Paper Hanging: 6.9Electrical Work: 9.5Masonry, Stonework and Plastering: 10.5Carpentry and Floor Work: 12.2Roofing, Siding, and Sheet Metal: 10.3Concrete Work: 8.6Specialty Trade Contracting: 8.6*

**Answer**

No

## Safety Performance on Previous DDC Projects

**Fatality or Incidents**

*Work related fatality or work related accident (injury requiring medical treatment beyond first aid), involving a contractor's or subcontractor's employee(s), which occurred on a DDC Project within the last three (3) years of the Safety Questionnaire submission date.*

**Answer**

No

**Affirmation**

*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.*

**Answer**

Yes, the bidder affirms

Department of Design and Construction

**PROJECT ID:** **CO294RF**

**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/ddc

# VOLUME 2 OF 3

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

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

# Bronx Family Criminal Courthouse Roof Upgrade

**LOCATION:** **215 East 161 Street**
**BOROUGH:** **Bronx, New York 10451**
**CITY OF NEW YORK**

**CONTRACT NO. 1** **GENERAL CONSTRUCTION WORK**

**DCAS**

**Ivan Brice Architecture**

**Date:** **April 13, 2026**

# NOTICE TO BIDDERS

# This contract is subject to a new 2025 Project Labor Agreement

This contract is subject to the attached Project Labor Agreement ("PLA") entered into between the City and the Building and Construction Trades Council of Greater New York ("BCTC") affiliated Local Unions. By submitting a bid, the Contractor agrees that if awarded the Contract the PLA is binding on the Contractor and all subcontractors of all tiers.

The bidder to be awarded the contract will be required to execute a Letter of Assent prior to award. The 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. The Contractor will also be required to have all subcontractors of all tiers execute a Letter of Assent prior to such subcontractors performing any Program Work.

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. Please also note that there are revisions between the 2025 NYC Agency Citywide New Construction & Renovation PLA attached to this bid and the prior 2020 NYC Agency New Construction PLA, 2020 NYC Agency Renovation PLA, and 2021 DEP Renovation PLA.

All bidders are urged to review the entire 2025 NYC Agency Citywide New Construction & Renovation PLA prior to submitting a bid.

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(A), 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.

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, and that 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 directives.

This Contract is subject to Community Hiring Construction Careers and its requirements pursuant to Chapter 79 of the New York City Charter and the Community Hiring Rules adopted as Title 74 of the Rules of the City of New York. The Contractor shall agree to make best efforts to meet the Community Hiring Goal for at least 30% of cumulative labor hours of Program Work to be worked by Residence-Based Community Hires. At least 30% of such Residence-Based Community Hires labor hours are to be worked by apprentices.

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 elsewhere in this bid package.

The local collective bargaining agreements (CBAs) that are incorporated into the PLA as PLA Schedule A Agreements are available from the Department's Agency Chief 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.

**2025 Agency Citywide New Construction & Renovation PLA**
**Frequently Asked Questions**

1. **Q.** Does a Contractor need to be signatory with the unions in the NYC Building and Construction Trades Council ("BCTC") 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. Contractors do not need to sign any additional agreements (*e.g.*, a collective bargaining agreement) with a union aside from the Letter of Assent to work on a PLA project.

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 performing Program Work must agree to become party to the PLA. Subject to the Agency'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 the Letter of Assent. See PLA Article 2, Section 8.

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. However, subcontractors performing Program Work will be required to sign the Letter of Assent prior to being approved by the Agency.

5. **Q.** Does the PLA contain special provisions for MWBE or DBE subcontractors?

   **A.** On contracts valued at $25,000,000 or more where participation goals are set forth in the contract, the PLA does not apply to up to 7% of the value of the construction work under the contract provided the construction work is performed by certified MWBE or DBE subcontractors and such MWBE or DBE subcontractor is not a signatory to any Schedule "A" agreement ("Exempt Work"). Such Exempt Work shall be no more than $500,000 or 20% (whichever is greater) of the value of the subcontracts for work in any particular union's jurisdiction under any prime contract. See PLA Article 3, Section 1.

6. **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. However, Contractors and subcontractors may use up to 12% of their existing, qualifying labor force for this work. Certified M/WBEs for which participation goals are set pursuant to NYC Administrative Code § 6-129 that are not signatory to any Schedule A collective bargaining agreements ("CBAs") with subcontracts valued at or under two million dollars ($2,000,000) and where the first two or more workers are hired simultaneously, may request by name, and the Local Union will honor, referral of the first (1st), fourth (4th), sixth (6th), and eighth (8th) Core Employee. In any case where the first two or more employees are not hired simultaneously, the certified MWBEs or DBEs Core Employees may be the second (2nd), fourth (4th), sixth (6th), and eighth (8th) Core Employee. Any additional workers will be referred to the Contractor in accordance with the 12% referral requirements set forth in the PLA. See PLA Article 4, Section 2.

7. **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 2(C)?

   **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 Article 4, Section 2(C), it is not necessary for the project to be subject to § 6-129 or for the City to have actually set participation goals for the particular contract or project. The result is the same where a project receives State funding and therefore is subject to the requirements of Article 15-A of the Executive Law.

8. **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 CBAs where such provisions exist and/or in accordance with the provisions of PLA Article 4, Section 2.

9. **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 and nothing in the PLA requires employees to join a union or pay dues or fees to a union as a condition of working on the covered project. This Agreement is not, however, intended to supersede independent requirements in applicable local union agreements as to contractors that are otherwise signatory to those agreements and as to employees of such employers performing covered work. Non-union 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.

10. **Q.** Are all Contractors and subcontractors working under the PLA, including non-union Contractors and Contractors signatory to CBAs 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 trusteed employee benefit funds designated in the Schedule A CBAs and required to be paid on public works under any applicable prevailing wage law. 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.

    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 directly 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 Labor Law § 220. See PLA Article 11, Section 2.

11. **Q.** When do Core Employees 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 Core Employees should speak with the respective union(s) as to benefit eligibility thresholds. Employees that may remain unaffiliated with any local union at the completion of their employment may apply for any distributions to which they may be entitled from the funds in accordance with the applicable rules and governing documents of the unions and the employee benefit funds.

12. **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.

13. **Q.** Does signing on to the PLA satisfy the Apprenticeship Directive 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.

14. **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.

15. **Q.** What happens if a union does not provide a worker within 48 hours from the request (Saturdays, Sundays, and holidays excepted)?

**A.** In the event that a Local Union does not 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.

16. **Q.** May a Contractor discharge a union referral for lack of productivity?

**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 right to discipline or discharge for just cause its employees. See PLA Article 6, Section 1.

17. **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 3.

18. **Q.** What type of work can Stewards perform?

**A.** All Stewards must be working Stewards (*i.e.*, they must be performing Program Work). In addition, Stewards may perform other tasks such as receiving complaints or grievances from other employees of the Steward's trade. Stewards may not determine

when overtime is worked. Stewards are entitled to the same wages as other employees of that trade. See PLA Article 5, Sections 2 and 3.

19. **Q.** Can a Contractor utilize apprentices?

**A.** Contractors are permitted to utilize apprentices so long as the ratios between journeyperson and apprentice do not exceed the allowable ratios set by the New York State Department of Labor ("NYSDOL"). Should a Contractor request that apprentices be provided for Program Work, the referring Local Union shall comply with that request so long as it is consistent with the maximum ratios permitted by NYSDOL.

20. **Q.** What is Community Hiring Construction Careers?

**A.** As authorized under Section 3502 of the New York City Charter, Community Hiring Construction Careers is an initiative (superseding HireNYC Construction Careers) to advance career opportunities within the construction industry for those from economically disadvantaged communities. The initiative has a target goal of 30% of all hours worked on PLA projects to be performed by workers who reside in NYCHA housing or ZIP codes where 15% or more of the population lives below the poverty threshold, also know as "Residence-Based Community Hires." When a Contractor requests employees, the trades will take into account the target goals when they refer additional workers. To further encourage recruitment of new workers, Community Hiring Construction Careers has a goal that at least 30% of those hours are to be performed by apprentices who are Residence-Based Community Hires.

21. **Q.** Does the PLA provide a standard workday 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. For renovation and rehabilitation projects only, 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 job. 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). For renovation and rehabilitation projects only, 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 workday must be established at the commencement of the renovation and rehabilitation project by the Agency and may not be altered by the Contractor.

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

**A.** Yes, the PLA recognizes nine common holidays. See PLA Article 12, Section 4.

23. **Q.** Are workers entitled to holiday pay if they do not work on the holiday?

**A.** No. Workers are only entitled to pay if they work on the holiday. See PLA Article 12, Section 4.

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

**A.** Yes, for second and third shift work on work performed Monday – Friday on renovation and rehabilitation projects, there shall be a 5% shift premium, or the rate required by applicable prevailing wage laws, whichever is less. For second shift work on work performed Monday – Friday on new construction projects, there shall be a 10% shift premium, or the rate required by applicable prevailing wage laws, whichever is less. For third shift work on work performed Monday – Friday on new construction projects, there shall be a 15% shift premium, or the rate required by applicable prevailing wage laws, whichever is less. 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. See PLA Article 12, Section 3.

25. **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.

26. **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.

27. **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.

28. **Q.** Does the PLA contain special provisions for the staffing 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.

29. **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 shift. 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.

30. **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.

31. **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.

32. **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 PLAs 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.

33. **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.

34. **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. A copy of the NY Plan is available upon request from the Agency. 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.

35. **Q.** How do the referral rules work for Operating Engineers Locals 14 and 15?

**A.** If there is Program Work within the jurisdiction of Operating Engineers Locals 14 or 15, the contractor shall request labor from the appropriate local union. If the locals provide labor consistent with the referral provisions outlined in Article 4, Section 2, the terms of the Local 14 CBA or Local 15 CBA will apply to that work. However, if the locals do not provide labor for that work, the terms of the PLA will apply to such work.

# PROJECT LABOR AGREEMENT
# COVERING SPECIFIED NEW CONSTRUCTION, RENOVATION & REHABILITATION OF NEW YORK CITY OWNED BUILDINGS AND STRUCTURES

## 2025 – 2028

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# PROJECT LABOR AGREEMENT COVERING SPECIFIED NEW CONSTRUCTION, RENOVATION & REHABILITATION OF NEW YORK CITY OWNED BUILDINGS & STRUCTURES

## ARTICLE 1 - PREAMBLE

**WHEREAS,** the City of New York desires to provide for the cost efficient, safe, quality, and timely completion of certain new construction, 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;

(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) fostering increased participation by Minority and Women-owned Business Enterprises ("MWBEs") and/or Disadvantaged Business Enterprises ("DBEs");

(9) encouraging the development of pathways to construction careers through Community Hiring;

(10) ensuring a reliable source of skilled and experienced labor; and

(11) 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 ("City"), acting by and through 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" or "BCTC") (on behalf of itself) and the signatory affiliated Local Unions ("Unions" or "Local Unions"). The Council and each signatory Local Union hereby warrant and represent that it has been duly authorized to enter into this Agreement.

# ARTICLE 2 - GENERAL CONDITIONS

## SECTION 1. DEFINITIONS

A. The term "Agency" means each of the following New York City agencies, individually or collectively as applicable: 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"); Department of Transportation ("DOT"), Department of Buildings ("DOB"), and Department of Environmental Protection ("DEP"); with respect to Program Work as defined in Article 3, the New York City agency that awards a particular contract subject to this Agreement may be referred to hereafter as the "Agency";

B. The term "Agreement" means this project labor agreement ("PLA"), the applicable Collective Bargaining Agreements (each a "CBA") identified in Schedule "A", and each Exhibit hereto;

C. The term "BCTC" refers to the Building and Construction Trades Council of Greater New York and Vicinity. The terms "BCTC" and "Council" are used interchangeably;

D. The term "City" refers to the City of New York;

E. The term "Community Hiring Construction Careers" refers to the PLA initiative to advance career opportunities for Residence-Based Community Hires;

F. 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;

G. The term "Core Employee" means an employee that has been on a contractor's payroll consistent with Article 4, Section 2(B) and (C);

H. The term "DBEs" means Disadvantaged Business Enterprises as defined in 49 C.F.R. Part 26;

I. The term "Economically Disadvantaged Region" means an area, represented by its five-digit ZIP code, in which at least fifteen percent of residents have household incomes below the federal poverty threshold;

J. The term "Minor Repair" means routine repair, service, or maintenance that is recurrent, day to day, periodic scheduled or routine work required to preserve or restore a building, facility or system to working order. Such work shall qualify as "Minor Repair" if; i) a wage and benefit rate applicable to the work is listed on the New York City Comptroller's ("NYC Comptroller") prevailing wage schedule as repair work and is lower than the Schedule A rate; and ii) the work satisfies the definition and criteria established by the NYC Comptroller for application of that lower rate for the work being performed.

K. The term "MWBEs" means Minority and Women Owned Business Enterprises as the entities are defined in NYC Charter 1304;

L. The term "Program Work" is the work covered by this Agreement as defined in Article 3;

M. The term "Residence-Based Community Hire" means an individual who is: (1) a resident of an address within an Economically Disadvantaged Region; (2) a resident of a building that is: (i) owned or operated by the New York City Housing Authority; and (ii) subject to section nine of the United States Housing Act of nineteen hundred thirty-seven, as amended; or (3) a resident of a dwelling unit that is: (i) subject to a regulatory agreement with a federal, state or local government agency requiring that occupancy of such unit be restricted based on the income of the

occupants; and (ii) located in a building that was previously operated by the New York City Housing Authority, was previously subject to section nine of the United States Housing Act of nineteen hundred thirty-seven, as amended, and is subject to section eight of such act; and

N. The term "Union(s)" or "Local Union(s)" refers to the various participating unions affiliated with the BCTC, singularly and collectively.

**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 their 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. When the Agency manages Program Work without a 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, if applicable. The City shall provide BCTC with the contact

information of the Agency Chief Contracting Officer for each Agency and BCTC shall provide the City with the contact information of a representative for each Local Union.

**SECTION 4. SUPREMACY CLAUSE**

This Agreement, together with the local Collective Bargaining Agreements (each a "CBA") appended hereto as Schedule "A", represents the complete understanding of all signatories and supersedes any national agreement, local agreement or other CBA of any type which would otherwise apply to this Program Work, in whole or in part, except: 1) to the extent applicable, work performed that may fall under the NTL Articles of Agreement, the National Stack/Chimney Agreement, the National Cooling Tower Agreement, all instrument calibration work and loop checking which shall be performed under the UA/IBEW Joint National Agreement for Instrument and Control Systems Technicians, and the National Agreement of the International Union of Elevator Constructors, with the exception of Article 2, Section 7, and Articles 7, 9 and 10 of this Agreement, which shall apply to such work; and 2) Program Work which falls within the jurisdiction of the Operating Engineers Locals 14 and 15. If Program Work falling within the jurisdiction of Operating Engineers Locals 14 and 15 is accepted by and performed by said locals, only then will such work be performed under the terms and conditions set out in the Schedule "A" agreements of Operating Engineers Locals 14 and 15. The CBAs 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 CBAs 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 project labor agreement is also covered by a Schedule "A" CBA, the provisions of this project labor 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 with respect to Program Work unless endorsed in writing by the Construction Manager or such other designee as may be designated by the Agency. Nothing in this Agreement requires employees to join a union or pay dues or fees to a union as a condition of working on the Program Work. This Agreement is not, however, intended to supersede independent requirements in applicable local union agreements as to contractors that are otherwise signatory to those agreements and as to employees of such employers performing Program Work.

**SECTION 5. LIABILITY**

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

**SECTION 6. THE AGENCY**

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

awarded contracts for Program Work. It is further understood that the Agency or Construction Manager has sole discretion at any time to terminate, delay or suspend the Program Work, in whole or part, on any project.

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

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

**SECTION 8. SUBCONTRACTING**

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

**ARTICLE 3 - SCOPE OF THE AGREEMENT**

**SECTION 1. WORK COVERED**

A. Program Work shall be limited to designated new construction, 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 new construction, rehabilitation and renovation work performed for an Agency on City-owned property under contracts advertised for public solicitation prior to December 31, 2028. Subject to the foregoing, and the exclusions below, such Program Work shall mean:

1. For Renovation and Rehabilitation Projects: any and all contracts that predominantly involve the demolition, reconstruction, renovation, alteration, repair, rehabilitation or expansion of an existing City-owned building, pier, marina, or structure within the five boroughs of the 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, Wastewater Resource Recovery Facility, a water filtration plant, or a pumping station. Program Work shall also include job order contracts ("JOCS"), demolition work, painting services. Low voltage work, site work, elevator work, mold, asbestos and lead abatement, carpentry services, and carpet removal and installation shall be included as Program Work only when incidental to such building renovation and/or rehabilitation of City-owned buildings or structures and included in a contract that predominantly involves such renovation and/or rehabilitation. Program Work shall also include the installing and removing of centrifuges on City-owned property, but not any other work under such contracts, in connection with contracts that involve the maintenance or repair of centrifuges, in accordance with Exhibit "D". Program Work shall also include contracts bid and let by the DEP for the rehabilitation and upgrade of wells and well stations located in Southeast Queens as part of the Queens Groundwater Project, including the renovation and rehabilitation of buildings and other above or below-ground structures, the installation of equipment, piping and drainage structures including subsurface installations, the installation of water treatment system elements, control systems, plumbing, electrical, HVAC and site and road work required for the construction, operation or maintenance of the wells and other related facilities.

2. For New Construction Projects: new construction, including a construction of an entirely new park exceeding $10,000,000 if the Project also involves construction of a new above-

ground building such as a restroom, field house, garage or maintenance facility, for which an addendum has been approved by an agency of the City of New York and by the BCTC on behalf of itself and its affiliated Local Unions. Each Project-specific addendum is to outline a description of the project being undertaken, the project's location, and the general findings of the feasibility analysis used as the basis of the determination to utilize a PLA on the project.

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

1. Contracts that are let under a different project labor agreement with an Agency, and/or other entities that have entered separate PLAs, such as NYCHA, H+H and SCA;

2. 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, 2028;

3. Contracts procured on an emergency basis;

4. Prime contracts that do not exceed $3,000,000;

5. Contracts for work on streets and bridges and for the closing or environmental remediation of landfills;

6. Contracts with not-for-profit corporations where the City is not awarding or performing the work performed for that entity;

7. Contracts with governmental entities where the City is not awarding or performing the work performed for that entity;

8. 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;

9. Contracts for installation of information technology that are not otherwise Program Work;

10. Task Orders or Work Orders issued under JOCS or Requirements Contracts that do not exceed $250,000, and JOCS or Requirements Contracts where the monetary value of such contracts predominantly involves such Task Orders or Work Orders;

11. Contracts that predominantly involve Minor Repair work, as defined in Article 2, Section 1(J) above. Such work is to be paid under the applicable prevailing wage law, if any, for service or maintenance work;

12. Up to 7% of work set aside to be performed by certified MWBE or DBE subcontractors ("Exempt Work") on prime contracts that are valued at $25,000,000 or more where participation goals are set forth in the contract to be performed by MWBEs or DBEs; and provided that: (i) the prime contractor shall first work in good faith with the relevant Local Unions, to identify one or more MWBE or DBE subcontractors who are a signatory to a Schedule "A" CBA or who will sign a Letter of Assent (Exhibit "A") as required under Article 2, Section 3 above to meet the 7% prior to such work being set aside; and (ii) if the prime contractor nevertheless fails to identify one or more MWBE or DBE subcontractors who are a signatory to a Schedule "A" CBA or who will sign a Letter of Assent (Exhibit "A") as required under Article 2, Section 3 above, then the amount of Exempt Work allowed to be set aside pursuant to this paragraph on a given project shall only be the difference between 7% of the prime contract value and the percentage of work awarded pursuant to this paragraph. Performance of a portion of the Exempt

Work performed by the certified MWBE or DBE subcontractors does not preclude the contractor from employing one or more MWBE or DBE subcontractor who is a signatory on another portion of the Exempt Work. Such Exempt Work shall be no more than $500,000 or 20% (whichever is greater) of the value of the subcontracts for work in any particular union's jurisdiction under any prime contract; and

13. On-site work performed on purchased equipment, which is required by the manufacturer to be performed by its staff or by its selected contractors as a condition of the continued effectiveness of the equipment warranty.

**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, 2028, 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 (except field surveyors on construction contracts, general and forepersons specifically covered by a craft's Schedule "A" CBA are included), engineers, professional engineers and/or licensed architects engaged in inspection and testing,

quality control/assurance personnel, timekeepers, mail carriers, clerks, office workers, messengers, guards, technicians, non-manual employees, and all professional, engineering, administrative and management persons;

B. Employees of the City, or any other municipal or State agency, authority or entity, or employees of any other public employer, even though working on the project 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" CBA;

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 including installation, repair or maintenance unless employees are already working on the site and are certified to perform warranty work;

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

G. Employees engaged in laboratory, specialty testing, or inspections, pursuant to a professional services agreement between the Agency, or any of the Agency's other professional consultants, and such laboratory, testing, inspection or surveying firms;

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; and

I. Employees who perform work classified as Minor Repairs, provided that such workers are paid at the applicable prevailing wage, if any, for the work being performed.

**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 or any Contractor. The Agreement shall further not apply to any New York City or other municipal or State agency, authority, or entity other than a listed Agency and nothing contained herein shall be construed to prohibit or restrict the Agency or its employees, or any State, New York City or other municipal or State authority, agency or entity and its employees, from performing on or off-site work related to Program Work.

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

**ARTICLE 4 - UNION RECOGNITION AND EMPLOYMENT**

**SECTION 1. PRE-HIRE RECOGNITION**

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

**SECTION 2. UNION REFERRAL**

A. The Contractors agree to request, employ and hire craft employees, including Residence-Based Community Hires as defined in Article 2, Section 1(M), for Program Work covered by this Agreement through the job referral systems and hiring halls established in the Local Unions' area CBAs set forth in Schedule "A". 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 does not 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. Any employee hired by a Contractor because a Local Union does not fill a request for qualified employees within a 48 hour period (Saturdays, Sundays and holidays excepted) are not covered by this Agreement for purposes of Article 11, Section 2, unless they are or become a member of an affiliated Union.

B. A Contractor may request by name, and the Local Union will honor, referral of persons who have applied to the Local Union for Program Work ("Core Employees") 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, or DBE contractors for which participation goals are established, that are not signatory to any Schedule "A" CBAs, with subcontracts valued at or under two-million dollars ($2,000,000), and where the first two or more workers are hired simultaneously, may request by name, and the Local Union will honor, referral of the first (1st), fourth (4th), sixth (6th), and eighth (8th) Core Employee. In any case where the first two or more employees are not hired simultaneously, the certified MWBE's or DBE's Core Employees may be the second (2nd), fourth (4th), sixth (6th), and eighth (8th) Core Employee. All such Core Employees must have applied to the Local Union for Program Work and 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 365 calendar days prior to the contract award.

D. Where a certified MWBE or DBE Contractor voluntarily enters into a 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 Residence-Based Community Hires, minority or female applicants in percentages equaling the workforce participation goals adopted by the City and set forth in the Agency's (or, if applicable, Construction Manager's) bid specifications, within 48 hours of the request for same, the Contractor may employ qualified Residence-Based Community Hires, minority or female applicants from any other available source.

The Local Unions agree to prioritize the referral of Residence-Based Community Hires in accordance with Article 13 and to the extent consistent with the law, rules applicable to the union referral systems and joint apprentice programs. Those unions that do not currently provide for Residence-Based Community Hire preferences in their referral systems will undertake to implement such preferences consistent with this Agreement and their governing documents. Please see Exhibit "C" for a non-exhaustive list of the Economically Disadvantaged Regions. Residence-Based Community Hires who are already on a Contractor's workforce, including Core

Employees, and referral of apprentices, in accordance with Article 13, Section 1(A) below, shall count towards the referral goals 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 acknowledge the Section 3 obligations of the Construction Manager or Contractor, as applicable, and agree to the preferences for Residence-Based Community Hires described above to help 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(s) 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 will exert their utmost efforts to recruit sufficient numbers of skilled and qualified crafts employees to fulfill the requirements of the Contractor.

**SECTION 6. 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” CBA, and provided that all craft

forepersons shall be experienced and qualified journeypersons in their trade as determined by the appropriate Local Union. All forepersons shall take orders exclusively from the designated Contractor representatives. Craft forepersons shall be designated as working forepersons at the request of the Contractor, except when an existing local CBA prohibits a foreperson from working when the craft persons, they are leading exceed a specified number.

**SECTION 7. ON CALL REPAIR REFERRALS**

A. When an Agency awards a contract under this Agreement 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 would perform the work for a contractor that the Contractor 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, which may include the affiliated Unions' service, repair and maintenance division workers where appropriate for repairs that can be made within 24 to 48 hours and paid at the appropriate prevailing wage rates for service and repair or maintenance work. 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.

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 email the Agency within 72 hours and the Agency will forward that email 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.

### 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" CBA 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" CBA provision, such provision shall be recognized to the extent the Steward possesses the necessary qualifications to perform the work required, except in cases of discipline or discharge for just cause. 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 workforce, 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, 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" CBA that includes a lawful union standards and practices clauses, then such clause as set forth in Schedule "A" CBA 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" CBA 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 similar disruptive activity at the Program Work site for any reason by any Union or employee against any Contractor or employer. There shall be no other Union or

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

**SECTION 2. DISCHARGE FOR VIOLATION**

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

**SECTION 3. NOTIFICATION**

If a Contractor contends that any Union has violated this Article, it will notify the Local Union involved advising of such fact, with copies of the notification to the Council. The Local Union shall instruct and order, the Council shall request, and each shall otherwise use their best efforts to cause, the employees (and where necessary the Council shall use its best efforts to cause the Local Union), to immediately cease and desist from any violation of this Article. If the Council complies with these obligations, it shall not be liable for the unauthorized acts of a Local Union or its members. Similarly, a Local Union and its members will not be liable for any unauthorized acts of the Council. Failure of a Contractor or the Construction Manager to give any notification set forth in this Article shall not excuse any violation of Section 1 of this Article.

**SECTION 4. EXPEDITED ARBITRATION**

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

A. A party invoking this procedure shall notify J.J. Pierson and Gayle Gavin; 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, Agency 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, Agency, Construction Manager and Local Union involved. The hearing may be held on any day including Saturdays or Sundays. The hearing shall be completed in one session, which shall not exceed 8 hours duration (no more than 4 hours being allowed to either side to present their case and conduct their cross examination) unless otherwise agreed. A failure of any Union or Contractor to attend the hearing shall not delay the hearing of evidence by those present or the issuance of an award by the Arbitrator.

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

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

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

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

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

**SECTION 5. ARBITRATION OF DISCHARGES FOR VIOLATION**

Procedures contained in Article 9 shall not be applicable to any alleged violation of this Article, with the single exception that an employee discharged for violation of Section 1, above, may have recourse to the procedures of Article 9 to determine only if the employee did, in fact,

violate the provisions of Section 1 of this Article; but not for the purpose of modifying the discipline imposed where a violation is found to have occurred.

## ARTICLE 8 - LABOR MANAGEMENT COMMITTEE

### SECTION 1. SUBJECTS

The Program Labor Management Committee (the "LMC") 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 or DBEs and workforce participation goals for Residence-Based Community Hires, minority and female employees.

### SECTION 2. COMPOSITION

The LMC 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 shall mutually designate a Community Hiring Construction Careers, MWBE or DBE representative to participate in appropriate LMC discussions. The LMC 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 work site if already commenced and is available in the City Record and Notice to Proceed for projects not already commenced.

Local Union grievances as to whether a scope of work is included or excluded from this Agreement shall be submitted to the LMC in the first instance rather than Step 1 below. To be timely, such notice must be given no later than five days prior to the bid opening date advertised in the City Record and bid documents for that contract, or any adjourned date publicly noticed if the grievance is challenging a determination by an Agency that the contract is not subject to this Agreement. Compliance with this limit shall operate as a statute of limitations and shall be a condition precedent to arbitration. For other grievances as to contractor and/or subcontractor 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:**

(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 Agency (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:**

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 and/or a contractor association representative where appropriate, Council, the Construction Manager or designee (if they elect to do so), the Agency or designee (if they elect to do so), 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 and the Agency or designee) to the BCTC. In the event the matter is not resolved at Step 2, either J.J. Pierson or Gayle Gavin, 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.

(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 Agency (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.

## ARTICLE 10 - JURISDICTIONAL DISPUTES

**SECTION 1. NO DISRUPTIONS**

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

**SECTION 2. ASSIGNMENT**

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

**SECTION 3. NO INTERFERENCE WITH WORK**

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

## ARTICLE 11 - WAGES AND BENEFITS

### SECTION 1. CLASSIFICATION AND BASE HOURLY RATE

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

### SECTION 2. EMPLOYEE BENEFITS

A. The Contractors agree to pay on a timely basis contributions on behalf of all employees covered by this Agreement to those established jointly trusteed employee benefit funds designated in the applicable Schedule "A" CBA (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 trusteed 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 Contractor's signatory to local collective bargaining agreement with any affiliated union from complying with the fringe benefit requirements for all funds contained in the CBA. Furthermore, employees that may remain unaffiliated with any local union at the completion of their employment under the terms of this Agreement may apply for any distributions to which they may be entitled from the funds in accordance with the applicable rules and governing documents of the unions and the employee benefit funds that they have participated in under the terms of this Agreement.

B. 1. Notwithstanding Section 2 (A) above, and subject to 2 (B)(2) below, Contractors who designate Core Employees pursuant to Article 4, Section 2 (B) and (C) that are not signatory to a Schedule "A" CBA and who maintain bona fide private benefit plans that satisfy

the requirements of Section 220 of the New York State Labor Law, may 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)(l) 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 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" CBAs.

C. The Contractors agree to be bound by the written terms of the legally established jointly trusteed 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 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 law and this Agreement 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 to 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" CBA, and the amount shall be paid to the party or parties ultimately determined to be entitled thereto, or held until the 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.

## ARTICLE 12 - HOURS OF WORK, PREMIUM PAYMENTS, SHIFTS AND HOLIDAYS

### SECTION 1. WORK WEEK AND WORKDAY

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. For renovation and rehabilitation projects only, 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 workday must be established at the commencement of the renovation and rehabilitation project and may not be altered by the Contractor.

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

unless different times are necessitated by the Agency's phasing plans on specific projects. Subject to the foregoing, starting and quitting times shall occur at the Program Work site designated by the Contractor.

C. Scheduling - 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, for renovation and rehabilitation projects only, schedule a four-day work week, 10 hours per day ("4/10") 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 exceeding either (i) 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 (7½) hours where such hours are scheduled pursuant to Article 12, section 1(A); or (ii) an employee's regularly scheduled work week, i.e., 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" CBA. There shall be no stacking or pyramiding of overtime pay under any circumstances. There will be no restriction upon the Contractor's scheduling of overtime or the nondiscriminatory designation of employees who shall be worked, including the use of employees, other than those who have

worked the regular or scheduled work week, at straight time rates. The Contractor shall have the right to schedule work so as to minimize overtime or schedule overtime as to some, but not all, of the crafts and whether or not of a continuous nature.

**SECTION 3. SHIFTS**

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

B. Second and/or Third Shifts - 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 performed Monday—Friday on renovation and rehabilitation projects, there shall be a 5% shift premium, or the rate required by the applicable prevailing wage laws, whichever is less. With respect to second shift work performed Monday – Friday on new construction projects, there shall be a 10% shift premium, or the rate required by applicable prevailing wage laws, whichever is less. With respect to third shift work on work performed Monday – Friday on new construction projects, there shall be a 15% shift premium, or the rate required by applicable prevailing wage laws, whichever is less. 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., forty (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 the same classification performing Program Work will be paid at the same wage rate regardless of the shift or work, subject only to the foregoing provisions.

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

**SECTION 4. HOLIDAYS**

A. Schedule - There shall be 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 PLA recognized holiday shall be in accordance with the applicable Schedule "A" for work performed on a holiday, even where the PLA holiday differs from the CBA holidays.

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

## SECTION 5. MAKE-UP DAYS

When severe weather, power failure, fire or natural disaster or other similar circumstances beyond the control of the Contractor prevent work from being performed on a regularly scheduled weekday, the Contractor may schedule a Saturday make-up day (or Friday make-up day in the case of a 4/10 schedule) 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 of 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 their 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 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" CBA 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 layoff or discharge.

## SECTION 8. EMERGENCY WORK SUSPENSION

A Contractor may, if considered necessary for the protection of life and/or safety of employees or others, suspend all or a portion of Program Work. In such instances, employees will

be paid for actual time worked, except that when a Contractor requests that employees remain at the job site available for work, employees will be paid for that time at their hourly rate of pay.

**SECTION 9. INJURY/DISABILITY**

An employee who, after commencing work, suffers a work-related injury or disability while performing work duties, shall receive no less than a full day's pay in accordance with the employee's regularly scheduled workday 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 systems to check employees in and out. Each employee must check in and out and sign a daily sign-in sheet, or other attendance methodology approved in writing by the Agency(s). The Contractor will provide adequate facilities for checking in and out in an expeditious manner.

**SECTION 11. MEAL PERIOD**

A Contractor shall schedule an unpaid period of not more than 1/2-hour duration at the work location between the 3rd and 5th hour of the scheduled shift. A Contractor may, for efficiency of operation, establish a schedule which coordinates the meal periods of two or more crafts, or which provides for staggered lunch periods within a craft or trade. If an employee is required to work through the meal period, the employee shall be compensated in a manner established in the applicable Schedule "A" CBA.

**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 AND WORKFORCE DEVELOPMENT

### SECTION 1. APPRENTICE RATIOS AND REFERRALS

A. 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 ("NYSDOL"), 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" CBA. 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, New York Helmets to Hardhats, and Pathways to Apprenticeship (P2A). Should a Contractor request that apprentices be provided for Program Work, the referring Local Union shall comply with that request so long as it is consistent with the maximum ratios permitted by NYSDOL. Where the Agency sets forth goals regarding Residence-Based Community Hire apprentices, the Contractor shall request such Residence-Based Community Hire apprentices from the Local Union so long as it is consistent with the maximum ratios permitted by NYSDOL.

### SECTION 2. WORKFORCE DEVELOPMENT

A. The parties to this Agreement recognize the mutual interest in increasing training

and career opportunities for Residence-Based Community Hires. The parties are committed to (i) increasing opportunities for Residence-Based Community Hires in pre-apprenticeship and apprenticeship programs, and (ii) using the work opportunities provided by this Agreement to increase the career opportunities for qualified Residence-Based Community Hires, and (iii) assuring the continued availability of a skilled and qualified, readily available construction workforce for this program and future work.

B. Specifically, the parties have established an initiative entitled Community Hiring Construction Careers, which is an initiative to advance career opportunities for Residence-Based Community Hires.

C. The Community Hiring Construction Careers initiative will work with the Office of Talent and Workforce Development ("NYC Talent") and the City's Workforce1 Centers to recruit Residence-Based Community Hires interested in employment in the construction industry.

D. Community Hiring Construction Careers intends to capitalize on the work opportunities presented by this Agreement to create a pathway to career opportunities in the construction workforce. To this end the Community Hiring Construction Careers initiative includes a workforce goal of at least 30% of all hours worked under this Agreement, including by subcontractors pursuant to Article 3, Section 1(b)(12) and Article 4, Sections 2(B) and (C), to be worked by Residence-Based Community Hires. Where the Agency sets forth workforce goals in its solicitation, Contractors shall request Residence-Based Community Hires from the Local Unions to achieve the required workforce goal.

E. In order to encourage recruitment of new workers, Community Hiring Construction Careers has established a goal that at least 30% of all of those hours are to be worked

by apprentices who are Residence-Based Community Hires.

F. The Contractors and Unions agree to cooperate and participate in the implementation of Community Hiring Construction Careers to assist Residence-Based Community Hires with educational and training opportunities related to access to pre-apprenticeship, apprenticeship, and Program Work as set forth in this Agreement.

G. Reporting Requirements:

i. The Contractors shall report the residence zip code information on all certified payroll reports and any additional information regarding Residence-Based Community Hires that may be required by rule or law.

ii. The Local Unions, their referral systems, the affiliated pre-apprentice programs, and Contractors shall cooperate with any protocol developed for monitoring the Community Hiring Construction Careers initiative.

H. The City and BCTC agree that no less than annually, the LMC shall review the implementation of Community Hiring Construction Careers, as well as Residence-Based Community Hire opportunities afforded as a result of the initiative. The City and BCTC will collaborate to develop monitoring protocol for the purpose of measuring the success of Community Hiring Construction Careers. The City and BCTC may, on mutual consent, modify the goals, procedures and protocols, as necessary to afford continued opportunity to Residence-Based Community Hires.

I. To facilitate the commitments set forth in this Agreement, each Local Union shall designate a Community Hiring Construction Careers lead representative to work in partnership with NYC Talent to implement these workforce and apprenticeship provisions within the union

and across City construction contracts.

## 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. The Construction Manager and/or Contractor may adopt, and the Unions shall agree to, the Drug and Alcohol Testing Policy attached as Schedule "B".

### 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 Program Work. Such rules will be published and posted in conspicuous places throughout the Program Work sites. Any site security and access policies established by the Construction Manager or General Contractor intended for specific application to the construction workforce for Program Work and that are not established pursuant to an Agency directive shall be implemented only after notice to the BCTC and its affiliates and an opportunity for negotiation and resolution by the Labor Management Committee.

### SECTION 3. INSPECTIONS

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

## ARTICLE 15 - TEMPORARY SERVICES

### SECTION 1.

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 the 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), and which may be limited to one person per applicable trade where practicable. 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, gender identity, age or any other status provided by law, in any manner prohibited by law or regulation.

### SECTION 2. LANGUAGE OF AGREEMENT

Any words signifying any gender shall be interpreted to mean any or all gender identities.

## ARTICLE 17 - GENERAL TERMS

### SECTION 1. PROJECT RULES

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

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

### SECTION 2. TOOLS OF THE TRADE

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

### SECTION 3. SUPERVISION

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

### SECTION 4. TRAVEL ALLOWANCES

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

**SECTION 5. FULL WORKDAY**

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

**ARTICLE 18 - SAVINGS AND SEPARABILITY**

**SECTION 1. THIS AGREEMENT**

In the event that the application of any provision of this Agreement is enjoined, on either an interlocutory or permanent basis, or is otherwise determined to be in violation of law, or if such application may cause the loss of project funding or any New York State Labor Law exemption for all or any part of the Program Work, the provision or provisions involved (and/or its application to particular Program Work, as necessary) shall be rendered, temporarily or permanently, null and void, but where practicable the remainder of the Agreement shall remain in full force and effect to

the extent allowed by law (and to the extent no funding or exemption is lost), unless the part or parts so found to be in violation of law or to cause such loss are wholly inseparable from the remaining portions of the Agreement and/or are material to the purposes of the Agreement. In the event a court of competent jurisdiction finds any portion of the Agreement to trigger the foregoing, the parties will immediately enter into negotiations concerning the substance affected by such decision for the purpose of achieving conformity with the court determination and the intent of the parties hereto for contracts to be let in the future.

**SECTION 2. THE BID SPECIFICATIONS**

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

**SECTION 3. NON-LIABILITY**

In the event of an occurrence referenced in Section 1 or Section 2 of this Article, neither the Agency, the Construction Manager, any Contractor, nor any Union shall be liable, directly or

indirectly, for any action taken, or not taken, to comply with any court order or injunction, other determination, or in order to maintain funding or a New York State Labor Law exemption for Program Work. Bid specifications will be issued in conformance with court orders then in effect and no retroactive payments or other action will be required if the original court determination is ultimately reversed.

**SECTION 4. NON-WAIVER**

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

## ARTICLE 19 - FUTURE CHANGES IN SCHEDULE "A" AREA CONTRACTS

**SECTION 1. CHANGES TO AREA CONTRACTS**

A. Schedule "A" to this Agreement shall continue in full force and effect until the Contractor and/or Union parties to the Area CBAs that are the basis for the Schedule "A" notify the Mayor's Office of Contract Services ("MOCS"), Agency and Construction Manager in writing by providing a copy of the updated CBA(s) incorporating the changes agreed to in that Area CBA which are applicable to work covered by this Agreement and their effective dates.

B. It is agreed that any provisions negotiated into Schedule "A" CBAs 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 CBAs shall be resolved in accordance with the procedure set forth in Article 9 of this Agreement.

**SECTION 2. LABOR DISPUTES DURING AREA CONTRACT NEGOTIATIONS**

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

A. An Alternative Dispute Resolution ("ADR") program may be instituted by a Contractor and participation in such an ADR program will be optional by trade.

B. The BCTC acknowledges that there may be some instances where an Agency seeks to institute an ADR program for disputes regarding Workers' Compensation claims for work performed under certain Contracts performed under this Agreement. Where an Agency seeks to utilize an ADR program for a project it shall notify the BCTC and the BCTC and the City shall enter into negotiations over the terms and conditions of such ADR program. No such program shall be instituted without the full and complete agreement of the BCTC, and the City, including the applicable Agency. If an ADR program is agreed to by the BCTC and the City, including the applicable Agency, for a project performed under this Agreement, all Contractors shall require their employees to participate.

## 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 ("H2H") 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 H2H to create and maintain an integrated database of veterans interested in working on this project and of apprenticeship and employment opportunities for this project. To the extent permitted by law, the Unions will give credit to such veterans for bona fide, provable past experience.

[THIS SPACE INTENTIONALLY LEFT BLANK]

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: _____
First Deputy Mayor
Randy Mastro

APPROVED AS TO FORM:

KF

_____
ACTING CORPORATION
COUNSEL NEW YORK CITY

Date: 11/5/2025

| LIST OF SIGNATORY UNIONS |
| --- |
| |
| International Brotherhood of Boilermakers, Iron Ship Builders, Blacksmiths, Forgers and Helpers, AFL-CIO, Local Lodge No.5 |
| Bricklayers and Allied Craftworkers, Local Union No. 1 |
| Building Concrete & Excavating Laborers, Local Union No. 731 |
| N.Y.C. and Vicinity District Council of Carpenters |
| Cement Masons, Local Union No. 780 |
| Concrete Workers District Council No. 16 |
| Asbestos, Lead & Hazardous Waste, Laborers Local Union No. 78 |
| Construction & General Building Laborers Local Union No. 79 |
| Derrickmen and Riggers Local Union No. 197 |
| International Brotherhood of Electrical Workers, Local Union No. 3 |
| International Union of Elevator Constructors, Local Union No. 1 |
| Heat & Frost Insulators & Allied Workers, Local Union No. 12 |
| Heat & Frost Insulators & Allied Workers, Local Union No. 12A |
| Pavers & Road Builders, Laborers Local Union No. 1010 |
| New York State Iron Workers District Council |
| Structural Iron Workers, Local Union No. 40 |
| Structural Iron Workers, Local Union No. 361 |
| Mason Tenders District Council |
| Metallic Lathers & Reinforcing Ironworkers, Local No. 46 |
| Ornamental Iron Workers, Local Union No. 580 |
| Glaziers No. 1087, District Council 9 |
| Painters, District Council No. 9 |
| Metal Polishers, Local Union No. 8A-28A; District Council No. 9 |
| Drywall Tapers Local Union No 1974, District Council 9 |
| Bridge & Structural Steel Painters, Local Union No. 806, District Council 9 |
| Operative Plasterers Local Union No. 262 |
| UA Plumbers Local Union No. 1 |
| Private Sanitation, Teamsters Local Union No. 813 |
| Roofers & Waterproofers, Local Union No. 8 |
| Sheet Metal Workers, Local Union No. 28 |
| Sheet Metal Workers, Local Union No. 137 |
| UA Steamfitters, Local Union No. 638 |
| Teamsters, Local Union No. 282 |
| Tile, Marble & Terrazzo, B.A.C. Local Union No. 7 |

## SCHEDULE "A" - CBAS

| 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. |
| Bricklayers Local 1 of the International Union of Bricklayers and Allied Craftworkers | Independent |
| District Council No. 9, I.U.P.A.T Glaziers Local 1087 | Window and Plate Glass Dealers Association |
| Drywall Tapers and Painters 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 |
| Elevator Constructors Local 1 of NY and NJ | ThyssenKrupp Elevator Corporation |
| Elevator Constructors Local 1 of NY and NJ | 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 |

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| 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 |
| 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 |
| International Brotherhood of Teamsters, Local 282, High Rise Contract | General Contractors Association |
| 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 | General Contractors Association |
| 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 1 of the United Association of Journeymen and Apprentices of the Pipe Fitting Industry of the United States and Canada | Independent |
| Local Union Number 40 & 361 of Bridge, Structural Ornamental and Reinforcing Iron Workers AFL-CIO | Independent |

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| Mason Tenders DC & Laborers' International Union – Local 78 & 79 | Building Contractors Association |
| Mason Tenders DC & Laborers' International Union – Local 78 & 79 | Interior Demolition Contractors Association |
| Mason Tenders DC & Laborers' International Union – Local 78 & 79 | Independent |
| Mason Tenders DC & Laborers' International Union – Local 78 & 79 | NYCDCA |
| Mason Tenders DC & Laborers' International Union – Local 78 & 79 | Environmental Contractors Association |
| Mason Tenders DC & Laborers' International Union – Local 78 & 79 | ABMC |
| 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 |
| 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 |
| 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 |

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| The District Council of Cement and Concrete Workers (comprised of Local 6A; Local 18A and Local 20) | Independent |
| 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 |
| The District Council of New York City and Vicinity of the United Brotherhood of Carpenters and Joiners of America | Building Contractors Association |

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| 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 |
| United Derrickmen & Riggers Association, Local 197 of NY, LI, Westchester & Vicinity | Contracting Stonesetters Association Inc. |
| United Derrickmen & Riggers Association Local 197 of NY, LI, Westchester and Vicinity | Building Stone and Pre-cast Contractors Association |

## Exhibit A

## Project Labor Agreement - Letter of Assent

Dear: 6/4/2026

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 the NYC Agency Renovation and located at 215 East 161 Street, Bronx, New York 10451 (hereinafter PROJECT), for and in consideration of the award to it of a contract to perform work on said PROJECT, and in further consideration of the mutual promises made in the Project Labor Agreement, a copy of which was received and is acknowledged, hereby:

(1) Accepts and agrees to be bound by the terms and conditions of the Agreement, together with any and all schedules; amendments and supplements now existing or which are later made thereto:

(2) Agrees to be bound by the legally established collective bargaining agreements; local trust agreements for employee benefit funds; and trust documents for joint apprentice programs as well as apprentice program rules and procedures but only to the extent of Program Work and as required by the PLA.

(3) Authorizes the parties to such local trust agreements to appoint trustees and successor trustees to administer the trust funds and hereby ratifies and accepts the trustees so appointed as if made by the Contractor but only to the extent of Program Work as required by the PLA.

(4) Certifies that it has no commitments or agreements that would preclude its full and complete compliance with the terms and conditions of said Agreement. The Contractor agrees to employ labor that can work in harmony with all other labor on the Project and shall require labor harmony from every lower tier subcontractor it has engaged or may engage to work on the Project. Labor harmony disputes/issues shall be subject to the Labor Management Committee provisions.

(5) Agrees to secure from any Contractor(s) (as defined in said Agreement) which is or becomes a Subcontractor (of any tier), to it, a duly executed Agreement to be Bound in from identical to this document.

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

Local Union: Local No. 8, 1 , 79

Description of Work: Roof Replacement, Concrete Repairs, Masonry

Contract Number(s): PROJECT ID: CO294RF

Dated: 6/4/2026

Corbex Inc.
(Name of Contractor or subcontractor)

Corbex Inc.
(Name of CM; GC; Contractor or Higher Level Subcontractor)

Adam Piatek, President
(Authorized Officer & Title)

351 Denton Ave New Hyde Park NY 11040
(Address)

(Signature)

516-739-2000/ 516-739-3800
(Phone) (Fax)

Contractor's State License
NYC DOB GC License # 023817

Sworn to before me this
4th day of June 2026

Notary Public

EWELINA SOKOLOWSKI
STATE OF NEW YORK
NOTARY PUBLIC
Qualified in Suffolk County
01SO6341828
MY COMMISSION EXPIRES 05/19/2028

**Exhibit B**

**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 day's 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.

## Exhibit "C" – Community Hiring Construction Careers

Non-exhaustive list of ZIP codes where at least 15% of the population lives below the federal poverty threshold (ZIP codes within ~100 mile radius of NYC)

| Zip Code | State | County |
|---|---|---|

The Office of Community Hiring and Workforce Development maintains and publishes the list of Economically Disadvantaged Regions in accordance with Section 3502(b) of the New York City Charter. The list of Economically Disadvantaged Regions within a 100-mi. radius of the city, in a format similar to the above, will be provided for each fiscal year.

# Division of Labor DEP Centrifuge Contract
**BLACK= Union Millwright**
**RED= Centrifuge Technicians**

## I. Scheduled Preventative Maintenance of The Centrifuge System

### 1. Preliminary centrifuge monitoring, operation and readings before scheduled PM

i. As part of the centrifuge system evaluation to produce a PM report and while still in operation, take vibration, temperature readings, monitor torque and back-drive conditions prior to shutdown of the centrifuge system. In addition, evaluate the operation and condition of the pneumatic knife gate and cake cross conveyor. Queries are made with plant operations and maintenance staff asking for a history with operation of the system, mechanical, electrical and issues of the centrifuge system in general.
ii. If necessary, based on the results of monitoring differential while process sludge, a pressure test is performed on the Rexroth hydraulic pump and or the Rotodiff hydraulic motor to determine if there are internal mechanical issues that require replacement of said components

### 2. Remove and prepare rotating assembly for yearly maintenance

i. Shut down centrifuge system and coordinate with the owner for lock out tag out of system
ii. Remove belt guards and frame case top
iii. Remove hoses, drive belts and disconnect RTD wiring associated with the rotating assembly Remove the Rotodiff (hydraulic motor)
iv. Remove the rotating assembly from the base using overhead crane

### 3. Disassembly/Assembly of the rotating assembly:

i. Remove the liquid headwall
ii. Remove the scroll
iii. Mechanical de-scaling of rotating assembly rotor, headwall and scroll with a needle gun.
iv. Inspect all components. Check critical dimensions with instruments and verify to print key components or components that appear worn and or damaged.
v. Inspect internal bowl strips that run the length of the bowl. Change bushings wear liners & wear shoes. If necessary, remove the bowl strip welds with a grinder and weld new strips. Weld minor repairs on scroll when necessary. If necessary, repair the hard-face protection on the conveyor blades with addition of hard surface. Clean return tubes on the conveyor.
vi. Replace o-rings, seals and scroll bearings. Bearings are installed using factory procedure that specifies heat tolerances for bearing inner race and proper placement of bearing race on fit surfaces.
vii. Prime paint bare steel components

viii. Assemble and check stack-up dimension of scroll bearings
ix. Install scroll into outer bowl assembly using conveyor extractor tool, overhead crane.
x. Check conveyor stack-up dimension
xi. Assemble headwall
xii. Check for scroll clearance by rotating scroll with spline shaft
xiii. Install stellite wear shoes with epoxy adhesive.

4. **Service and repair of centrifuge frame top and bottom**
   i. Scrape process material from frame bottom and top
   ii. Mechanical de-scaling of the inside frame bottom and top using a needle gun
   iii. If required, welding repair panels on the outer and internal portions of the frame top and bottom. Also, replacing baffles with stainless steel baffles; requiring flame burning off old baffles, grinding to fit and welding new baffles
   iv. Checking case bottom threaded holes and repairing with thread inserts
   v. Painting case top and bottom: prime and applying two part epoxy paint

5. **Back –Drive and Main Bearing Lubrication System Maintenance**
   i. Drain back-drive oil and bearing lubrication oil reservoirs
   ii. Scrape clean reservoirs internally
   iii. When required, replace heat exchangers, dials, solenoids or fittings
   iv. Replace filters
   v. When required, replace hoses
   vi. Replenish reservoirs with new oil

6. **Service main drive and back-drive motors**
   a) Remove covers and clean cooling fan
   b) Check run-out and condition of drive end bearing on the main drive motor. If there is an internal problem with the motor, it is sent to a motor repair center for service.
   c) Grease bearings
   d) Check condition of bearing RTD and replace if necessary

7. **Service the Voith fluid coupling**
   i. Clean fluid coupling exterior surface
   ii. Drain and change the ATF fluid. Inspect condition of the drained fluid for possible internal mechanical issues.
   iii. Remove the fluid coupling with a factory pulling device from the main drive motor shaft.
   iv. Remove the sheave and bearing housing from the fluid coupling.
   v. Remove the old grease from the bearing housing, clean the bearing with rags and solvent.
   vi. Repack the bearing housing with grease
   vii. Install the fluid coupling on the motor shaft
   viii. Replenish fluid to the factory level.
   ix. Verify the Voith BTS proximity sensor gap. Adjust necessary
   x. Verify the milliamp signal at the BTS junction box terminal. Adjust the gap accordingly to bring the milliamp reading to factory specifications. If this adjustment cannot be done to

bring it to factory specification, then the switching element and or the initiator may have to be replaced.

8. **After evaluation, and when necessary, rebuild the pneumatic knife gate**
   i. Assemble custom scaffolding under the centrifuge on the lower level
   ii. Disassemble all knife gate components
   iii. Replace all components
   iv. Test operation of knife gate and adjust if necessary

9. **After evaluation, and when necessary, rebuild the cake cross conveyor system**
   i. Assemble staging and scaffolding
   ii. Disassemble all cross conveyor components
   iii. Replace all mechanical and electrical components
   iv. Check electrical and pneumatic connections
   v. Test operation of cross conveyor in manual mode, troubleshoot and adjust if necessary
   vi. Verify operation of cross conveyor while the centrifuge produces cake.

10. **After evaluation, and when necessary, replace the hydraulic pump and or the Roto-diff hydraulic motor**
   i. Remove the components: hydraulic pump and or Rotodiff
   ii. Install the hydraulic pump: check drive alignment, test units and adjust for mechanical base RPM and squash plate indicator. Verify by monitoring the Viscotherm differential indicator. Also, the RPM can be monitored and checked by verifying the pulse count on the Viscotherm 400 card.
   iii. Install the Rotodiff: torque to specification, verify rotation plate position, and use a dial indicator to verify factory specifications for eccentricity. Shim accordingly if needed to adjust the eccentricity to factory specifications.

11. **Install rotating assembly on centrifuge frame**

   i. Wipe down main bearing machined surface with solvent. Use a honing stone to remove high spots on the machines surface.
   ii. Prepare the frame machined portion that accepts the pillow blocks; wipe down machined surface with solvent. Use a honing stone to remove high spots on the machines surface.
   iii. Rig the rotating assembly for lifting and lowering with slings and a factory spreader lifting device – making sure that the rotating assembly is precisely balanced horizontally. Lower the rotating assembly on the centrifuge frame.
   iv. Center the rotating assembly so there is proper clearance for the frame baffles.
   v. Perform a preliminary check of the main bearing alignment using double dial indicators, 180 degrees apart. Check for alignment at the 9 & 3 o'clock positions and at the 12 & six o'clock positions. All alignments must be within factory specifications.
   vi. Torque the main bearing fasteners to factory specifications using a torque multiplier.
   vii. Check the rotating assembly stem run-out for eccentricity using a dial indicator. Note and record the readings.

viii. Install the sheave and gear flange; Heat the components to 275 degrees making sure not to overheat the components. Install fasteners to factory torque specifications.
ix. Install the main drive belts
x. Verify alignment of the motor sheave to rotating sheave alignment. Adjust the motor base as necessary to align the sheaves.
xi. Install the Rotodiff as outlined previously
xii. Grease the internal scroll bearings. Purge the grease until all traces of air bubbles are eliminated.
xiii. Inspect the Rotodiff and belt guards. If cracked, bevel-grind the crack area and weld with a MIG welder. Paint the guards with safety yellow.
xiv. Flush the supply and return lines of the main bearing lubrication system.
xv. Terminate wires for the main bearing RTD
xvi. Run the back-drive on local (manual) to ensure that the hydraulic pump is primed. Prime the pump if necessary.

## 12. Test the centrifuge system.

***In addition to testing the mechanical and electrical components as a centrifuge system, this portion of the scheduled PM work entails monitoring, evaluation, and adjustment of the centrifuge system components which is an Andritz specific, technical process. This process will produce de-watered municipal sludge to exacting specifications in: cake dryness, capture of solids and polymer dose.***

i. Remove the electrical and mechanical lock-out tag-outs.
ii. Verify the centrifuge control panel powers up correctly, verify electrical components conditions:
    I. Verify that the PLC processor board does not have a fault condition
    II. Verify that there are LED indications of both the input and out modules of the PLC
    III. Press the "test light" button to acknowledge all indicator lamps work
    IV. Verify that the proportional amplifier card of the Viscotherm controller does not have fault indications
    V. Verify that there is bar, bowl rpm & differential indication of the Viscotherm controller
    VI. Verify that the main bearing temperature and vibration monitor are reading ambient temperature and zero in/sec respectively. If necessary, calibrate the instrument with a 4-20 milliamp signal generator to factory specifications.
    VII. Verify that there are no fault indications present of the PLC *(if so, troubleshoot the cause of the fault – see Service, diagnostic section)*
    VIII. Verify that there are no fault conditions on the main drive monitor screen – Eaton MP-3000. *(if so, troubleshoot the cause of the fault – see Service, diagnostic section).*
iii. Start and test the centrifuge system:
    I. Monitor and verify operation of the main drive bearing lubrication panel:

- Check flow to each bearing, adjust to factory specifications
- Purge air from the system by switching filters
- Check pressure of the oil flow to verify that it is within factory specification

II. Monitor and verify operation of the back-drive system.
   - Verify that the Viscotherm controller displays the minimum differential as adjusted in the hydraulic pump replacement section.
   - Check for unusual noises, vibration and leaks.

III. Monitor and verify the time to achieve the full speed of the bowl.
   - The time to full speed is determined by the Voith fluid coupling ATF level. If necessary, shut down the centrifuge system and adjust the TF level accordingly to increase or decrease the time to full bowl speed.
   - Monitor the main drive motor amperage and bearing temperature.

IV. Monitor the rotating assembly main bearing temperature and centrifuge vibration. Allow the unit to reach full operating temperature and begin vibration readings of the centrifuge frame and rotating assembly. These readings are then taken with flush water and then while sludge is fed into the centrifuge. Readings are taken with factory authorized vibration instruments:
   - Observe and record horizontal readings of the frame at the centrifuge frame vibration switch, axially at the main drive bearing pillow block, horizontal and vertical readings of the main bearing pillow block. Panel vibration readings are also recorded.

V. In conjunction with DEP operations, the centrifuge is then fed polymer and sludge to begin dewatering operations of sludge.
   - The polymer and sludge pump flows are monitored for proper flow and operation. If a polymer or sludge feed alarm is present during this portion of testing, then the centrifuge system is diagnosed for issues with wiring or component failure. If necessary, and as an aide to troubleshoot an alarm, the PLC program is monitored using PLC factory application software and a laptop computer plugged into the PLC.
   - The Viscotherm controller is then monitored for: bowl speed, bar pressure and differential. Differential monitoring is simultaneously checked with bar pressure to ensure that the back-drive system is working correctly under automatic control. If necessary, there may have to be adjustments made with the: squash plate indicator, base mechanical speed of the hydraulic pump, electronic base speed of the analog 500 card, boost pressure and base speed. While the Viscotherm controller is in auto control, the 600 card is the adjusted for ramp up speed and base differential.
   - The bar pressure/torque on automatic control is then adjusted to produce the driest cake possible while using the lowest amount of polymer and still have acceptable solids in the effluent stream. In

addition to this, adjustments in sludge flow and or polymer flow may have to be adjusted to achieve the desired product cake dryness and or effluent capture of solids.

iv. The centrifuge is released to DEP operations for operation. The scheduled preventative maintenance is completed with a full report and recorded readings. This is followed by completion of the DEP issued work orders entailing recorded work hours and an itemized list of parts installed.

## II. Service and repair of the centrifuge system: Mechanical and Electrical

**Mechanical repair and or corrective action of the centrifuge system: including the centrifuge rotating assembly, centrifuge frame and cover, back-drive system, lube oil panel system, Voith fluid coupling, pneumatic knife gate and cross conveyor**

I. Diagnose, inspect, repair or replace defective mechanical components of the centrifuge system or component systems

II. Perform a visual inspection of the failed or failing component while in operation or if necessary, remove and inspect. If necessary, refer to a factory print to verify that critical dimensions are within tolerance. Replace or repair the component as necessary.

III. If applicable, repair the component or part that may include weld repairs but limited to machining. If machining is necessary, the component would have to be sent to our service center for machining.

**Electrical repair of the centrifuge system: including centrifuge system control panel components, motor starter panel components, back-drive system electrical components, lube oil panel system electrical components, Voith BTS circuit, pneumatic knife gate electrical components and cross conveyor electrical components.**

I. Monitor, diagnose, troubleshoot electrical and software issues of the centrifuge system using electrical prints. Replace components as required to repair the electrical issue. When required, make adjustments and or calibrate sub components as specified by individual manufacturers; e.g. Viscotherm 500, 600 cards. Red Lion frequency converters, Newport Digital Displays, Voith BTS circuit, etc.

- When required, monitor the PLC program while the centrifuge system is in operation to determine, on a program level, if there is a problem with field devices or the program itself. There are two PLC systems currently in use at NYC DEP centrifuge system installation: Siemens TI Soft Rockwell Automation RS Logix 5000. This requires the licensed program, the application software, a laptop

computer; factory wired serial port connectors and a computer port adapter. Competent knowledge of the PLC application software and basic programming knowledge is necessary for this portion of the electrical diagnostics. In addition and when necessary, downloading of the program software may be necessary if the loaded program was deleted.

## III. Evaluation, diagnostics and remedy of process performance as it relates to the centrifuge system

### 1. Evaluation to determine if the centrifuge system or sludge process conditions will need changes to produce require cake dryness and or solids capture in the effluent stream. In some instances, diagnose total upset in dewatering.

i. Query DEP operations to determine if there is an upset in process condition: e.g. polymer solution makeup, stratification of sludge holding tanks that would allow supernatant to be fed into the centrifuge (low feed solids), etc.

ii. If process conditions are within normal plant parameters, determine if the centrifuge system has to be diagnosed:

   I. Monitor the Viscotherm controller to evaluate minimum differential and regulation of the back-drive.
      - Determine if there is a mechanical or electrical issue with the regulation of the back-drive while under automatic control
      - If electrical, determine if the problem is with the proportional amplifier or with the automatic card, 600.
      - Verify proper adjustment of the squash plate indicator and mechanical base differential of the hydraulic pump.

   II. If a mechanical issue is suspected with regulation of the back-drive, perform a factory pressure test of the hydraulic pump and or Rotodiff. Replace component/s if necessary

iii. Determine if there is a regulation issue with sludge feed and or polymer feed.

   I. Adjust the Siemens PID process controller for sludge feed and or polymer feed. If necessary, replace the controller

iv. Monitor process conditions after adjustments and or replacement of components to determine if cake dryness and or effluent solids capture are acceptable.

Rig rotating assembly onto flatbed truck from centrifuge room floor.
Rig rotating assembly off of flatbed truck onto centrifuge room floor.

## SCHEDULE "B" - DRUG AND ALCOHOL POLICY

### PREAMBLE

**WHEREAS**, [CONSTRUCTION MANAGER] ("Construction Manager"), for the construction project located at [PROJECT ADDRESS] ("Project") desires to provide for a safe, drug and alcohol-free work site for the Project;

**WHEREAS**, the parties have entered into a separate Project Labor Agreement for the Project and have agreed to negotiate in good faith a Project Drug & Alcohol Testing Policy;

**WHEREAS**, this Testing Policy is collectively negotiated between the Construction Manager and the New York City Building and Construction Trades Council ("Council") (the Construction Manager and BCTC are collectively referred to hereafter as the "Parties");

**WHEREAS**, the Parties each currently have respective drug and alcohol policies, including the Projects' Zero-Tolerance policy;

**WHEREAS**, the Parties desire to maximize project safety conditions for the Project personnel and public, as well as deter violations of the Parties' respective drug and alcohol policies;

**NOW, THEREFORE**, the Parties agree to this Policy as of the date hereof,

### ARTICLE 1 - PARTIES

This Drug & Alcohol Testing Policy ("Policy") is hereby established by the Construction Manager and the Council, on behalf of itself and its affiliated local union members, and the signatory local unions on behalf of themselves and their members.

### ARTICLE 2-GENERAL CONDITIONS

**SECTION 2.1 - SUMMARY**

In order to reinforce the Parties' respective drug and alcohol policies, including the Projects' zero tolerance policy regarding the prohibition of the use of drugs and alcohol, and to deter Project personnel from violating those policies, the Parties agree that all Project Personnel (defined later) will be required to submit to drug and/or alcohol testing randomly, post-accident, and for reasonable suspicion provided such testing is in accordance with applicable state and/or federal law, including the limitations in NYS Labor Law 201-d applicable to the lawful use of marijuana.

Any individual on site that violates this Policy is subject to disciplinary action, including, without limitation, loss of site access privileges.

**SECTION 2.2 - REVOCATION OF PROJECT ACCESS PRIVILEGES**

Any one of the following occurrences will result in the immediate revocation of a Project Personnel's project access privileges:

1. An individual is found selling or using drugs or alcohol, or otherwise is under the influence of drugs or alcohol, subject to the other terms of this Policy, on a Project Site;
2. An individual has been convicted under any criminal drug or alcohol statute for a violation occurring in the workplace within the past two years;
3. An individual who refuses to abide by the Projects' drug and alcohol policy, or refuses to submit to a test in accordance with this Policy;
4. An individual who switches, adulterates, or in any way tampers with a specimen required to be submitted in accordance with this Policy.

**SECTION 2.3 - DEFINITIONS**

Confirmed Positive Test: The presence of drugs, drug metabolites, or alcohol in a person's body that equals or exceeds the established cut off levels as defined in Exhibit 1. For drugs, the sample will have undergone Laboratory screening and confirmation testing and must have been verified as positive by a Medical Review Officer. A positive test result for alcohol obtained through Evidential Breath Testing is considered a Confirmed Positive Test.

Employee Assistance Program (EAP): An EAP is generally considered a workplace-based, confidential program designed to help employees deal effectively with a variety of personal problems, and, of relevance to this policy, substance abuse problems. The EAP promotes assessments and short-term counseling. An EAP shall also include any similar education or rehabilitation program provided by the Councilor its respective members. The Project Personnel that are required to participate in the EAP shall be responsible for the cost of their consultation with an EAP and/or participation in any education or rehabilitation program.

Evidential Breath Testing Device (EBT): A device that is used to measure alcohol in the breath and which meets National Highway Traffic Safety Administration's specifications for precision and accuracy.

Laboratory: A laboratory that is SAMHSA (Substance Abuse and Mental Health Services Administration) certified for the testing of drugs.

Medical Review Officer (MRO): A licensed physician responsible for receiving laboratory results generated by an employer's drug testing plan who has knowledge of substance abuse disorders and medical training to interpret and evaluate a donor's confirmed positive test result together with his/her medical history and all other relevant information.

Previous Worker: All individuals whose employment relationship with the contractor, company or organization no longer exists.

Project Site: The construction area for respective Project.

Reasonable Suspicion: When a qualified trade contractor, the Developer or Construction Manager as set forth in Section 3.7, reasonably believes that an individual has violated this Policy. Reasonable suspicion is based upon (1) specific, current, behavioral or performance indicators, (2) the possible manufacture, distribution, consumption or possession of unauthorized drugs, drug paraphernalia, or alcohol, or (3) documented investigation by an agency retained by, or otherwise independent from, the Developer or Construction

Manager.

**SECTION 2.4 - INCLUDED SUBJECTS**

This Policy shall cover all employees of the Owner, Construction Manager and Project trade contractors, their subcontractors and any other of their respective personnel at any level that are performing any activity at a Project Site, inclusive of managers, superintendents and supervisors, except as specifically excluded by Section 2.5 of this Policy (collectively and singularly, "Project Personnel").

**SECTION 2.5 - EXCLUDED SUBJECTS**

The following persons are not subject to the provisions of this Policy:

- **A.** Employees and entities engaged in off-site manufacture, modifications, repair, maintenance, assembly, painting, handling or fabrication of components, materials, equipment or machinery;
- **B.** Vendors and employees of vendors engaged on a Project Site in equipment testing, inspection, training, warranty work, or engaged in corrections of defective or nonconforming work, unless such employees are expressly included in the bargaining unit of a local signatory to this Agreement;
- **C.** Employees engaged in ancillary work on a Project which is performed by third parties, such as electric utilities, gas utilities, telephone companies, and railroads, or any other work not constituting Project work;
- **D.** Employees of any governmental authority (state, local or otherwise);
- **E.** Employees and contractors engaged in work on the Project Site as part of due diligence or monitoring, which work is ancillary to Project work; and
- **F.** Emergency responders.

**SECTION 2.6 - PRESCRIPTION AND NON-PRESCRIPTION DRUGS**

The use of prescription drugs not prescribed directly to Project Personnel is prohibited, including the use of drugs prescribed to a spouse or domestic partner. The use of non-prescription drugs that are sold outside the United States and that contain substances that are illegal or require a prescription in the United States are prohibited, unless prescribed by a licensed physician.

**SECTION 2.7 - SEARCHES**

In order for the Construction Manager to ensure the safety of Project Personnel and for the Construction Manager to protect its assets, the Construction Manager shall have the right upon good cause (such as reasonable suspicion of a violation of this Policy) to conduct reasonable searches for alcohol, drugs and related paraphernalia anywhere within the boundaries of a Project Site. A search may include any assets owned or leased by any Project Personnel that is on a Project Site, including without limitation, vehicles, lockers, gang boxes, desks and personal property brought onto a Project Site, but excluding personal body searches or physical contact with employees.

## ARTICLE 3 - DRUG & ALCOHOL TESTING

**SECTION 3.1 - COLLECTION PROCESS**

As of the execution date of this PLA, Project Personnel may be required to submit urine samples ("Preliminary Drug Screening") for the purpose of detecting the presence of drugs as part of the random, post-accident or reasonable suspicion testing, in accordance with chain of custody protocols as established by Substance Abuse and Mental Health Services Administration (SAMHSA), utilizing an instant result test cup for Preliminary Drug Screenings, such testing is to be performed on-site by an independent service provider. The results from the instant result test cup will be considered preliminary. The sample will be sent to a SAMHSA certified testing laboratory for confirmation.

As of the date hereof, all Project Personnel will be required to submit to an Evidential Breath Test (EBT) for the purpose of detecting the presence of alcohol when submitting to random, post-accident or reasonable suspicion testing. Alcohol testing will not be conducted for pre-access testing.

**SECTION 3.2 - NEGATIVE PRELIMINARY DRUG SCREENING**

Project Personnel with a negative Preliminary Drug Screening will be considered conditionally accepted for Project site access, pending confirming laboratory results. Site access privileges will be revoked if the subsequent laboratory results determine that the sample has tested positive for drugs or that the sample has been adulterated.

**SECTION 3.3 POSITIVE PRELIMINARY DRUG SCREENING**

If the Preliminary Drug Screening indicates a positive result, the individual will not be allowed access to the Project Site. The sample will be sent to the certified laboratory for analysis and, if applicable, reviewed by the Medical Review Officer (MRO). If the laboratory confirmation results are also positive, the individual will be considered in violation of this Policy and their site access will be revoked for at least 30 days. If the laboratory confirmation results are negative, the Project Personnel's site access will not be revoked.

**SECTION 3.4 CONFIRMED POSITIVE TEST RESULTS**

**A. POSITIVE DRUG TEST**

A drug test is considered positive if the test results exceed the limits shown in Exhibit 1, which is attached hereto and incorporated herein by reference. The test will be confirmed through a second analysis process and reviewed by an MRO before results are reported. Project Personnel with confirmed positive drug test results will have their site access revoked. In case of a "false positive" result, any such Personnel shall be entitled to the reimbursement of any wages lost during the suspension caused by any such false positive result.

**B. POSITIVE EBT**

An EBT is considered positive if the test results exceed .04 BrAC, or as otherwise set forth in Exhibit 1. Project Personnel with a positive alcohol test result will be subject to the remedies set forth in Exhibit 1.

**C. REINSTATEMENT OF SITE ACCESS PRIVILEGES**

(a) Subject to section 3.4(C)(a) immediately below, if the site access of a Project Personnel has been revoked pursuant to this Policy, then any such person may request that their site

access be reinstated after 30 days, provided that all of the following conditions are met to the reasonable satisfaction of the Construction Manager. :

1. The individual has provided proof of wellness from an accredited rehabilitation facility or has provided proof that treatment isn't needed as attested to by a licensed health care provider specializing in the diagnosis and treatment of alcohol and drug abuse.
2. A current drug and alcohol test is obtained within three (3) days of the request for re-access to the site and proof of a negative test result has been received; and
3. The individual agrees to submit to multiple testing for two (2) full years from the date of gaining re-access to the project, the scheduling of which will be determined at the sole discretion of the Construction Manager. If all of these conditions have been met, the Construction Manager agrees that it will not unreasonably withhold their consent to any such request.

(b) Unlawful possession, concealment, use, purchase, sale, manufacture, dispensation or distribution of illegal drugs or un-prescribed controlled substances on the Project site will subject the Project Personnel Employee to immediate removal from the Project site and shall bar such Project Personnel Employee from returning for a minimum of three (3) months, which return shall, in any event, be subject to the reasonable approval by Construction Manager.

(c) All of the Parties agree that any such Project Personnel will only be entitled to any such reinstatement of site access privileges one time and that any subsequent violation of this Policy will result in the permanent termination of access to the Project Site.

**SECTION 3.5 - RANDOM TESTING**

A third-party provider designated by the Construction Manager will randomly select by an objective criteria a testing pool for random drug and/or alcohol testing from all Project Personnel with site access cards. Any individual selected for a random drug and/or alcohol test will be required to submit to an Evidential Breath Test (EBT) and/or drug test. Individuals may be tested more than once during any given time period. The Parties acknowledge and agree that an EBT may be required without a drug test and that a drug test may be required without an EBT, as solely determined by the Construction Manager.

If an individual is unable to attend the first scheduled random drug test as a result of being involved in a work-related task, such drug test will be rescheduled and will be completed at or before the conclusion of such employee’s then current work shift. If the second drug test is missed for any reason, the incident will be reviewed by the Construction Manager, who shall have the right to terminate the site access privileges of any such Project Personnel until such time as that Project Personnel has complied with this Policy. If the individual refuses to take the test, their access privileges will be immediately terminated for cause.

**SECTION 3.6 - POST ACCIDENT TESTING**

After each work-related incident or injury requiring the services of a licensed health care provider, all Project Personnel involved with the incident will be required to submit to a drug and/or alcohol test immediately following the incident. In instances where emergency care is necessary, the drug and/or alcohol test shall be obtained by the care facility, if

possible, within 24 hours after treatment is rendered. If more than 48 hours have passed before an injury is reported and treated by a licensed health care provider, an alcohol test will not be required.

In addition, any Project Personnel involved in a non-injury related incident at a Project Site with damages at or in excess of $200 will be required to submit to a drug and/or alcohol test unless:

A. It is determined, after conducting an investigation and interviewing all employees involved and any witnesses, that the employee's performance can be completely discounted as a contributing factor to the incident; or
B. It is determined, after conducting an incident investigation and interviewing all employees and any witnesses that the incident was caused by inadequate equipment or system design, and/or premature failure of equipment or system components.

**SECTION 3.7 - REASONABLE SUSPICION TESTING**

All Project Personnel will be required to submit to a drug and/or alcohol test when there is reasonable suspicion the individual has violated this policy.

Reasonable suspicion includes, without limitation, the following:

A. Violent or irrational behavior;
B. Emotional or physical unsteadiness;
C. Sensory or motor-skill malfunctions;
D. Slurred speech;
E. The odor of alcohol or drugs on clothing or breath in conjunction with other indicators;
F. Possession of alcohol, unauthorized drugs or drug paraphernalia; or
G. Documented evidence of an independent investigation regarding Project Personnel's consumption of what is reasonably believed to be an alcoholic beverage or drugs in violation of the Project's policies and/or this Policy.

Reasonable suspicion testing may only be ordered by supervisory personnel that: (a) have been trained to recognize the above referenced factors; or (b) have received credible documentary evidence from an independent investigator that a Project Personnel has violated a drug and/or alcohol policy. It is agreed that any certified training program shall satisfy the training requirement.

**SECTION 3.8 - PRIVACY CONSIDERATIONS**

The Parties agree to use reasonable efforts to conduct any testing pursuant to this Policy in accordance with the privacy concerns of Project Personnel. To address these concerns, the Parties agree that:

1. The testing station(s) shall be screened off, or otherwise closed off from public view.
2. All documents and information regarding the testing, including test results, shall be maintained by the respective custodian(s) of record in accordance with

their respective privacy policies, which any Project Personnel shall be entitled to review upon timely request.

3. The Parties agree to make a good faith effort to resolve any other privacy concern of Project Personnel regarding this Policy, provided that any such concerns do not interfere with the purpose of this Policy.

## ARTICLE 4 – GRIEVANCE

### SECTION 4.1 - REPRESENTED WORKERS

Nothing in this Policy shall restrict a member of a signatory local union from filing a grievance in accordance with the member's collective bargaining agreement or a Project Labor Agreement, provided that the grievance shall be limited to whether the removal of a member for violation of this Policy was conducted in compliance with the terms and conditions set forth herein.

### SECTION 4.2 - HOLD HARMLESS

The Construction Manager agrees to hold harmless and indemnify the Union/Council and its representatives from any liability that may be incurred as a result of the Company's Drug and Alcohol Policy to the extent caused by the negligence or intentional misconduct of the Construction Manager.

**IN WITNESS WHEREOF** the parties have agreed to this Policy as of _____, 20___.

FOR [CONSTRUCTION MANAGER]

By: _____

Name: [INSERT NAME]_____

Title: [INSERT TITLE]_____

FOR GREATER NEW YORK CITY BUILDING TRADES COUNCIL

By: _____

Name: Gary LaBarbera _____

Title: President

**EXHIBIT 1**

CLASS OF DRUGS TESTED AND THEIR RESPECTIVE CUT-OFF LIMITS

The cut-off limits established are those recommended by the U.S. Department of Health and Human Services in their mandatory Guidelines for Federal Workplace Drug Testing Programs.

| Drug Class | Screening Cut-Off Limit (ng/ml) | Confirmation Cut-off Limit (ng/ml) |
|---|---|---|
| Amphetamines | 1000 | 500 |
| Benzoylecgonine (Cocaine Metabolite) | 300 | 150 |
| Cannabinoids (THC) | 50 | 15 |
| *Opiates | 2000 | 10 |
| Phencyclidine (PCP) | 25 | 25 |

Confirmation screening is done by means of GC/MS analysis.

*The GC/MS confirmation for opiates will be for both codeine and morphine separately. If morphine is equal to or greater than 2,000ng/ml then the GC/MS confirmation analysis for 6- acetylmorphine (6-MAM) is at a cut-off level of 10ng/ml.

Alcohol Screening

All Project Personnel will be required to submit to an EBT under the random, post-accident, and reasonable suspicion test arenas, for the purpose of detecting presence of alcohol. If this test supports a positive result for presence of alcohol, the Project Personnel will be considered in violation of this Policy.

If the results of the EBT are:

1. Above 0.001 BrAC, but at or below 0.020 BrAC, a second test will be conducted within approximately 15 minutes.
    - If the second BrAC test is less than the first BrAC, the results will be deemed negative and the Project Personnel may return to work, if there are no other outstanding issues.
- If the second BrAC is increasing, but below 0.04 BrAC, the results will be deemed negative, but the Project Personnel will be sent home for the day and the Construction Manager shall be notified. If a Project Personnel is sent home two times within a six-month period pursuant to this Section I, then any such Project Personnel shall be deemed to have tested positive and will be subject to the applicable remedies set forth in Section 2 below.
2. Above 0.02 BrAC, but below 0.06 BrAC, a second test will be conducted after approximately 15 minutes.

- Notwithstanding anything set forth above to the contrary, a Project Personnel may elect to voluntarily go home for the day instead of taking a second test and the results will be deemed negative, provided that any such Project Personnel may not voluntarily go home more than once within a twelve month period.
- If the second BrAC test is at or below 0.02 BrAC, the results will be deemed negative and the Project Personnel may return to work if there are no other outstanding issues.
- If the second BrAC test is above 0.020, but below 0.06, the results will be deemed positive, the Project Personnel will be sent home for the day and their site access will be revoked for at least five [5] calendar days and until such time as the Project Personnel has been evaluated by an EAP professional skilled in substance abuse and confirmed fit for duty.
- Any Project Personnel who is deemed positive two times within two years pursuant to this Section 2 will have their site access privileges terminated and will be entitled to the limited relief set forth in Section 3 .4( c) of the Policy.

3. At or above .06 BrAC, the Project Personnel will have their site access privileges terminated, after which they will be entitled to the limited relief set forth in Section 3.4(C) of the Policy.

**CITY OF NEW YORK**

**DEPARTMENT OF DESIGN AND CONSTRUCTION**

# INFORMATION FOR BIDDERS

**October 2025**

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*CITY OF NEW YORK*
*DEPARTMENT OF DESIGN AND CONSTRUCTION*

# *INFORMATION FOR BIDDERS*

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1. Description and Location of Work

The description and location of the work for which bids are requested are specified in the PASSPort RFx field "Description".

2. Time and Place for Receipt of Bids

Sealed bids shall be received on or before the date and hour specified in the PASSPort RFx, at which time they will be publicly opened and read aloud in the presence of the Commissioner or the Commissioner's 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 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 in the PASSPort RFx.

5. Pre-Bid Conference

A pre-bid conference shall be held as set forth in the PASSPort RFx. 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 the PASSPort RFx.

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 The PASSPort RFx.

(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 the Commissioner 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 the Commissioner's 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.

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 the PASSPort RFx, 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 the bidder's option, may ask to be relieved of the bidder's 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.

(B) 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 the PASSPort RFx questionnaire. 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 the PASSPort RFx. 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 the PASSPort RFx. 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 the bidder’s 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 the bidder’s 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 PASSPort Vendor Profile.

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 Schedule, multiplied by the corresponding unit prices, and including any lump sum bids on individual items.

(B) Variations from Engineer's Estimate: Bidders are warned that the Engineer's Estimate of Quantities on the various items of work and materials is approximate only, given solely to be used as a uniform basis for the comparison of bids, and is not be considered part of this contract. The quantities actually required to complete the contract work may be less or more than so estimated, and if so, no action for damages or for loss of profits shall accrue to the contractor by reason thereof.

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

34. Excise Tax

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

35. Licenses and Permits

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

36. Multiple Prime Contractors

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

37. Locally Based Enterprise Requirements (LBE)

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

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

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

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

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

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

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

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

(a) the name and address of each LBE that will be given a subcontract,

(b) the percentage, dollar amount and type of work to be subcontracted to the LBE, and

(c) the dates when the LBE subcontract work will commence and end.

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

(a) verification letters from each subcontractor listed in the "LBE Participation Schedule" stating that the LBE will enter into a formal agreement for work,

(b) certification documents of any proposed LBE subcontractor which is not on the LBE certified list, and

(c) copies of the certification letter of any proposed subcontractor which is an LBE.

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

(a) attendance at prebid meetings, when scheduled by the agency, to advise bidders of contract requirements;

(b) advertisement where appropriate in general circulation media, trade association publications and small business media of the specific subcontracts that would be at least equal to the percentage goal for LBE utilization specified by the contractor;

(c) written notification to association of small, minority and women contractors soliciting specific subcontractors;

(d) written notification by certified mail to LBE firms that their interest in the contract is solicited for specific work items and their estimated values;

(e) demonstration of efforts made to select portions of the work for performance by LBE firms in order to increase the likelihood of achieving the stated goal;

(f) documented efforts to negotiate with LBE firms for specific subcontracts, including at a minimum:

(i) The names, address and telephone numbers of LBE firms that are contacted;

(ii) A description of the information provided to LBE firms regarding the plans and specifications for portions of the work to be performed;

(iii) Documentation showing that no reasonable price can be obtained from LBE firms;

(iv) A statement of why agreements with LBE firms were not reached;

(g) a statement of the reason for rejecting any LBE firm which the contractor deemed to be unqualified; and

(h) documentation of efforts made to assist the LBE firms contacted that needed assistance in obtaining required insurance.

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

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

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

38. Bid Submission Requirements

The Bid Submission Requirements are set forth in the PASSPort RFx.

39. Comptroller's Certificate

This Contract shall not be binding or of any force unless it is registered by the Comptroller in accordance with Section 328 of the City Charter and the Procurement Policy Board Rules. This Contract shall continue in force only after annual appropriation of funds by the City of New York and certification as hereinabove set forth.

40. Procurement Policy Board Rules

This Invitation For Bids is subject to the Rules of the Procurement Policy Board of the City of New York. In the event of a conflict between said Rules and a provision of this Invitation For Bids, the Rules shall take precedence.

41. DDC Safety Requirements

The DDC Safety Requirements apply to the work to be performed pursuant to the Contract. The DDC Safety Requirements are set forth on the following pages.

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# CITY OF NEW YORK
# DEPARTMENT OF DESIGN AND CONSTRUCTION
# CONTRACT SAFETY REQUIREMENTS

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1. POLICY ON SITE SAFETY
2. PURPOSE
3. DEFINITIONS
4. RESPONSIBILITIES
5. SAFETY QUESTIONNAIRE
6. SITE SAFETY PLAN
7. KICK-OFF/PRE-CONSTRUCTION MEETINGS
8. SAFETY COMPLIANCE DURING WORK IN PROGRESS
9. SAFETY PERFORMANCE EVALUATION

## 1. POLICY ON SITE SAFETY

1.1 The City of New York Department of Design and Construction (DDC) is committed to preventing workplace injuries and illnesses, as well as managing risks associated with construction activities. This commitment includes protecting both the workers involved in DDC projects and the general public.

1.2 Construction sites are dynamic environments where workers perform a variety of tasks that may expose them to numerous safety hazards. These hazards include, but are not limited to, falling objects, working at heights on rooftops or scaffolding, operating heavy construction equipment, and using temporary electrical circuits in damp conditions while handling electrical tools and machinery. DDC project sites encompass a wide range of construction activities, including construction of new buildings, renovation of existing facilities, major repairs or modifications to building systems, and horizontal infrastructure work such as installation of water and sewer mains, road and sidewalk repairs, and other street and roadway improvements across the five Boroughs.

1.3 The Contract Safety Requirements for construction projects outlines the safety, health, and environmental policies and procedures applicable to all Contractors working on DDC construction projects. While this document provides guidance on key safety protocols, it remains the sole responsibility of Contractors, their staff, and any subcontractors to fully comply with the safety requirements below.

1.4 All work performed on DDC construction sites must adhere to the most current versions of applicable federal, state, and city laws, rules, and regulations, including, but not limited to, those referenced in this document. In addition, Contractors, subcontractors, and Construction Manager firms must comply with any newly issued or revised laws, regulations, rules, and contract requirements that arise during the course of the project. All costs associated with such compliance are the sole responsibility of the Contractor and Construction Manager firms and will not be reimbursed by DDC.

- Code of Federal Regulations, Title 29, Part 1926 (29 CFR 1926) and other applicable standards of 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
- New York City Building Code, Chapter 33 – Fire Safety During Construction, Alteration, and Demolition
- New York City Fire Code

## 2. PURPOSE

2.1 The purpose of these Contract Safety Requirements is to ensure that all work performed by Contractors and their subcontractors on DDC projects is carried out in full compliance with applicable federal, state, and city laws, rules, and regulations. Contractors are expected to provide effective supervision of both their own personnel and those of their subcontractors, and to maintain full accountability for their safety performance.

2.2 Contractors are also responsible for identifying, minimizing, and eliminating safety and health hazards that may impact both the jobsite and the general public. This responsibility must be fulfilled through a structured approach that includes planning, inspections, audits, and timely corrective actions. The primary objective is to manage risks effectively and reduce the occurrence of injuries, illnesses, incidents, and accidents involving Contractor and

subcontractor personnel, Construction Manager and DDC staff, and members of the public while also preventing damage to city-owned and private property to the greatest extent possible.

2.3 Construction Manager (CM) firms share responsibility for maintaining safety standards on DDC projects. This includes actively monitoring Contractor and subcontractor performance, enforcing compliance with safety requirements, identifying potential risks, and working collaboratively with both DDC and the Contractor to implement corrective actions. CM must ensure that safety policies are consistently upheld throughout all phases of the project. They are also expected to facilitate continuous communication regarding jobsite conditions and safety concerns to support a safe and responsive work environment.

## 3. DEFINITIONS

3.1 "Accident" means an unplanned project related event that results in a fatality or personal injury requiring medical treatment beyond first aid.

3.2 "Agency" means a city, county, borough or other office, position, department, division, Office, 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.

3.3 "Agency Chief Contracting Officer" or "ACCO" means the position delegated authority by the Agency Head to organize and supervise the procurement activity of subordinate Agency staff in conjunction with the City Chief Procurement Officer.

3.4 "Auditor" means a representative of the Office of Construction Safety, Quality Assurance, or Environmental & HazMat Services who conducts inspection and assessment services to verify compliance and promote health and safety on active DDC construction projects. The responsibilities of the Auditor include performing site audits; reviewing safety plans, construction permits, and drawings; verifying Contractor compliance with applicable federal, state, and city laws, rules, and regulations; ensuring adherence to Agency requirements; and providing technical advice and assistance to project staff.

3.5 "Competent Person" means an individual as defined by OSHA who is capable of identifying existing and foreseeable hazards in the surroundings or working conditions that are unsanitary, hazardous, or dangerous to employees or the general public, and who is authorized to take prompt corrective measures to eliminate such hazards. The Competent Person shall have successfully completed, at a minimum, an authorized 30-hour OSHA Construction Safety Course applicable to construction projects and shall possess a valid Site Safety Training (SST) Supervisor Card for projects where such certification is required. Multiple Competent Persons may be required based on the scope and complexity of work.

3.6 "Construction Manager (CM) means a representative, duly designated to act on the Commissioner's behalf at the Project Site. This role may be fulfilled by a vendor retained by the DDC, which may include, but is not limited to, a Construction Management firm, a Resident Engineer Inspection (REI) firm, or a Project Management/Construction Management (PMCM) firm, depending on the project delivery method and contract type.

3.7 "Contractor" means any individual or entity that enters into an agreement with the DDC to perform construction work. Depending on the project delivery method and contract type, the responsible party may include, but is not limited to, a Contractor, Design-Builder, or Construction Manager-Builder (CM-Builder).

3.8 "Corrective Action Plan" means a structured approach to address unsafe conditions through evaluation, determination of root cause, and specific, step-by-step actions to mitigate the unsafe condition and prevent recurrence.

3.9 "Daily Safety Job Briefing" means a jobsite safety meeting given to all jobsite personnel by the Contractor at the Project Site on a daily basis before work begins, and/or whenever hazards or potential hazards are identified during the course of work. The purpose of the Daily Safety Job Briefing is to discuss the scheduled activities for the day, the hazards associated with those activities, activity-specific safety procedures, and the JHA relevant to the

planned construction work. Daily Safety Job Briefings shall be documented and made available upon request at the jobsite. Documentation shall include, at a minimum: the topics discussed; the name and signature of the individual conducting the briefing; the names and signatures of all attendees; the name of the designated Competent Person; the names of the Contractor and subcontractor(s); the DDC Project ID; and the date, time, and location of the briefing.

3.10 "Department" or "DDC" means the Department of Design and Construction of the City of New York acting by and through the Commissioner thereof, or his/her duly authorized representative.

3.11 "Job Hazard Analysis (JHA)" means a process used to identify major job tasks and any potential site-specific hazards that may be present during construction, and to establish the means and methods for eliminating or controlling those hazards. A JHA shall be documented and made available upon request at the jobsite. At a minimum, the JHA shall include: the work task being performed; identified hazards; control methods for the identified hazards; the names of the Contractor and subcontractor(s); the DDC Project ID; the location and date; and the name and signature of the certifying individual. A JHA is a living document and must be re-evaluated and revised as necessary to address new or evolving hazards and tasks that may arise during the course of the project.

3.12 "Incident" means an unplanned project related event that results in personal injury requiring first aid or property damage.

3.13 "Multiemployer Site" means a Project Site where multiple Contractors and one or more subcontractors may be present, with subcontractors operating under the oversight of the respective Contractors.

3.14 "Near-Miss" means an unplanned project related event that does not result in an injury or damage but could have possibly led to an injury or damage.

3.15 "Office of Construction Safety (OCS)" means an office of DDC Safety and Site Support Division that assesses contractors' safety compliance on DDC construction projects and advises responsible parties of needed corrective actions.

3.16 "Office of Environmental & HazMat Services (OEHS)" means an office of DDC Safety and Site Support Division that assesses contractors' environmental compliance on DDC construction projects and advises responsible parties of needed corrective actions.

3.17 "Office of Quality Assurance (OQA)" means an office of DDC Safety and Site Support Division that assesses contractors' quality and safety compliance on DDC construction projects and advises responsible parties of needed corrective actions.

3.18 "Project Site" means the area(s) upon or in which the construction work for the Project is performed, and such other areas adjacent thereto as may be designated by the Commissioner.

3.19 "Project Safety Representative" means an individual designated by the Contractor to oversee safety at the Project Site. A Project Safety Representative is required for all DDC construction projects and may perform other duties, provided that their primary focus remains on safety. The Project Safety Representative shall be present on-site during all construction work activities and shall be responsible for the proper planning and implementation of all applicable safety measures, continuous monitoring of safety performance during construction activities, conducting documented daily safety inspections, and ensuring timely execution of corrective actions to maintain a safe and compliant work environment. Multiple Project Safety Representatives may be required based on the scope and complexity of work. DDC reserves the right to require a full-time Project Safety Representative dedicated to safety compliance at any point during the project, for any reason, and the Contractor shall provide this representative at no additional cost to DDC. The Project Safety Representative shall, at a minimum, have successfully completed a 30-hour OSHA Construction Safety Course applicable to construction activities, and possess a Site Safety Training (SST) Supervisor Card where required. This individual shall have sufficient experience and expertise to identify health and safety hazards, apply appropriate controls, and hold the authority to initiate corrective actions.

3.20 “Project Safety Manager” means a dedicated, full-time safety professional required on construction projects as determined by the Commissioner or his/her duly authorized representative. The Project Safety Manager may be mandated by DDC at any time during the course of the project, for any reason, and shall be provided by the Contractor at no additional cost to DDC. The designated full-time Project Safety Manager shall be present on-site during all work activities and shall, at a minimum, possess the following qualifications: successful completion of an OSHA 30-hour Construction Safety certification; a valid Site Safety Training (SST) Supervisor Card where required; and one of the following professional credentials: Certified Safety Professional (CSP), Associate Safety Professional (ASP), or Certified Health and Safety Technician (CHST). The individual shall also have additional safety training and certifications relevant to the scope of work performed by the Contractor and/or subcontractor(s). The Project Safety Manager must have sufficient experience and expertise to identify and understand site-specific health and safety hazards and appropriate control measures and shall have the authority to enforce the implementation of corrective actions as necessary.

3.21 “Qualified Person” means, 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 the 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.

3.22 “Registered Construction Superintendent (Construction Superintendent)” means an individual officially registered with the New York City Department of Buildings (DOB) and responsible for performing all duties outlined in Chapter 33 of Title 1 of the Rules of the City of New York. For applicable projects, as specified in Title 28 of the New York City Construction Codes, Contractors are required to assign one or more Construction Superintendents to ensure compliance with regulatory requirements and provide effective site safety oversight.

3.23 ”Safety Questionnaire” means a form used by DDC to assess a contractor’s current and historical safety performance. Completion of the Safety Questionnaire is mandatory for all Contractors, as part of the pre-award evaluation process.

3.24 “Site Safety Coordinator” means an individual designated by the Contractor for certain projects, as defined in Title 28 of the New York City Construction Codes. This individual must hold a valid Site Safety Coordinator License issued by the New York City Department of Buildings.

3.25 “Site Safety Manager” means an individual designated by the Contractor for specific projects, as defined in Title 28 of the New York City Construction Codes. This individual must hold a valid Site Safety Manager License issued by the New York City Department of Buildings.

3.26 “Site Safety Plan (SSP)” means a project-specific document that identifies all construction activities within the defined scope of work, evaluates associated hazards, and outlines appropriate safety procedures and training requirements necessary for the safe execution of tasks. The SSP shall include tailored safety measures based on the nature of the work and is subject to review and formal acceptance by the Office of Construction Safety (OCS) prior to the commencement of any on-site activities.

3.27 “Stop Work Order (SWO)” means to an action issued by DDC in response to either (a) a hazardous condition presenting imminent danger to life or property, where the Contractor is unable to take immediate corrective action, or (b) noncompliance with applicable federal, state, and city laws, regulations, and agency requirements. If such conditions are identified and immediate remediation is not feasible, the Office of Construction Safety (OCS), Office of Quality Assurance (OQA) or Environmental & HazMat Services (OEHS) has the authority to issue a full or partial SWO. The SWO mandates the suspension of all work associated with the identified hazard or noncompliance and will remain in effect until the Contractor submits satisfactory corrective measures, which are reviewed and approved by OCS, OQA, or OEHS, and fully implemented on-site.

3.28 “Site Safety Training (SST) Card” means a certification card issued by New York City Department of Buildings (DOB) under Local Law 196. The Law requires workers and supervisors at construction sites, that

designated a Construction Superintendent, Site Safety Manager, or Site Safety Coordinator, to complete safety training and obtain DOB approved SST cards.

3.29 "Subcontractor" means any person, firm, or corporation, other than employees of the Contractor, that enters into an agreement with the Contractor or with another subcontractor to furnish, or actually furnishes, labor; labor and materials; labor and equipment; or superintendence, supervision, and/or management services at the Project Site. Wherever the term "Subcontractor" appears, it shall also include sub-subcontractors.

3.30 "Unsafe or Unhealthy Condition" means A condition that poses a potential risk to the health and safety of personnel or the general public, and/or may result in harm to equipment, machinery, property, or the surrounding environment.

3.31 "Weekly Safety Meetings" means scheduled jobsite safety meetings conducted weekly by the Contractor for all on-site personnel. These meetings are intended to address general safety topics as well as project-specific requirements relevant to the DDC Project Site. Each meeting must be documented and include, at a minimum: the topics discussed, meeting content, name and signature of the individual conducting the meeting, names and signatures of attendees, Contractor's name, DDC Project ID, date, and location. Documentation shall be made available upon request.

3.32 "Work" means construction activities required under the Contractor's Contract Documents, whether completed or partially completed, and performed by the Contractor and/or subcontractor(s). Work encompasses the furnishing of labor, the supply and integration of materials and equipment into the construction process, and the provision of services necessary to fulfill the Contractor's obligation to complete the Project in accordance with the Contract Documents. "Work" may also include Utility Interference work, commonly referred to as "Section U," "EP-7," and "Joint Bid" work when performed in connection with the Contract.

## 4. RESPONSIBILITIES

4.1 All individuals who manage, perform, or provide support for construction projects shall conduct all operations in full compliance with the requirements set forth in these Safety Requirements, as well as all applicable laws, regulations, and guidelines issued by governing regulatory agencies pertaining to construction safety.

4.1.1 For Design-Build and CM-Build projects, the Design-Builder or CM-Builder assumes the dual roles of Contractor and CM and is responsible for both the execution and oversight of all construction activities.

4.1.2 DDC reserves the right to request the replacement of any personnel of the Contractor, CM, Design-Builder, or CM-Builder at any time during the project, for any reason, at no additional cost.

4.1.3 DDC reserves the right to require the Contractor to replace any personnel, whether directly or indirectly involved in the safety of construction activities, at any time and for any reason, at no additional cost to the City. This includes, but is not limited to: Project Safety Representative, Project Safety Manager, Competent Person, Site Safety Coordinators, Site Safety Managers, Construction Superintendent, tradespeople, and subcontractor personnel.

4.2 Construction Manager (CM) Responsibilities

4.2.1 Site Safety Plan: Review and approve Contractor's SSP, subcontractor safety plans, and activity specific safety procedures in accordance with the requirements set forth in Section 6, below, of this Contract Safety Requirements. Facilitate the initial submission and revisions of Contractor's SSP to OCS for review and acceptance.

4.2.2 Construction Commencement Notification: Notify OCS of the start of construction activities and provide a timely look-ahead schedule, as well as refer to Critical Activity Planning as set forth below.

4.2.3 Training Verification: Develop and implement a process to verify that all CM, Contractor, and subcontractor personnel are properly trained. Maintain records of initial and refresher training, ensuring documentation is available on-site upon request.

4.2.4 Safety Meetings Documentation: Attend and maintain records of Weekly Safety Meetings and Daily Safety Job Briefings.

4.2.5 Job Hazard Analysis (JHA): Ensure Contractor JHAs are current and accurately reflect the work being performed, associated hazards, and mitigation measures. Verify that all site personnel are trained on the JHAs and maintain supporting documentation on-site.

4.2.6 Critical Activity Planning: Ensure thorough planning for critical construction activities (e.g., crane operations, excavation, confined space entry), including coordination among Contractors, DDC, and any other relevant Agency.

4.2.7 Permit and Documentation: Maintain custody of all construction-related permits, plans, approvals, and drawings. Make sure that all permits are valid. Ensure these documents are readily available on-site.

4.2.8 Hazard Mitigation: Identify, minimize, or eliminate jobsite and public hazards through documented planning, inspections, verifications, and corrective actions process.

4.2.9 Site Condition Monitoring: Monitor Project Site conditions for compliance with the Contractor's SSP, DDC policies, permits, and applicable safety regulations.

4.2.10 Non-Compliance Notification and Remediation: Immediately notify the Contractor and DDC of any non-compliant conditions or activities, including violations of the SSPor applicable codes, or any situation posing risk to workers, the public, or property. Direct the Contractor to take corrective action, including providing necessary labor, materials, equipment, and supervision.

4.2.11 Accident, Incident and Near Miss Reporting: Notify OCS and the ACCO's Insurance and Risk Management Unit of any project-related Accidents, Incidents, or Near Misses within two (2) hours of occurrence, in accordance with DDC's Construction Safety Emergency and Accident Notification and Response Procedure.

4.2.12 Accident Site Integrity and Reporting: In the event of an Accident, Incident, or Near Miss, the CM shall ensure that the Contractor preserves the integrity of the Project Site. This includes safeguarding all physical evidence, documenting all personnel present at the time of the event, gathering relevant facts, and preparing the required DDC Construction Accident Report as per DDC's Construction Safety Emergency and Accident Notification and Response Procedure. The CM shall also ensure that the Contractor performs a thorough investigation, develops and implements corrective actions to prevent recurrence, and maintains all related records. Such records shall be made available upon request.

4.2.13 Regulatory Inspection Notification: Notify OCS within two (2) hours of the start of any inspection by external regulatory agencies (e.g., NYS, OSHA, NYC DOB). Submit a copy of the inspection report within one (1) business day of receipt.

4.2.14 Audit Support: Escort and assist OCS, OQA, and OEHS Auditors during all field and record audits.

4.2.15 Emergency Condition Reporting: Immediately report any emergency conditions to OCS by calling (718) 391-1911.

4.2.16 Qualified Personnel: Provide personnel who are appropriately certified and trained for the project. Maintain documentation of certifications and training and make it available upon request.

4.3 Contractors Responsibilities

4.3.1 Safety Questionnaire: Submit a completed Safety Questionnaire and all relevant safety performance documentation with the bid or as part of the pre-qualification package in accordance with the requirements set forth in Section 5, below, of this Contract Safety Requirements.

4.3.2 Site Safety Plan (SSP): Prepare and submit SSP, subcontractor safety plans and activity-specific safety procedures in accordance with the requirements set forth in Section 6, below, of this Contract Safety Requirements. The SSP must be revised and updated as necessary throughout the project and made available upon request.

4.3.3 Project Safety Representative and Project Safety Manager: Designate and identify a Project Safety Representative, and if applicable, a Project Safety Manager in the SSP. Notify OCS immediately of any permanent changes to these roles in a form and manner acceptable to OCS. If the designated individual is temporarily unavailable, an alternate must be provided. Provide resumes outlining qualifications and experience upon request by DDC. DDC reserves the right to request replacement of personnel at any time, at no additional cost.

4.3.4 Competent Person(s): Identify Competent Person(s) in the SSP. Multiple individuals may be required based on the scope and complexity of work. Competent Person(s) must be present during all work activities. DDC reserves the right to request replacements or additional personnel at any time.

4.3.5 NYC DOB Safety Roles: For applicable projects under NYC Construction Codes – Title 28, designate and identify a Licensed Site Safety Manager, Site Safety Coordinator, and/or Registered Construction Superintendent.

- Resumes shall be available upon request.
- Notify OCS of any permanent or temporary changes to these roles.
- Provide alternates as needed and inform OCS of all changes.
- DDC reserves the right to request replacements at any time, at no additional cost.
- JHA
- Develop a written JHA identifying safety hazards and control methods for project-specific tasks.
- Include a preliminary JHAs in the SSP.
- Update and revise the JHA as new tasks and hazards arise.
- Maintain copies on-site and produce upon request.

4.3.6 Subcontractor Safety Plans: Determine whether subcontractors will adhere to their own safety plans or the SSP developed by the Contractor. Review, approve, and submit to CM or DDC subcontractor's safety plans in accordance with the requirements outlined in Section 6 below.

4.3.7 Activity-Specific Safety Procedures: Develop and implement activity-specific safety procedures to safeguard workers, the public, and city-owned property and private-owned property throughout the duration of the project. If such procedures are prepared by subcontractors, the Contractor shall review and approve them prior to submission to the CM or DDC in accordance with the requirements set forth in Section 6 below.

4.3.8 Utility Safety Compliance: Follow all utility safety procedures when performing Utility Interference work (e.g., "Section U," "EP-7," "Joint Bid" work).

4.3.9 Employee Safety Awareness and Orientation: Conduct and document site-specific safety orientation for all Contractor and subcontractor personnel. Provide documentation to the CM and make it available upon request.

4.3.10 Training Requirements: Ensure that all Contractor and subcontractor employees are properly trained prior to mobilization and as needed throughout the duration of the project. At a minimum, all personnel must have completed the following training within the past five (5) calendar years:

- OSHA 10-hour Construction Safety Course
- Site Safety Training (SST) card with a minimum of 40 hours of training, as required for certain DDC projects
- Additional applicable training, including but not limited to: flagger, scaffold, fall protection, confined space entry, and excavation safety
- All training records must be submitted to the CM prior to mobilization, kept up to date throughout the project and made available for review upon request.

4.3.11 Safety Meetings and Briefings: Conduct and document weekly safety meetings and daily job briefings throughout the project. Attendance of all Contractor and subcontractor employees is mandatory. Maintain written records and make them available upon request and at the Project Site.

4.3.12 Documentation: Maintain and ensure immediate availability of all applicable and current safety documentation at the Project Site. This documentation can include, but is not limited to, the following:

- Task-specific JHAs
- Training records
- MPT Plan (if applicable
- Noise and Dust Mitigation Plans
- Excavation protective system drawings
- Emergency Evacuation Plan
- Fall Protection and Confined Space Programs
- Required permits
- Weekly Safety and daily job briefing records
- Crane operation documentation
- Daily inspection checklists
- Scaffold and sidewalk shed drawings
- Safety Data Sheets (SDS) for chemicals in use

4.3.13 Regulatory Compliance: Comply with all current applicable federal, state, and local safety and health laws, rules, and regulations, as amended or revised during the entire term of the project.

4.3.14 SSP Compliance: Adhere to all provisions outlined in the approved SSP.

4.3.15 Daily Safety Inspections: Conduct daily safety inspections, document findings, implement corrective actions, and maintain inspection records for review upon request.

4.3.16 Reporting Unsafe or Unhealthy Conditions: Report any unsafe or unhealthy conditions to the CM and/or DDC project staff as soon as practicable, but no later than twenty-four (24) hours after discovery. Prompt action shall be taken to remove or abate such conditions. If an imminent dangerous condition is discovered, the Contractor shall immediately stop all work in the affected area until corrective measures are implemented and accepted by the CM and/or DDC project staff and reviewed and accepted by OCS.

4.3.17 Reporting and Investigation of Accidents, Incidents, and Near Misses:

a) The Contractor shall report all Accidents, Incidents, and Near Misses involving injury to workers or the general public, as well as any property damage, to the CM and/or DDC project staff within one (1) hour of occurrence.

b) Following any Accident, Incident or Near Miss, and unless otherwise directed by the CM or OCS, the Contractor shall not remove or alter any equipment, structure, material, or evidence related to the Accident, Incident or Near Miss. **Exception:** Immediate emergency procedures may be taken to secure structures, temporary construction, operations, or equipment that pose a continued imminent danger, or to facilitate

assistance for individuals who are trapped or have sustained bodily injury. Additional measures shall be taken as necessary to secure the Project Site and prevent further injury or property damage.

c) The Contractor shall conduct a root cause investigation of the Accident, Incident, or Near Miss. Within twenty-four (24) hours of the event, the Contractor shall prepare and submit to the CM and/or DDC project staff a written investigation report detailing findings, corrective actions, and hazard mitigation measures to prevent recurrence. The report shall include, at a minimum:
    - Results of re-evaluation of the unsafe condition(s)
    - Determined root cause
    - A detailed description of step-by-step actions to implement hazard control methods
    - Responsibilities of involved personnel

4.3.18 Notification of Regulatory Inspections: Notify the CM and/or DDC project staff within one (1) hour of the commencement of any inspection conducted by outside regulatory agency personnel, including but not limited to OSHA, DOB, or any other relevant federal, state, or local authorities.

4.3.19 Multiemployer worksites: Ensure that Project Site conditions and existing and/or created safety and health hazards are communicate to or between all Contractor and subcontractor(s) employees prior to and during the course of the project. Exercise, every precaution to prevent injury to persons (including workers and members of the public) or damage to city-owned property or assets or any other property, as applicable.

4.3.20 The Contractor shall cooperate fully with DDC, including OCS, OQA and OEHS and the CM, and shall address all safety-related recommendations issued by DDC. Compliance with such recommendations shall in no way relieve the Contractor of its sole and continuing responsibility for safety on the project.

## 5. SAFETY QUESTIONNAIRE

5.1 DDC requires all Contractors to provide detailed information regarding their current and historical safety performance and programs. This requirement is fulfilled through the completion of the DDC Safety Questionnaire.

5.2 DDC reserves the right to request updates to the DDC Safety Questionnaire and/or to require additional, more detailed safety-related information at any time. Contractors must provide the requested documentation within ten (10) calendar days of the request.

5.3 As part of the bid or proposal submission package, Contractors shall submit a fully completed DDC Safety Questionnaire. The DDC Safety Questionnaire must include, among other required details, the company's Workers' Compensation Experience Modification Rating (EMR) and OSHA Incident Rates for the three (3) calendar years preceding the signature date of the Contractor's representative on the submitted Safety Questionnaire. DDC will evaluate the Contractor's safety performance over the three-year period using the following criteria:

5.3.1 Incident Rate for Lost Time Injuries; and

5.3.2 OSHA Form 300 "Log of Work-Related Injuries and Illnesses" and OSHA Form 300A "Summary of Work-Related Injuries and Illnesses" for the past three years for Contractors with more than ten (10) employees; and

5.3.3 Intrastate and Interstate Experience Modification Rate (EMR); and

5.3.4 Any willful violations issued by OSHA or DOB construction safety-related violations; and

5.3.5 History of OSHA serious violations; and

5.3.6 Any work-related fatality or injury, requiring OSHA notification; and

5.3.7 Past safety performance on DDC projects - work-related fatality or work-related injury requiring medical treatment beyond first aid, involving a Contractor's or subcontractor's employee(s), which occurred on a DDC Project.

5.4 OCS, through ACCO, may request additional information regarding the Contractor's safety performance. DDC may require the Contractor to submit documentation including, but not limited to, accident investigation reports, OSHA records, citations or violations, and written corrective action plans.

5.5 OCS is responsible for reviewing and evaluating the submitted Safety Questionnaire, along with any other relevant information based on the criteria outlined in this Section of the DDC Contract Safety Requirements. The evaluation results and recommendations will be provided by OCS to ACCO.

5.6 Upon receiving the Contractor's safety performance evaluation, ACCO will incorporate this information into the overall bid or proposal assessment. Based on the outcome of the safety performance review, DDC reserves the right to require the Contractor to develop and implement additional safety measures prior to and throughout the duration of construction activities.

## 6. SITE SAFETY PLAN

6.1 General: For all DDC construction projects, including Design-Build and CM-Build, the Contractor shall prepare and submit a comprehensive SSP.

6.1.1 The SSP must clearly outline the project's scope of work, planned construction activities, and any existing or potential health and safety hazards, along with procedures to eliminate or mitigate the identified hazards. The SSP must incorporate subcontractors' safety plans and any activity-specific safety procedures necessary to safely execute the work.

6.1.2 The SSP must be prepared and submitted through the SSP application available on the Contractor Access Portal (CAP). Relevant sections will become accessible to the Contractor upon selection of construction activities aligned with the project's scope of work. Each section will include a standardized template and outline the required supporting documentation, all of which must be completed prior to submission for CM and/or DDC review.

6.1.3 The SSP is a living document and must be continuously re-evaluated and updated by the Contractor as necessary to reflect changes in work scope, site conditions, hazards, tasks, equipment, means and methods, safety standards, or any other factors that may arise throughout the duration of the project. The most current version of the SSP, along with activity-specific safety procedures and subcontractor safety plans, shall be maintained on-site at all times and made available upon request.

6.1.4 The SSP is subject to review and acceptance by the OCS prior to the commencement of any Project Site work. Failure to submit an acceptable SSP will constitute grounds for default of the contract. The preparation, submission, review, and approval of the SSP shall follow the process outlined below.

6.2 SSP-Related Responsibilities: For Design-Build and CM-Build projects, the Design-Builder or CM-Builder assumes the dual roles of Contractor and CM and is responsible for reviewing and approving subcontractor safety plans and activity-specific safety procedures.

6.2.1 Construction Manager (CM): Responsible party may be CM/REI/PMCM, depending on project delivery method and contract type.

- Review and approve all safety documentation prior to the commencement of work by the Contractor or its subcontractor(s), in accordance with Sections 6.3.1.b and 6.3.2.b, below. Maintain safety-related records and ensure timely follow-up on required revisions

6.2.2 Contractor: Responsible party may be Contractor/Design-Builder/CM-Builder depending on project delivery method and contract type.

- Prepare and submit a comprehensive SSP for CM review and approval, if applicable, and for acceptance by DDC OCS
- Review and submit subcontractor safety plans for CM review and approval, if applicable
- Develop, review and submit activity-specific safety procedures, including those prepared by subcontractors, for CM review and approval
- Address feedback from DDC project staff, OCS and/or CM and revise documentation as needed throughout the construction phase
- Ensure that SSP is reviewed and approved by CM, and accepted by OCS prior to the commencement of construction work
- Ensure that subcontractor safety plans and activity-specific safety procedures are reviewed and approved by CM, unless otherwise directed by OCS, prior to the commencement of construction activities
- Train all applicable workers on the OCS-accepted SSP and CM-approved subcontractor safety plans and activity-specific safety procedures
- Ensure proper implementation of the OCS-accepted SSP and CM-approved subcontractor safety plans and activity-specific safety procedures

6.2.3 Subcontractors:

- Prepare and submit safety plans and activity-specific safety procedures to the Contractor for review and subsequent CM review and approval, if applicable.
- Address feedback and revise safety plans and activity-specific safety procedures accordingly
- Implement all approved safety plans and activity-specific safety procedures
- Participate in and provide required training

6.2.4 DDC Project Staff

- Review submitted SSP for completeness and alignment with the project scope and schedule

6.2.5 DDC Office of Construction Safety (OCS)

- Review the Contractor's SSP submitted via the designated process and determine its acceptability
- Verify CM's review and approval of subcontractor's safety plans and activity-specific safety procedures
- Conduct on-site audits to verify the implementation of the Contractor's SSP, subcontractor safety plans, and activity-specific safety procedures during active construction phases
- Issue full or partial Stop Work Orders in cases of non-compliance with the DDC Project Safety Plan Preparation, Review and Approval Policy, DDC Contract Safety Requirements and/or the presence of hazardous site conditions

6.3 SSP Submission and Review Procedures

6.3.1 Pre-Construction Phase: For in-house managed projects, Design-Build, CM-Build, or projects where the CM had not yet been onboarded at the time of the SSP submission, CM review and approval are not applicable. In such cases, the Contractor may bypass the CM review and approval step and submit the SSP directly to the DDC project staff, followed by submission to OCS.
Contractor SSP is subject to review and acceptance by OCS. The initial SSP submission during the pre-construction phase, as well as any re-submissions during construction phases, follows the process outlined below.

a. Initial Preparation and Submission: Contractor prepares the SSP utilizing the Site Safety Plan (SSP)

application available through the Contractor Access Portal and submits the SSP, including all available subcontractor safety plans and any available activity-specific procedures, to CM for review and approval, if applicable.

b. CM Review and Approval: Upon completion of the review, CM provides written comments or approval to Contractor. The review should confirm that the SSP meets, at a minimum, the following criteria:
   - Compliance with applicable federal, state, and local safety regulations
   - Coverage of known or anticipated hazards relevant to the project scope
   - Defined means and methods to eliminate or control existing or potential health and safety hazards
   - Completeness, clarity, and suitability for the scope of work

c. Submission to DDC: Contractor uploads the CM-approved SSP, along with the completed CM Review and Approval Logs (when applicable), to the SSP application via the Contractor Access Portal (CAP).

   - Design-Build and CM-Build projects: At least sixty (60) days prior to the commencement of construction work, or as otherwise directed.
   - Other project types: Within forty-five (45) days from the "Notice of Intent to Award" date, or as otherwise directed.

d. Project Staff Review: DDC Project Staff reviews the submitted SSP in the SSP application to ensure that all construction activities, schedule, and applicable templates are accurately represented.

e. OCS Review: OCS completes the review and assigns one of the following statuses:

   - Acceptable – Contractor may proceed with construction work

   - Conditionally Acceptable
     - Contractor may proceed with construction activities related to the portions of the SSP that have been deemed "Acceptable." However, for any sections marked "Conditionally Acceptable," additional documentation must be submitted prior to the start of work.
     - At least 30 calendar days before commencing construction activities associated with "Conditionally Acceptable" SSP sections, the Contractor must complete and upload the relevant templates, along with all required attachments, through the SSP application. These materials are required to be reviewed and accepted by OCS.
     - Failure to submit the required templates and attachments prior to beginning work on "Conditionally Acceptable" sections will result in the SSP status being changed to "Unacceptable" by OCS.

   - Unacceptable
     - Contractor is required to revise the SSP in accordance with comments provided by OCS, obtain CM re-approval if applicable, and resubmit the SSP through the SSP application for OCS review and acceptance.
     - Commencement of construction work without an SSP reviewed and accepted by OCS will result in a Stop Work Order issued by OCS.

6.3.2 Construction Phases: All subcontractor safety plans, and activity-specific safety procedures must be reviewed and approved by CM before the start of any construction work, by any subcontractor or sub-subcontractors.

- In-house managed projects: Contractor submits subcontractor safety plans and activity-specific procedures directly to OCS for review and acceptance.
- Design-Build and CM-Build projects: Subcontractor safety plans and activity-specific procedures are reviewed and approved by the Design-Builder or CM-Builder, unless otherwise directed by OCS.

a. Submission: Contractor submits to the CM, subcontractor safety plans and activity-specific safety procedures, including JHA forms, developed by Contractor and/or by subcontractor(s) and reviewed by the Contractor.

b. CM Review and Approval: CM evaluates submitted subcontractor safety plans and activity-specific safety procedures to ensure alignment, at minimum, with:

- Approved Contractor SSP
- Actual Project Site conditions
- Construction means and methods
- Applicable regulatory standards
- Written approval is issued once all criteria are satisfied

6.3.3 Revisions: Any of the following changes or impacting factors must prompt a reevaluation and update of the Contractor SSP, subcontractor safety plans and/or activity-specific safety procedures:

- Changes in work scope
- Modifications to Project Site conditions
- Alterations in construction means and methods
- Occurrence of Accidents, Incidents, or Near Misses
- Revisions to applicable safety standards or regulations
- Other factors that may affect site safety of the Project Site

All revised safety documentation is subject to CM review and approval, and, if directed, must submitted to OCS for further review and acceptance.

6.4 Training and Documentation

6.4.1 Training Requirements: Contractor ensures that all applicable personnel, including subcontractors, receive required safety training prior to the commencement of construction activities. This includes additional training requirements that must be satisfied before initiating any high-risk work. All safety training must be:

- Conducted in accordance with approved safety plans and procedures
- Federal, State and Local rules and regulations
- Properly documented, maintained on-site and readily accessible for review by project stakeholders and regulatory authorities upon request

6.4.2 Documentation: All documentation shall be maintained on-site and must be readily accessible for review by project stakeholders and regulatory authorities upon request. Contractor maintains the following safety-related documentation, including but not limited to:

- Contractor's SSP
- Subcontractor safety plans
- Activity-specific safety procedures, including JHA
- Training records for Contractor and subcontractor personnel, including applicable certifications, training cards, and licenses
- Applicable permits, drawings, equipment inspection records, and plans, such as MPT, Noise Mitigation, Dust Mitigation, etc.
- CM Review and Approval Logs for subcontractor safety plans and activity-specific safety procedures

6.4.3 CM Review and Approval Logs: Logs must include the name, title, and signature of the CM reviewer/approver, along with the date of approval for each subcontractor safety plan and activity-specific procedure.

6.5 Compliance

6.5.1 The DDC, through OCS, reserves the right to:

- Review all safety-related procedures, including the Contractor's SSP, subcontractor safety plans, and activity-specific safety procedures
- Verify adherence to the review and approval process outlined in this policy
- Enforce corrective action requirements where deficiencies or violations are identified

6.5.2 Failure by the Contractor to submit an acceptable or conditionally acceptable SSP, or to obtain CM approval for subcontractor safety plans and activity-specific safety procedures prior to commencing construction, may result in a full or partial Stop Work Order. Non-compliance with this policy may lead to project delays or suspension of ongoing construction activities until appropriate corrective actions are implemented.

6.5.3 If the DDC determines that either the Contractor or CM have not followed the required review and approval process, the Contractor must obtain formal acceptance from OCS before starting or resuming any construction activity that involves subcontractor safety plans or activity-specific safety procedures.

## 7. KICK-OFF/PRE-CONSTRUCTION MEETINGS

7.1 Prior to the commencement of construction activities on all DDC projects, the CM, if applicable, or designated DDC project staff shall invite representatives from DDC OCS, OQA, and OEHS to participate in the construction kick-off meeting.

7.2 Applicable representatives from each OCS, OQA, and OEHS will attend the meeting to review and discuss, but not be limited to, the following items:

- Contract Safety Requirements
- Project-specific conditions based on the project's scope of work, location, and other factors that may impact the safety of workers and the general public
- SSP and JHA requirements
- Accident/Incident reporting and investigation procedures
- Safety personnel roles and responsibilities
- Field audits and inspections by DDC**,** including construction safety, quality assurance, environmental compliance, and prevailing wage enforcement
- Other applicable requirements related to quality assurance, environmental protection, and hazardous materials (hazmat) management

## 8. SAFETY COMPLIANCE DURING WORK IN PROGRESS

8.1 General: The Contractor's compliance with DDC Safety Requirements, as well as applicable federal, state, and local regulations, will be monitored throughout the duration of the project. This evaluation will be conducted through the following procedures. Notwithstanding, always during the life of a construction project, nothing ever relieves the Contractor of the responsibility for following federal, state, or city (local) regulations, as amended or updated, or industry best practice.

8.2 Field Auditing: Various field audits will be performed using a standardized checklist by representatives from OCS, OQA, and OEHS, or other designated DDC personnel, along with the CM, if applicable. These audits will include both routine inspections and comprehensive site reviews. Findings will be shared with the Contractor, CM and/or DDC project staff to support the implementation of any required corrective actions.

8.3 Accidents, Incidents, and Near Misses: The Contractor shall notify the CM, if applicable, or DDC project staff within one hour of any Accidents, Incidents, or Near Misses. These events include, but are not limited to, fatalities, injuries to personnel or the public, and property damage. All such occurrences shall be investigated by the Contractor, and investigation reports, along with any additional documentation requested by OCS, must be submitted promptly to support review and follow-up actions.

8.4 Continuous Monitoring by the CM: The CM will conduct ongoing inspections of the Contractor's safety and environmental practices. Any deficiencies identified will be promptly reported to the Contractor's Project Safety Representative and, when applicable, to the on-site Project Safety Manager for immediate correction. The CM will maintain written documentation of all deficiencies, which will be made available upon request. Any critical deficiencies must be reported immediately to the Office of Construction Safety Unit at (718) 391-1911.

8.5 Performance Review Meetings: If the Contractor's safety performance does not meet DDC standards (e.g., poor safety metrics, accident/incident rates), OCS will arrange a performance review meeting with the Contractor's Project Safety Representative, the CM, and the DDC Environmental Specialist if environmental concerns are involved. The meeting will include:

- Assessment of the level of non-compliance
- Clarification of applicable safety and environmental requirements
- Development and implementation of a corrective action plan

8.6 Continued Non-Compliance: If deficiencies persist, DDC reserves the right to issue a Full Stop Work Order and follow the default provisions set forth in the contract documents.

8.7 Stop Work Orders: If imminent danger to life or property is identified, or if there is non-compliance with applicable laws, regulations, DDC Contract Safety Requirements or other agency standards and policies and immediate corrective action is not feasible, a Partial Stop Work Order (PSWO) or Full Stop Work Order (SWO) will be issued. The PSWO or SWO will remain in effect until corrective actions are completed and approved by OCS, OQA, and OEHS.

## 9. SAFETY PERFORMANCE EVALUATION

9.1 At the completion of designated construction phases and at project closeout, DDC's Office of Construction Safety shall conduct a formal evaluation of the Contractor's safety performance. This assessment shall be based on established criteria, including but not limited to Accident and Incident history, the number of Stop Work Orders issued, results of DDC safety audits, and compliance with Safety Site Plan (SSP) preparation, submission, review, and approval requirements.

9.2 The final safety performance rating shall be recorded in the City's PASSPort or any other system instituted by the City, and may be considered in future procurement decisions, in accordance with the City's Procurement Policy Board Rules and DDC's procurement solicitation.

# NOTICE TO BIDDERS

Please be advised that the following Riders to the March 2017 New York City Standard Construction Contract have been attached and incorporated in this Invitation for Bid:

- Rider regarding Community Hiring for Construction Contracts;
- Rider regarding Non-Compensable Delays and Grounds for Extension;
- Rider regarding NYC Earned Safe and Sick Time Act;
- Rider regarding City Fleet and Truck Safety Requirements for City Contractors;
- Rider regarding Certified Payrolls

Other than provisions specifically delineated in the Riders, all other terms of the March 2017 New York City Standard Construction Contract continue to apply in full force and effect.

# Community Hiring Rider

## For Construction Contracts

Version: February 20, 2025

## Program Description

Community Hiring, as authorized under Chapter 79 of the New York City Charter ("Charter"), is an initiative to set workforce goals on City procurement for contractors to employ low-income individuals and residents of economically disadvantaged communities.

The provisions set forth in this Rider shall apply to contracts with a total value exceeding three million dollars, unless otherwise exempt under the rules set forth under the Community Hiring Rules, adopted as Title 74 of the Rules of the City of New York (RCNY). Under 74 RCNY § 1-03(b), the following contracts are exempt: preferred source contracts; contracts for the performance of services by a city-affiliated not-for-profit corporation, goods contracts; contracts in an amount below the small purchase threshold; contracts for investigative or confidential services; contracts subject to federal or state funding requirements that preclude or substantially conflict with the application of Community Hiring Goals; contracts awarded through the United States General Services administration, or through the New York State Office of General Services; contracts for emergency demolition services procured by the Department of Housing Preservation and Development; contracts for which contractor selection is made by an elected official other than the Mayor or an agency other than a Mayoral Agency; contracts subject to 9 RCNY § 1-02(f); contracts designated for inclusion in a mentoring program as defined in Section 1206 or 1309 of the Charter; and contracts for banking services, electronic payment services, or other related services procured by the New York City Department of Finance.

The Community Hiring Rules are hereby incorporated in this Contract by reference and all terms used herein shall have the meanings given such terms in the Community Hiring Rules. In the event of any conflict between the Community Hiring Rules and this Rider, the rules shall control. As of the execution of this Contract, the Contactor represents that it has read, in its entirety, and agrees to comply with the Community Hiring Rules.

The Community Hiring program supersedes the HireNYC initiatives and the related riders, including, but not limited to references to the Public Assistance Commitment Rider and the HireNYC Hiring and Employment Rider. Article 35.6 of this Contract is amended and replaced with the Community Hiring Rules.

## Community Hiring Requirements

The Contractor agrees to comply with the requirements of the Community Hiring Rules in the performance of this Contract.

## A. Community Hiring Goal

Pursuant to 74 RCNY § 4-02(b), the Contractor shall make best efforts to meet the applicable Community Hiring Goal to employ Residence-Based Community Hires as defined in 74 RCNY § 2-01(a) for contracts involving construction work.

For each Contract involving Construction Work that is not subject to a Project Labor Agreement, the Contractor shall agree to make best efforts to meet the Community Hiring Goal of 30 percent of cumulative labor hours of construction work to be performed by Residence-Based Community Hires as established in 74 RCNY § 4-02(b)(1). For contracts involving Construction Work that are subject to a Project Labor Agreement, the Contractor shall agree to make best efforts to meet the numerical goal(s) regarding Residence-Based Community Hires and Apprentices established in such Project Labor Agreement.

In accordance with 74 RCNY § 5-01(b), the Contractor shall require its subcontractors, as defined under 74 RCNY § 1-02, to make best efforts to meet the applicable Community Hiring Goal.

## B. Advertising Employment Opportunities

The Contractor, except those performing Construction Work pursuant to a Project Labor Agreement, agrees to advertise the Employment Opportunities, as defined in 74 RCNY § 1-02, in conspicuous places available to the public and in a manner reasonable for the industry.

For purposes of meeting a Community Hiring Goal, the Contractor shall notify a Referral Source, as provided in accordance with 74 RCNY § 3-02(a), of the job opportunities to be filled by Community Hires. The Contractor shall provide notice to the Office of Community Hiring and Workforce Development (OCH) when the Referral Source has impeded the Contractor's efforts to meet the Community Hiring Goal.

## C. System Enrollment and Reporting

The Contractor shall enroll with an electronic system designated by the Director of OCH in accordance with 74 RCNY § 5-01(e).

Once enrolled into the system, the Contractor shall be responsible for updating the information in the system in a reasonable and timely manner.

The Contractor may fulfill the advertising requirement set forth in 74 RCNY § 5-01(c) by posting in such system all the relevant information of an Employment Opportunity to be filled by Community Hires. The Contractor shall also provide, upon request by the City with reasonable notice, any information related to the Contractor's compliance with or progress towards meeting the Community Hiring Goal.

## Records

### A. Retention

The Contractor shall maintain records in accordance with the applicable requirements set forth in 74 RCNY §§ 6-01 and 6-02.

For purposes of 74 RCNY § 6-01(b), the Contractor shall designate a representative to monitor all activity related to compliance to ensure that the Contractor is exercising best efforts to meet the Community Hiring Goal and maintain records to submit the documentation relating to the provisions herein.

### B. Access to Records

The Contractor shall furnish, and require its subcontractors to furnish, all information and reports in accordance with the laws, rules, regulations or guidance from the City.

## Compliance

Without limitation to any other provisions under this Contract and any other remedies available to the City, a failure to comply with the requirements under the Community Hiring Rules is a non-compliance that may be subject to civil penalties pursuant to Chapter 7 of the Community Hiring Rules and may be considered as a factor in evaluating contract performance in accordance with 9 RCNY § 4-01.

### A. Best Efforts

Where the Contractor has failed to meet the Community Hiring Goal, the Contractor shall demonstrate that it exercised best efforts to meet the goal. Where determined, as set forth in 74 RCNY § 5-03, that the Contractor failed to make best efforts, the City shall send written notice to the Contractor's designated representative, notwithstanding the notice provisions in the Contract. The Contractor shall respond in accordance with the instructions in the notice. Failure to timely respond can result in a non-compliance determination subject to civil penalties as set forth in 74 RCNY § 7-01.

### B. Corrective Action

Where the City determines that the non-compliance may be remedied through a corrective action and provides notice to the Contractor pursuant to 74 RCNY § 7-02(a)(2), the Contractor shall respond in accordance with the requirements outlined in the notice. The Contractor is responsible for timely demonstration of taking the requisite corrective action. Demonstration of corrective action to the satisfaction of the Director of OCH, may result in waiving of the civil penalties[1] as set forth in the Community Hiring Rules.

[1] Only civil penalties relating to non-compliance with the Community Hiring Rules can be waived in this instance.

### C. Civil Penalties

Where Contractor is found non-compliant subject to civil penalties, the City can impose a civil penalty amount in accordance with the schedule set forth in 74 RCNY § 7-03.

The City may withhold from the Contractor the amount of the civil penalties upon final determination as set forth in 74 RCNY § 7-01(d).

# RIDER TO NEW YORK CITY STANDARD CONSTRUCTION CONTRACT (MARCH 2017) REGARDING NON-COMPENSABLE DELAYS AND GROUNDS FOR EXTENSION

The following provisions supersede the corresponding provisions in the March 2017 version of the New York City Standard Construction Contract:

1. Section **11.5.1** provides as follows:

   11.5.1 The acts or omissions of public or government bodies (other than **City** agencies) or of any third parties who are disclosed in the **Contract Documents,** or those third parties who are ordinarily encountered or who are generally recognized as related to the **Work**, including but not limited to, **Other Contractors**, utilities or private enterprises;

2. Section **11.5.6** provides as follows:

   **11.5.6** Climatic conditions, storms, floods, droughts, tidal waves, fires, hurricanes, earthquakes, landslides or other catastrophes or acts of God; acts of war or of the public enemy or terrorist acts; disruption, outage or power failure caused by a utility's inability or failure to provide service, pandemics, epidemics, outbreaks of infectious disease or any other public health emergency; other states of emergency declared by the City, State or Federal government , quarantine restrictions, and freight embargoes; including the **City's** reasonable responses to any of the above; and

3. Section **13.3** provides as follows:

   **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 any of the acts or omissions of the **City**, its officials, agents or employees set forth in Articles **11.4.1.1** through **11.4.1.9**; or

   **13.3.2** By or attributable to any of the items set forth in Articles **11.5.1** through **11.5.7**.

   **13.3.3** 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.

**NYC EARNED SAFE AND SICK TIME ACT CONTRACT RIDER**

(To supersede Section 4.06 of the January 2018 Appendix A and Section 35.5 of the March 2017 Standard Construction Contract and to be attached to other City contracts and solicitations)

A. *Introduction and General Provisions.*

1. The Earned Safe and Sick Time Act ("ESSTA"), codified at Title 20, Chapter 8 of the New York City Administrative Code, also known as the "Paid Safe and Sick Leave Law," requires covered employees (as defined in Admin. Code § 20-912) in New York City ("City") to be provided with paid safe and sick time. Contractors of the City or of other governmental entities may be required to provide safe and sick time pursuant to the ESSTA. The ESSTA is enforced by the City's Department of Consumer and Worker Protection ("DCWP"), which has promulgated 6 RCNY §§ 7-101 and 201 *et seq*. ("DCWP Rules").

2. The Contractor agrees to comply in all respects with the ESSTA and the DCWP Rules, and as amended, if applicable, in the performance of this agreement. The Contractor further acknowledges that such compliance is a material term of this agreement and that failure to comply with the ESSTA in performance of this agreement may result in its termination.

3. The Contractor must notify (with a copy to DCWP at ComplianceMonitoring@dcwp.nyc.gov) the Agency Chief Contracting Officer of the City Agency or other entity with whom it is contracting in writing within 10 days of receipt of a complaint (whether oral or written) or notice of investigation regarding the ESSTA involving the performance of this agreement. Additionally, the Contractor must cooperate with DCWP's guidance and must comply with DCWP's subpoenas, requests for information, and other document demands as set forth in the ESSTA and the DCWP Rules. More information is available at https://www1.nyc.gov/site/dca/about/paid-sick-leave-what-employers-need-to-know.page.

4. Upon conclusion of a DCWP investigation, Contractor will receive a findings letter detailing any employee relief and civil penalties owed. Pursuant to the findings, Contractor will have the opportunity to settle any violations and cure the breach of this agreement caused by failure to comply with the ESSTA either i) without a trial by entering into a consent order or ii) appearing before an impartial judge at the City's administrative tribunal. In addition to and notwithstanding any other rights and remedies available to the City, non-payment of relief and penalties owed pursuant to a consent order or final adjudication within 30 days of such consent order or final adjudication may result in the termination of this agreement without further opportunity to settle or cure the violations.

5. The ESSTA is briefly summarized below for the convenience of the Contractor. The Contractor is advised to review the ESSTA and the DCWP Rules in their entirety. The Contractor may go to www.nyc.gov/PaidSickLeave for 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 ESSTA and the DCWP Rules. The Contractor acknowledges that it is responsible for compliance with the ESSTA and the DCWP Rules notwithstanding any inconsistent language contained herein.

B. *Pursuant to the ESSTA and DCWP Rules: Applicability, Accrual, and Use.*

1. An employee who works within the City must be provided paid safe and sick time.[1] Employers with one hundred or more employees are required to provide 56 hours of safe and sick time for an employee each calendar year. Employers with fewer than one hundred employees are required to provide 40 hours of sick leave each calendar year. Employers must provide a minimum of one hour of safe and sick time for every 30 hours worked by an employee and compensation for such safe and sick time must be provided at the greater of the employee's regular hourly rate or the minimum wage at the time the paid safe or sick time is taken. Employers are not discouraged or prohibited from providing more generous safe and sick time policies than what the ESSTA requires.

2. Employees have the right to determine how much safe and sick time they will use, provided that an employer may set a reasonable minimum increment for the use of safe and sick time not to exceed four hours per day. For the use of safe time or sick time beyond the set minimum increment, an employer may set fixed periods of up to thirty minutes beyond the minimum increment. In addition, an employee may carry over up to 40 or 56 hours of unused safe and sick time to the following calendar year, provided that no employer is required to carry over unused paid safe and sick time if the employee is paid for such unused safe and sick time and the employer provides the employee with at least the legally required amount of paid safe and sick time for such employee for the immediately subsequent calendar year on the first day of such calendar year.

3. An employee entitled to safe and sick time pursuant to the ESSTA may use safe and sick time for any of the following:

a. 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;

b. such employee's care of a family member (an employee's child, spouse, domestic partner, parent, sibling, grandchild, or grandparent, the child or parent of an employee's spouse or domestic partner, any other individual related by blood to the employee, and any other individual whose close association with the employee is the equivalent of a family relationship) who has a mental illness, physical illness, injury or health condition or who has a need for medical diagnosis or preventive medical care;

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[1] Pursuant to the ESSTA, if fewer than five employees work for the same employer, and the employer had a net income of less than one million dollars during the previous tax year, such employer has the option of providing such employees uncompensated safe and sick time.

c. closure of such employee's place of business by order of a public official due to a public health emergency;

d. such employee's need to care for a child whose school or childcare provider has been closed due to a public health emergency; or

e. when the employee or a family member has been the victim of a family offense matter, sexual offense, stalking, or human trafficking:

1. to obtain services from a domestic violence shelter, rape crisis center, or other shelter or services program for relief from a family offense matter, sexual offense, stalking, or human trafficking;
2. to participate in safety planning, temporarily or permanently relocate, or take other actions to increase the safety of the employee or employee's family members from future family offense matters, sexual offenses, stalking, or human trafficking;
3. to meet with a civil attorney or other social service provider to obtain information and advice on, and prepare for or participate in any criminal or civil proceeding, including but not limited to, matters related to a family offense matter, sexual offense, stalking, human trafficking, custody, visitation, matrimonial issues, orders of protection, immigration, housing, discrimination in employment, housing or consumer credit;
4. to file a complaint or domestic incident report with law enforcement;
5. to meet with a district attorney's office;
6. to enroll children in a new school; or
7. to take other actions necessary to maintain, improve, or restore the physical, psychological, or economic, health or safety of the employee or the employee's family member or to protect those who associate or work with the employee.

4. An employer must not require an employee, as a condition of taking safe and sick time, to search for a replacement. However, where the employee's need for safe and sick time is foreseeable, an employer may require an employee to provide reasonable notice of the need to use safe and sick time. For an absence of more than three consecutive work days, an employer may require reasonable documentation that the use of safe and sick time was needed for a reason listed in Admin. Code § 20-914; and/or written confirmation that an employee used safe and sick time pursuant to the ESSTA. However, an employer may not require documentation specifying the nature of a medical condition, require disclosure of the details of a medical condition, or require disclosure of the details of a family offense matter, sexual offense, stalking, or human trafficking, as a condition of providing safe and sick time. Health information and information concerning family offenses, sexual offenses, stalking or human trafficking obtained solely due to an

employee's use of safe and sick time pursuant to the ESSTA must be treated by the employer as confidential. An employer must reimburse an employee for all reasonable costs or expenses incurred in obtaining such documentation for the employer.

5. An employer must provide to all employees a written policy explaining its method of calculating sick time, policies regarding the use of safe and sick time (including any permissible discretionary conditions on use), and policies regarding carry-over of unused time at the end of the year, among other topics. It must provide the policy to employees 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 safe and sick time to an employee because of non-compliance with such a policy.

6. An employer must provide a pay statement or other form of written documentation that informs the employee of the amount of safe/sick time accrued and used during the relevant pay period and the total balance of the employee's accrued safe/sick time available for use.

7. Safe and 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 safe and sick time was used.

C. *Exemptions and Exceptions*. Notwithstanding the above, the ESSTA does not apply to any of the following:

1. an independent contractor who does not meet the definition of employee under N.Y. Labor Law § 190(2);

2. an employee covered by a valid collective bargaining agreement, if the provisions of the ESSTA are expressly waived in such agreement and such agreement provides a benefit comparable to that provided by the ESSTA for such employee;

3. 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 their own schedule, has the ability to reject or accept any assignment referred to them, and is paid an average hourly wage that is at least four times the federal minimum wage;

4. an employee in a work study program under Section 2753 of Chapter 42 of the United States Code;

5. 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

6. a participant in a Work Experience Program (WEP) under N.Y. Social Services Law § 336-c.

D. *Retaliation Prohibited.* An employer shall not take any adverse action against an employee that penalizes the employee for, or is reasonably likely to deter the employee from or interfere with the employee exercising or attempting in good faith to exercise any right provided by the ESSTA. In addition, an employer shall not interfere with any investigation, proceeding, or hearing pursuant to the ESSTA.

E. *Notice of Rights.*

1. An employer must provide its employees with written notice of their rights pursuant to the ESSTA. Such notice must be in English and the primary language spoken by an employee, provided that DCWP has made available a translation into such language. Downloadable notices are available on DCWP's website at https://www1.nyc.gov/site/dca/about/Paid-Safe-Sick-Leave-Notice-of-Employee-Rights.page. The notice must be provided to the employees by a method that reasonably ensures personal receipt by the employee.

2. Any person or entity that willfully violates these notice requirements is subject to a civil penalty in an amount not to exceed $50.00 for each employee who was not given appropriate notice.

F. *Records*. An employer must retain records documenting its compliance with the ESSTA for a period of at least three years, and must allow DCWP to access such records in furtherance of an investigation related to an alleged violation of the ESSTA.

G. *Enforcement and Penalties.*

1. Upon receiving a complaint alleging a violation of the ESSTA, DCWP must investigate such complaint. DCWP may also open an investigation to determine compliance with the ESSTA on its own initiative. Upon notification of a complaint or an investigation by DCWP, the employer must provide DCWP with a written response and any such other information as DCWP may request. If DCWP believes that a violation of the ESSTA has occurred, it has the right to issue a notice of violation to the employer .

2. DCWP has the power to grant an employee or former employee all appropriate relief as set forth in Admin. Code § 20-924(d). Such relief may include, but is not limited to, treble damages for the wages that should have been paid; statutory damages for unlawful retaliation; and damages, including statutory damages, full compensation for wages and benefits lost, and reinstatement, for unlawful discharge. In addition, DCWP may impose on an employer found to have violated the ESSTA civil penalties not to exceed $500.00 for a first violation, $750.00 for a second violation within two years of the first violation, and $1,000.00 for each succeeding violation within two years of the previous violation. When an employer has a policy or practice of not providing or refusing to allow the use of safe and sick time to its employees, DCWP may seek penalties and relief on a per employee basis.

3. Pursuant to Admin. Code § 20-924.2, (a) where reasonable cause exists to believe that an employer is engaged in a pattern or practice of violations of the ESSTA, the Corporation Counsel may commence a civil action on behalf of the City in a court of competent jurisdiction by filing a complaint setting forth facts relating to such pattern or practice and requesting relief, which may include injunctive relief, civil penalties and any other appropriate relief. Nothing in § 20-924.2 prohibits DCWP from exercising its authority under section 20-924 or the Charter, provided that a civil action pursuant to § 20-924.2 shall not have previously been commenced.

H. *More Generous Polices and Other Legal Requirements.* Nothing in the ESSTA is intended to discourage, prohibit, diminish, or impair the adoption or retention of a more generous safe and 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 safe and sick time. The ESSTA provides minimum requirements pertaining to safe and 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 safe and sick leave or time, whether paid or unpaid, or that extends other protections to employees. The ESSTA may not be construed as creating or imposing any requirement in conflict with any federal or state law, rule or regulation.

**New York City Mayoral Executive Order No. 39 Rider**

**City Fleet and Truck Safety Requirements for City Contractors**

**Version: 11/19/24**

## Section 1.01 Background

This rider is included in the Agreement and made a part thereof pursuant to the provisions of Mayoral Executive Order 39 of 2024.

## Section 1.02 Definitions

A. Capitalized terms not otherwise defined in this rider shall have the meaning ascribed to them in the Agreement.

B. Agreement: The agreement between the City and the Contractor, to which this rider has been added and made a part.

C. City-contracted Vehicle means a Truck (as hereinafter defined) or any other motor vehicle that the Contractor anticipates providing in accordance with this Agreement or using in performing its obligations under this Agreement on a weekly or more frequent basis[1]. This includes those vehicles anticipated to be provided or used by subcontractors to fulfill the scope of a subcontract for work to be performed under a contract that is subject to the Executive Order, regardless of monetary value of the subcontract, if the vehicle is utilized on a weekly or more frequent basis.

D. Contracting Agency: the City agency or office through which the City of New York has entered into this Agreement.

[1] The following vehicles are not considered City-contracted vehicles and are thus not subject to Executive Order 39: any motor vehicle or truck that is utilized pursuant to (1) contracts registered prior to July 1, 2024, including the renewal, extension, or modification of such contracts; (2) an agency on-call emergency contract; (3) an emergency procurement made pursuant to section 3-06 of title 9 of the Rules of the City of New York or pursuant to an executive order of the Mayor or Governor issued under section 24 or section 29-A of the New York State Executive Law; (4) intergovernmental contracts; (5) government-to-government contracts between the City and any State or Federal government agency; and (6) a contract for utilities, as identified in subdivision (b) of section 825 of the New York City Charter.

E. Contractor: the entity providing services under this Agreement.

F. Executive Order: Mayoral Executive Order 39 of 2024, as it may be amended.

G. High Vision Truck: A Truck with a cab-over or cab-forward design wherein the driver sits in front of the front axle as opposed to conventional cab design wherein the engine and front axle are in front of the driver. The distance from the forward of the center of the vehicle bumper at which the driver can see the top of a 3-foot cone shall not exceed eight feet and the distance beyond the exterior of the passenger side door at which the driver can first see the top of the 4-foot cone shall not exceed six feet.

H. Registration: Registration of this Agreement pursuant to Section 328 of the New York City Charter.

I. Telematics: Automatic vehicle location systems that track vehicle location and speed and alert the driver and another designated person(s) to such location and speed in real time.

J. Truck: A City-contracted Vehicle with a manufacturer's gross vehicle weight rating exceeding 10,000 pounds. The term does not include off-road construction vehicles.

K. Truck Surround Cameras: A system of cameras, sensors, and alerts placed on a Truck that provides a Truck operator with a full view of all four sides of the Truck.

L. Vehicle Safety Plan: A plan with regard to City-contracted Vehicles, approved by the Contracting Agency, that includes the components listed in Section 2.03(A) through (F) of this rider.

**Section 2.01 Vehicle Requirements**

All City-contracted Vehicles shall conform to the following requirements:

A. Truck Surround Cameras: All Trucks, other than High Vision Trucks, shall be outfitted with truck surround cameras in accordance with the following schedule:
   a. Contracts involving 10 or fewer Trucks: No later than 12 months from Registration.
   b. Contracts involving more than 10 Trucks: No later than 18 months from Registration.
   c. New or replacement Truck acquired after work under this Agreement has begun: Truck must be outfitted with Truck Surround Cameras within 12 months from the date of first using such Truck.
   d. Contractor must submit to the Contracting Agency photographic and purchase order evidence, that is satisfactory to the Contracting Agency, of compliance with this Paragraph (A).

B. Truck Side-guards: Contractor shall provide side-guards for City-contracted Vehicles as applicable pursuant to Section 6-141 of the New York City Administrative Code.

C. Telematics: All City-contracted Vehicles must be installed with Telematics. Data gathered by Telematics must be made available in a manner that is satisfactory to the Contracting Agency.

**Section 2.02 Safety Requirements**

Contractor shall provide the following:

A. Licensing: Contractors shall ensure proper licensing for all drivers who operate City-contracted Vehicles. Contractors shall ensure that all drivers operating City-contracted Vehicles are enrolled in the New York State License Notification System (LENS) and that all out-of-state licenses are being monitored by Contractor. Contractor must notify the Contracting Agency of any license suspensions and/or arrests tied to unsafe or illegal vehicle operation by any drivers of City-contracted Vehicles.

B. Training: Contractor must provide the Contracting Agency documentation, satisfactory to the Contracting Agency, showing:
    a. That all drivers of City-contracted Vehicles have taken a New York State approved defensive driving class within six months after Registration; or
    b. That all drivers of City-contracted Vehicles have attended a New York State-approved defensive driving class within 3 years prior to Registration; or
    c. That all drivers of City-contracted Vehicles have received alternative safe driver training acceptable to the Contracting Agency that is documented to the satisfaction of the Contracting agency.

C. Crash tracking: Contractors must notify the Contracting Agency of any and all collisions that take place involving City-contracted Vehicles while performing services under this Agreement.

**Section 2.03 Vehicle Safety Plan**

Within one month after Registration, the Contractor must submit, for review and approval, to Contracting Agency, at the address set forth in the Agreement for notices to the City, and DCAS Fleet (C/O Chief Fleet Management Officer, 23rd Floor South, Municipal Building, 1 Centre Street, NY, NY 10007) a proposed vehicle safety plan that shall include at the minimum the components listed in Paragraphs (A) through (E) below. If directed by the Contracting Agency,

Contractor shall revise said proposed vehicle safety plan in accordance with the directions of the Contracting Agency, and until the Contracting Agency issues its approval thereof, Contractor shall submit a revised proposed vehicle safety plan to the Contracting Agency in each case, within 15 days after receipt by Contractor of directions to that effect from the Contracting Agency. Upon approval of the proposed vehicle safety plan, said proposed plan shall be considered the Vehicle Safety Plan and Contractor shall comply with the terms thereof. Each second anniversary of the approval of the Vehicle Safety Plan the Contractor shall submit an update thereof. The Vehicle Safety Plan shall include at the minimum the following components:

A. Vehicle List: List of City-contracted Vehicles, including the year, make, model, VIN and license plate number of each City-contracted Vehicle;

B. Safety Training: Documentation showing that all drivers of City-contracted Vehicles have completed the training detailed in section 2.02(B) of this Rider;

C. Technology: A list of all relevant technology investments installed on City-contracted vehicles, including but not limited to the technology listed in section 2.01 of this Rider;

D. Crash Tracking: An explanation of Contractor's process of monitoring and reviewing collisions including plans to notify Contracting Agency of collisions that take place while performing services under this Agreement;

E. Corrective Action: A corrective action program for drivers of City-contracted Vehicles that engage in unsafe or dangerous driving behaviors and license monitoring; and

F. Additional Safety Measures: Contractor must indicate if there are any additional safety technologies, safety practices, training, or other procedures that are utilized for City-contracted Vehicles during the term of this Agreement.

**Section 3.01 Liquidated Damages**

A. Contractor acknowledges that its failure to comply with the provisions of this Vehicle Safety Plan will cause loss and damage to the City, the precise extent of which is difficult to ascertain in monetary terms. For this reason, the parties desire to provide fair and reasonable compensation to the City for such losses, which compensation shall not be construed as a penalty. It is therefore agreed that, in addition to any other liquidated damages that the Contractor shall be required to pay to the City in accordance with the provisions of the Agreement, Contractor shall pay to the City the following:
    a. The sum of $500.00 for each instance of a failure by the Contractor to submit a Vehicle Safety Plan in accordance with the provisions of Section 2.03.

b. The sum of $500.00 for each instance of a failure by the Contractor to comply with the provisions of Section 2.02(A) [Licensing].
c. The sum of $500.00 for each instance of a failure by the Contractor to comply with the provisions of Section 2.02(B) [Training].
d. The sum of $500.00 for each instance of a failure by the Contractor to comply with the provisions of Section 2.02(C) [Crash Tracking].
e. The sum of $500.00 for each instance of a failure by the Contractor to comply with the provisions of Section 2.01(C) [Telematics].
f. The sum of $3,000 for each instance of a failure by the Contractor to comply with the provisions of Section 2.01(A).
g. The Contracting Agency will provide at least 5 working days of notice to the Contractor and opportunity to rectify before implementing these liquidated damages.

B. Liquidated damages received pursuant to this Agreement 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 Agreement or by Law. The City may deduct and retain out of the monies which may become due under this Agreement, 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.

# RIDER TO NEW YORK CITY STANDARD CONSTRUCTION CONTRACT (MARCH 2017) REGARDING CERTIFIED PAYROLLS

The following provisions supersede the corresponding provisions in the March 2017 version of the New York City Standard Construction Contract. Article 38 provides as follows:

## ARTICLE 38. PAYROLL REPORTS

38.1 The **Contractor** and its **Subcontractor(s)** shall maintain 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), as modified by Labor Law Section 220-j. The **Contractor** and **Subcontractor(s)** shall submit such original payrolls or transcripts into the Electronic Certified Payroll Database (as hereinafter defined). If payment requisitions are not submitted at least once a month, the **Contractor** and its **Subcontractor(s)** shall submit original payrolls and transcripts both at the same time payment requisitions are submitted and independently of its payment requisitions. For purposes of this Article 38, "Electronic Certified Payroll Record Database" means the City's publicly accessible online database of electronic certified payroll records through which contractors and subcontractors submit certified payroll reports in an electronic format. The database is accessible at the following link: https://nyc-oti.ecomply.us/

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.

**CITY OF NEW YORK**

# STANDARD CONSTRUCTION CONTRACT

**March 2017**

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***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 maybe 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 actuallyinserted 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 andProposal 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 bythe 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, impactdrills, 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 anddesign 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**, orhis/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 rightto 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 14of 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 withthe **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; NOTICESAND 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 AdditionalInsureds, 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 anyappropriate 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 orcontributing 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 Methodin 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 variousoperations 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, inthe 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 delayin the performance of this **Contrac**t necessarily extending the time for completion of the **Work** or resulting from acceleration directed by the **Commissioner** and required to maintain the progress schedule, occasioned solely by any act or omission to act of the **City** listed below. The **Contractor** also agrees that delay from any other cause shall be compensated, if at all, solely by an extension of time to complete the performance of the **Work**.

11.4.1.1 The failure of the **City** to take reasonable measures to coordinate and progress the **Work** to the extent required by the **Contract**, except that the City shall not be responsible for the **Contractor's** obligation to coordinate and progress the **Work** of its **Subcontractors**.

11.4.1.2 Unreasonable delays attributable to the review of shop drawings, the issuance of change orders, or the cumulative impact of change orders that were not brought about by any act or omission of the **Contractor**.

11.4.1.3 The unavailability of the **Site** caused by acts or omissions of the **City**..

11.4.1.4 The issuance by the **Engineer** of a stop work order that was not brought about through any act or omission of the **Contractor**.

11.4.1.5 Differing site conditions or environmental hazards that were neitherknown 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, hasnot 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 extendsthe 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**

12.5 **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 ofdelay 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 multipleof 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 andno 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

[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.

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 **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.

20.3.10

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 Insuredand 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 todo 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 applicableto 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** tothe 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., asreferred 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** byauthorizing 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 expirationof 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 inthe 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 toa 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 forthat item, and for any reason it appears that the actual quantity of any unit price item necessary to complete the **Work** will exceed the estimated quantity for that item by twenty- five (25%) percent, the **Contractor** shall immediately notify the **Engineer** of such anticipated overrun. The **Contractor** shall not be compensated for any quantity of a unit price item provided which is in excess of one hundred twenty-five (125%) percent of the estimated quantity for that item set forth in the bid schedule without written authorization from the **Engineer**.

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

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

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

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

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

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

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

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

26.2.6 Necessary fees charged by governmental entities; plus

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

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

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

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

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

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

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

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

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

26.5 Where the **Contractor** and the **Commissioner** can agree upon a fixed price for **Extra Work** in accordance with Article 25.3.2 or another method of payment for **Extra Work** in accordance with Article 25.3.4, or for **Extra Work** ordered in connection with omitted **Work**, such method, subject to pre-audit by the **EAO**, may, at the option of the **Commissioner**, be substituted for the cost plus a percentage method provided in Article 26.2; provided, however, that if the **Extra Work** is performed by a **Subcontractor**, the **Contractor** shall not be entitled to receive more than an additional allowance of five (5%) percent for overhead and profit over

the cost of such **Subcontractor's Work** as computed in accordance with Article 26.2.

## ARTICLE 27. RESOLUTION OF DISPUTES

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

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

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

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

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

27.4 Presentation of Disputes to **Commissioner**.

Notice of Dispute and Agency Response. The **Contractor** shall present its dispute in writing ("Notice of Dispute") to the **Commissioner** within thirty (30) Days of receiving written notice of the determination or action that is the subject of the dispute. This notice requirement shall not be read to replace any other notice requirements contained in the **Contract**. The Notice of Dispute shall include all the facts, evidence, documents, or other basis upon which the **Contractor** relies in support of its position, as well as a detailed computation demonstrating how any amount of money claimed by the **Contractor** inthe 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 ATIME & 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 withrespect 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 resolutionprocedure.

## CHAPTER VII: POWERS OF THE RESIDENT ENGINEER, THE ENGINEER ORARCHITECT 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 bythe **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 issuean **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 C**ontract** 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 outof 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 withthe

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").

35.5.1(c) The **Contractor** agrees to comply in all respects with the PSLL and the Rules, and as amended, if applicable, in the performance of this **Contract**. The **Contractor** further acknowledges that such compliance is a material term of this **Contract** and that failure to comply with the PSLL in performance of this **Contract** may result in its termination.

35.5.1(d) The **Contractor** must notify the **Agency Chief Contracting Officer** of the **Agency** with whom it is contracting in writing within ten (10) days of receipt of a complaint (whether oral or written) regarding the PSLL involving the performance of this **Contract**. Additionally, the **Contractor** must cooperate with DCA's education efforts and must comply with DCA's subpoenas and other document demands as set forth in the PSLL and Rules.

35.5.1(e) The PSLL is summarized below for the convenience of the **Contractor**. The **Contractor** is advised to review the PSLL and Rules in their entirety. On the

[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.

website www.nyc.gov/PaidSickLeave there are links to the PSLL and the associated Rules as well as additional resources for employers, such as Frequently Asked Questions, timekeeping tools and model forms, and an event calendar of upcoming presentations and webinars at which the **Contractor** can get more information about how to comply with the PSLL. The **Contractor** acknowledges that it is responsible for compliance with the PSLL notwithstanding any inconsistent language contained herein.

35.5.2 Pursuant to the PSLL and the Rules: Applicability, Accrual, and Use.

35.5.2(a) An employee who works within the City of New York for more than eighty hours in any consecutive 12-month period designated by the employer as its "calendar year" pursuant to the PSLL ("Year") must be provided sick time. Employers must provide a minimum of one hour of sick time for every 30 hours worked by an employee and compensation for such sick time must be provided at the greater of the employee's regular hourly rate or the minimum wage. Employers are not required to provide more than 40 hours of sick time to an employee in any Year.

35.5.2(b) An employee has the right to determine how much sick time he or she will use, provided that employers may set a reasonable minimum increment for the use of sick time not to exceed four hours per **Day**. In addition, an employee may carry over up to 40 hours of unused sick time to the following Year, provided that no employer is required to allow the use of more than forty hours of sick time in a Year or carry over unused paid sick time if the employee is paid for such unused sick time and the employer provides the employee with at least the legally required amount of paid sick time for such employee for the immediately subsequent Year on the first **Day** of such Year.

35.5.2(c) An employee entitled to sick time pursuant to the PSLL may use sick time for any of the following:

i. such employee's mental illness, physical illness, injury, or health condition or the care of such illness, injury, or condition or such employee's need for medical diagnosis or preventive medical care;
ii. such employee's care of a family member (an employee's child, spouse, domestic partner, parent, sibling, grandchild or grandparent, or the child or parent of an employee's spouse or domestic partner) who has a mental illness, physical illness, injury or health condition or who has a need for medical diagnosis or preventive medical care;
iii. closure of such employee's place of business by order of a public official due to a public health emergency; or
iv. such employee's need to care for a child whose school or childcare providerhas been closed due to a public health emergency.

35.5.2(d) An employer must not require an employee, as a condition of taking sick time, to search for a replacement. However, an employer may require an employee to provide: reasonable notice of the need to use sick time; reasonable documentation that the use of sick time was needed for a reason above if for an absence of more than three consecutive work days; and/or written confirmation that an employee used sick time pursuant to the PSLL. However, an employer may not require documentation specifying the nature of a medical condition or otherwise require disclosure of the details of a medical condition as a condition of providing sick time and health information obtained solely due to an employee's use of sick time pursuant to the PSLL must be treated by the

employer as confidential.

35.5.2(e) If an employer chooses to impose any permissible discretionary requirement as a condition of using sick time, it must provide to all employees a written policy containing those requirements, using a delivery method that reasonably ensures that employees receive the policy. If such employer has not provided its written policy, it may not deny sick time to an employee because of non-compliance with such a policy.

35.5.2(f) Sick time to which an employee is entitled must be paid no later than the payday for the next regular payroll period beginning after the sick time was used.

35.5.3 Exemptions and Exceptions. Notwithstanding the above, the PSLL does not apply to any of the following:

35.5.3(a) an independent contractor who does not meet the definition of employee under section 190(2) of the New York State Labor Law;

35.5.3(b) an employee covered by a valid collective bargaining agreement in effect on April 1, 2014, until the termination of such agreement;

35.5.3(c) an employee in the construction or grocery industry covered by a valid collective bargaining agreement if the provisions of the PSLL are expressly waived in such collective bargaining agreement;

35.5.3(d) an employee covered by another valid collective bargaining agreement if such provisions are expressly waived in such agreement and such agreement provides a benefit comparable to that provided by the PSLL for such employee;

35.5.3(e) an audiologist, occupational therapist, physical therapist, or speech language pathologist who is licensed by the New York State Department of Education and who calls in for work assignments at will, determines his or her own schedule, has the ability to reject or accept any assignment referred to him or her, and is paid an average hourly wage that is at least four times the federal minimum wage;

35.5.3(f) an employee in a work study program under Section 2753 of Chapter 42 of the United States Code;

35.5.3(g) an employee whose work is compensated by a qualified scholarship program as that term is defined in the Internal Revenue Code, Section 117 of Chapter 20 of the United States Code; or

35.5.3(h) a participant in a Work Experience Program (WEP) under section 336-c of the New York State Social Services Law.

35.5.4 Retaliation Prohibited. An employer may not threaten or engage in retaliation against an employee for exercising or attempting in good faith to exercise any right provided by the PSLL. In addition, an employer may not interfere with any investigation, proceeding, or hearing pursuant to the PSLL.

35.5.5 Notice of Rights.

35.5.5(a) An employer must provide its employees with written notice of their rights pursuant to the PSLL. Such notice must be in English and the primary language spoken

by an employee, provided that DCA has made available a translation into such language. Downloadable notices are available on DCA's website at http://www.nyc.gov/html/dca/html/law/PaidSickLeave.shtml.

35.5.5(b) Any person or entity that willfully violates these notice requirements is subject to a civil penalty in an amount not to exceed fifty dollars for each employee who was not given appropriate notice.

35.5.6 Records. An employer must retain records documenting its compliance with the PSLL for a period of at least three years, and must allow DCA to access such records in furtherance of an investigation related to an alleged violation of the PSLL.

35.5.7 Enforcement and Penalties.

35.5.7(a) Upon receiving a complaint alleging a violation of the PSLL, DCA has the right to investigate such complaint and attempt to resolve it through mediation. Within 30 **Days** of written notification of a complaint by DCA, or sooner in certain circumstances, the employer must provide DCA with a written response and such other information as DCA may request. If DCA believes that a violation of the PSLL has occurred, it has the right to issue a notice of violation to the employer.

35.5.7(b) DCA has the power to grant an employee or former employee all appropriate relief as set forth in New York City Administrative Code § 20-924(d). Such relief may include, among other remedies, treble damages for the wages that should have been paid, damages for unlawful retaliation, and damages and reinstatement for unlawful discharge. In addition, DCA may impose on an employer found to have violated the PSLL civil penalties not to exceed $500 for a first violation, $750 for a second violation within two years of the first violation, and
$1,000 for each succeeding violation within two years of the previous violation.

35.5.8 More Generous Polices and Other Legal Requirements. Nothing in the PSLL is intended to discourage, prohibit, diminish, or impair the adoption or retention of a more generous sick time policy, or the obligation of an employer to comply with any contract,

collective bargaining agreement, employment benefit plan or other agreement providing more generous sick time. The PSLL provides minimum requirements pertaining to sick time and does not preempt, limit or otherwise affect the applicability of any other law, regulation, rule, requirement, policy or standard that provides for greater accrual or use by employees of sick leave or time, whether paid or unpaid, or that extends other protections to employees. The PSLL may not be construed as creating or imposing any requirement in conflict with any federal or state law, rule or regulation.

35.6 HireNYC: Hiring and Reporting Requirements. This Article 35.6 applies to construction contracts of $1,000,000 or more. The **Contractor** shall comply with the requirements of Articles 35.6.1-35.6.5 for all non-trades jobs (e.g., for an administrative position arising out of **Work** ant located in New York City). The **Contractor** shall reasonably cooperate with SBS and the **City** on specific outreach events, including "Hire-on-the-Spot" events, for the hiring of trades workers in connection with the **Work**. If provided elsewhere in this **Contract**, this **Contract** is subject to a project labor agreement.

35.6.1 Enrollment. The **Contractor** shall enroll with the HireNYC system, found at www.nyc.gov/sbs, within thirty (30) days after the registration of this **Contract** pursuant to Section 328 of the New York City Charter. The **Contractor** shall provide information about the business, designate a primary contact and say whether it intends to hire for any entry

to mid-level job opportunities arising from this **Contract** and located in New York City, and, if so, the approximate start date of the first hire.

35.6.2 Job Posting Requirements.

35.6.2(a) Once enrolled in HireNYC, the **Contractor** agrees to update the HireNYC portal with all entry to mid-level job opportunities arising from this **Contract** and located in New York City, if any, which shall be defined as jobs requiring no more than an associate degree, as provided by the New York State Department of Labor (see Column F of https://labor.ny.gov/stats/2012-2022- NYS- Employment-Prospects.xls). The information to be updated includes the types of entry and mid-level positions made available from the work arising from the **Contract** and located in New York City, the number of positions, the anticipated schedule of initiating the hiring process for these positions, and the contact information for the **Contractor's** representative charged with overseeing hiring. The **Contractor** must update the HireNYC portal with any hiring needs arising from the contract and located in New York City, and the requirements of the jobs to be filled, no less than three weeks prior to the intended first day of employment for each new position, except with the permission of SBS, not to be unreasonably withheld, and must also update the HireNYC portal as set forth below.

35.6.2(b) After enrollment through HireNYC and submission of relevant information, SBS will work with the **Contractor** to develop a recruitment plan which will outline the candidate screening process, and will provide clear instructions as to when, where, and how interviews will take place. HireNYC will screen applicants based on employer requirements and refer applicants whom it believes are qualified to the **Contractor** for interviews. The **Contractor** must interview referred applicants whom it believes are qualified.

35.6.2(c) After completing an interview of a candidate referred by HireNYC, the **Contractor** must provide feedback via the portal within twenty (20) business days to indicate which candidates were interviewed and hired, if any. In addition, the **Contractor** shall provide the start date of new hires, and additional information reasonably related to such hires, within twenty (20) business days after the start date. In the event the **Contractor** does not have any job openings covered by this Rider in any given year, the **Contractor** shall be required to provide an annual update to HireNYC to that effect. For this purpose, the reporting year shall run from the date of the registration of the **Contract** pursuant to Charter section 328 and each anniversary date.

35.6.2(d) These requirements do not limit the **Contractor's** ability to assess the qualifications of prospective workers, and to make final hiring and retention decisions. No provision of this Article 35.6 shall be interpreted so as to require the **Contractor** to employ any particular worker.

35.6.2(e) In addition, the provisions of this Article 35.6 shall not apply to positions that the **Contractor** intends to fill with employees employed pursuant to the job retention provision of Section 22-505 of the Administrative Code of the City of New York. The **Contractor** shall not be required to report such openings with HireNYC. However, the **Contractor** shall enroll with the HireNYC system pursuant to Article 35.6.1, above, and, if such positions subsequently become open, then the remaining provisions of this Article 35.6 will apply.

35.6.3 Breach and Liquidated Damages. If the **Contractor** fails to comply with the termsof the **ContrSact** and this Article 35.6 ( l) by not enrolling its business with HireNYC; (2) by not informing HireNYC, as required, of open positions; or (3) by failing to interview a qualified candidate, the **Agency** may assess liquidated damages in the amount of two- thousand five hundred dollars ($2,500) per breach. For all other events of noncompliance with the terms of this Article 35.6, the **Agency** may assess liquidated damages in the amount of five hundred dollars ($500) per breach. Furthermore, in the event the **Contractor** breaches the requirements of this Article 35.6 during the term of the **Contract**, the **City** may hold the **Contractor** in default of this **Contract**.

35.6.4 Audit Compliance. In addition to the auditing requirements set forth in other partsof 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 amonthly 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 qualifiedand 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 repairof 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 applicantfor 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, ratesof 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 AdministrativeCode, 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 orshe 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 acondition 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 usedif 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 performanceof 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 44and 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 intendedfor 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; orif

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 performthe **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 assertedwithin 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 forthe 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 NewYork 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 interestin, 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 inassessing 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 tothe 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 theperson 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 thathas 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
64.1.5 **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 tothe 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 ina

**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 willbe 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 ofthe 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 toand from **Work**;

69.3.1(c) ban provocative religious or political emblems from the workplace;

69.3.1(d) publicly advertise all job openings and make special recruitment efforts to attract applicants from under-represented religious groups;

69.3.1(e) establish layoff, recall, and termination procedures which do not in practice favor a particular religious group;

69.3.1(f) abolish all job reservations, apprenticeship restrictions and different employment criteria which discriminate on the basis of religion;

69.3.1(g) develop training programs that will prepare substantial numbers of current employees from under-represented religious groups for skilled jobs, including the expansion of existing programs and the creation of new programs to train, upgrade, and improve the skills of workers from under-represented religious groups;

69.3.1(h) establish procedures to asses, identify, and actively recruit employees from under-represented religious groups with potential for further advancement; and

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

69.4 The **Contractor** agrees that the covenants and representations in Article 69.2 are material conditions to this **Contract**. In the event the **Agency** receives information that the **Contractor** who made the stipulation required by this Article 69 is in violation thereof, the **Agency** shall review such information and give the **Contractor** an opportunity to respond. If the **Agency** finds that a violation has occurred, the **Agency** shall have the right to declare the **Contractor** in default in default and/or terminate this **Contract** for cause and procure supplies, services or **Work** from another source in the manner the **Agency** deems proper. In the event of such termination, the **Contractor** shall pay to the **Agency**, or the **Agency** in its sole discretion may withhold from any amounts otherwise payable to the **Contractor**, the difference between the **Contract** price for the uncompleted portion of this **Contract** and the cost to the **Agency** of completing performance of this **Contract** either itself or by engaging another **Contractor** or **Contractors**. In the case of a requirement **Contract**, the **Contractor** shall be liable for such difference in price for the entire amount of supplies required by the **Agency** for the uncompleted term of **Contractor's Contract**. In the case of a construction **Contract**, the **Agency** shall also have the right to hold the **Contractor** in partial or total default in

accordance with the default provisions of this **Contract**, and/or may seek debarment or suspension of the **Contractor**. The rights and remedies of the **Agency** hereunder shall be in addition to, and not in lieu of, any rights and remedies the **Agency** has pursuant to this **Contract** or by operation of **Law**.

## ARTICLE 70. ELECTRONIC FILING/NYC DEVELOPMENT HUB

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

## ARTICLE 71. PROHIBITION OF TROPICAL HARDWOODS

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

## ARTICLE 72. CONFLICTS OF INTEREST

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

## ARTICLE 73. MERGER CLAUSE

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

## ARTICLE 74. STATEMENT OF WORK

74.1 The **Contractor** shall furnish all labor and materials and perform all **Work** in strictaccordance 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 reasonablyhave 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

ARTICLE I. M/WBE PROGRAM

Section 6-129 of the Administrative Code of the City of New York ("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.

References to MBEs or WBEs shall also include such businesses certified pursuant to the executive law where credit is required by section 311 of the New York City Charter or other provision of law.

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 1 to this Contract (see Page 1, Line 1 Total Participation Goals) or will be set forth on Schedule B, Part 1 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 DSBS 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 2 (see Pages1-2) 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; (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; as well as the name, addresses, and telephone numbers of the M/WBE subcontractors if required by the solicitation; and (d) the prospective contractor's required certification and affirmations. 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 2 (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 2 (see Pages 1-2) 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; (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; as well as the name, addresses, and telephone numbers of the M/WBE subcontractors if required by the solicitation; and (d) the prospective contractor's required certification and affirmations. 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 2). A SCHEDULE B SUBMITTED BY THE BIDDER/PROPOSER WHICH DOES NOT INCLUDE THE VENDOR CERTIFICATION AND REQUIRED AFFIRMATIONS WILL BE DEEMED TO BE NON-RESPONSIVE, UNLESS A FULL WAIVER OF THE PARTICIPATION GOALS IS GRANTED (SCHEDULE B, PART 3). 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 city-certified 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) 513-6451, or by visiting or writing DSBS at One Liberty Plaza ., New York, New York, 10006, 11th 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 3 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 by email at MWBEModification@ddc.nyc.gov. Full or partial waiver requests that are received later than seven (7) calendar days prior to the date and time the bids, proposals, or Task Orders are due may be rejected as untimely.** Bidders, proposers, or contractors, as applicable, who have submitted timely 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 the Contractor was required to identify in its bid or proposal the MBEs and/or WBEs they intended to use in connection with the performance of the Contract or Task Order, substitutions to the identified firms may only be made with the approval of the Agency, which shall only be given when the Contractor has proposed to use a firm that would satisfy the Participation Goals to the same extent as the firm previously identified, unless the Agency determines that the Contractor has established, with appropriate documentary and other evidence, that it made reasonable, good faith efforts. In making such determination, the Agency shall require evidence of the

efforts listed in Section 11(a) above, as applicable, along with any other relevant factors.

13. 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.

14. 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.

15. 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

The Contractor shall take notice that, if this solicitation requires the establishment of a 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.

1. Pursuant to DSBS rules, construction contracts that include a requirement for a 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.

2. 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.

3. Prospective contractors are encouraged to enter into qualified joint venture agreements with MBEs and/or WBEs as defined by Section 6-129(c)(30).

4. By submitting a bid or proposal the Contractor hereby acknowledges its understanding of the M/WBE Program requirements set forth herein and the pertinent provisions of Section 6-129, and any rules promulgated thereunder, and if awarded this Contract, the Contractor hereby agrees to comply with the M/WBE Program requirements of this Contract and pertinent provisions of Section 6-129, and any rules promulgated thereunder, all of which shall be deemed to be material terms of this Contract. The Contractor hereby agrees to make all reasonable, good faith efforts to solicit and obtain the participation of MBEs and/or WBEs to meet the required Participation Goals.

ARTICLE II. ENFORCEMENT

1. If Agency determines that a bidder or proposer, as applicable, has, in relation to this procurement, violated Section 6-129 or the DSBS rules promulgated pursuant to Section 6-129, Agency may disqualify such bidder or proposer, as applicable, from competing for this Contract and the Agency may revoke such bidder's or proposer's prequalification status, if applicable.

2. Whenever Agency believes that the Contractor or a subcontractor is not in compliance with Section 6-129

or the DSBS rules promulgated pursuant to Section 6-129, or any provision of this Contract that implements Section 6-129, including, but not limited to any M/WBE Utilization Plan, Agency shall send a written notice to the Contractor describing the alleged noncompliance and offering the Contractor an opportunity to be heard. Agency shall then conduct an investigation to determine whether such Contractor or subcontractor is in compliance.

3. In the event that the Contractor has been found to have violated Section 6-129, the DSBS rules promulgated pursuant to Section 6-129, or any provision of this Contract that implements Section 6-129, including, but not limited to, any M/WBE Utilization Plan, Agency may determine that one of the following actions should be taken:

(a) entering into an agreement with the Contractor allowing the Contractor to cure the violation;
(b) revoking the Contractor's pre-qualification to bid or make proposals for future contracts;
(c) making a finding that the Contractor is in default of the Contract;
(d) terminating the Contract;
(e) declaring the Contractor to be in breach of Contract;
(f) withholding payment or reimbursement;
(g) determining not to renew the Contract;
(h) assessing actual and consequential damages;
(i) assessing liquidated damages or reducing fees, provided that liquidated damages may be based on amounts representing costs of delays in carrying out the purposes of the M/WBE Program, or in meeting the purposes of the Contract, the costs of meeting utilization goals through additional procurements, the administrative costs of investigation and enforcement, or other factors set forth in the Contract;
(j) exercising rights under the Contract to procure goods, services or construction from another contractor and charge the cost of such contract to the Contractor that has been found to be in noncompliance; or
(k) taking any other appropriate remedy.

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

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

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

7. The Contractor's record in implementing its M/WBE Utilization Plan shall be a factor in the evaluation of

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

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# CONTRACT SIGNATURE PAGE

This Contract is entered by and between the City of New York ("City"), acting by and through the **DEPARTMENT OF DESIGN AND CONSTRUCTION**, and **CORBEX INC.** ("Contractor").

This Contract consists of this contract signature page as well as the following documents ("Contract Documents") which are located in the Documents tab of the PASSPort record titled **85026B0088-CO294RF** .

1. (PSR Appropriate Contract Value) - CO294RF_single site - Apr 30 2026 6:34PM
2. BID BOND FORM 2021-03(1).... - Dec 19 2024 1:12PM
3. Certified Check Submission Procedures 2024-09.... - Dec 19 2024 2:40PM
4. CO294RF Bid Bond Form - Jul 14 2026 8:21PM
5. CO294RF Bid Breakdown SOV - Jul 16 2026 5:28PM
6. CO294RF Brokers Certification - Jul 16 2026 5:24PM
7. CO294RF Disability Insurance - Jul 16 2026 5:24PM
8. CO294RF Insurances - Jul 16 2026 5:21PM
9. CO294RF NYSDOL - Jul 14 2026 8:22PM
10. CO294RF Performance and Payment Bond - Jul 16 2026 5:22PM
11. CO294RF Subcontractor ID - May 28 2026 5:29PM
12. CO294RF Workers Compensation Insurance - Jul 16 2026 5:24PM
13. CO294RF_Addendum1 5-20-26 - May 20 2026 7:51PM
14. CO294RF_Addendum2 - May 26 2026 7:06PM
15. CO294RF_Bid Drawings - Apr 13 2026 4:57PM
16. CO294RF_DDC Proprietary List - Apr 13 2026 4:54PM
17. CO294RF_Special Experience Requirements - Jul 14 2026 8:26PM
18. CO294RF_Volume2 - Apr 13 2026 4:58PM
19. CO294RF_Volume3_Addendum1 - May 20 2026 7:16PM
20. Letter of Assent- PLA signed - Jul 16 2026 5:27PM
21. Proposal_Bid_85026B0088001.pdf - Jun 25 2026 7:18PM
22. RFx Document_85026B0088001 (1).pdf - Jun 25 2026 7:18PM
23. Round_Addendum_Job_Aid 2021-03. (1).... - Dec 20 2024 11:03PM
24. Schedule B - MWBE Utilization Plan - Jul 3 2025 12:16PM
25. Volume 1 PB Bid Booklet (Single PLA) - 2024-07-01... - Nov 23 2024 1:22AM

The above order does not represent an order of precedence. The Contract shall be governed by the

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order of precedence, if any, in the Contract Documents or by ordinary contract principles if no such order of precedence exists.

Each party is signing this Contract electronically on the date stated in that party's electronic signature.

The City of New York
By: **DEPARTMENT OF DESIGN AND CONSTRUCTION**

DocuSigned by:
ERIC MACFARLANE
1A87ABA0188B41C...

*(Signature)*

Name: ERIC MACFARLANE

Title: First Deputy Commissioner

Date: 8/4/2026 | 07:37:25 PDT

Contractor
By: **CORBEX INC.**

Signed by:
Adam Piatek
ACA242F7774E42C...

*(Signature)*

Name: Adam Piatek

Title: President

Date: 7/31/2026 | 15:17:15 EDT

Docusign Envelope ID: B273411B-7E92-861A-81E8-703CEC60BEF5

## Signatures

Number of pages (including this one): 3

- ✓ Document signed electronically, the signatories agreeing that it is authentic between them.
- ✓ By signing this document, the signatories acknowledge and agree that they have carefully read this document and approve all its terms.

| | | |
|---|---|---|
| Nom: | Piatek Adam | Place: NY<br>Date: 7/31/2026 \| 15:17:15 EDT<br>Signed by:<br>Adam Piatek<br>ACA242F7774E42C... |
| Fonction: | President | |

| | | |
|---|---|---|
| Nom: | Macfarlane Eric | Place: lic ny<br>Date: 8/4/2026 \| 07:37:25 PDT<br>DocuSigned by:<br>ERIC MACFARLANE<br>1A87ABA0188B41C... |
| Fonction: | | |

## PERFORMANCE BOND #1

Performance Bond #1 (4 Pages): 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)

**KNOW ALL PERSONS BY THESE PRESENTS:,**
That we, _____

_____

_____

hereinafter referred to as the "Principal,"
and, _____

_____

_____

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

_____

_____

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

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

_____

_____

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

**NOW, THEREFORE,** the conditions of this obligation are such that if the Principal, his or its representatives or assigns, shall well and faithfully perform the said Contract and all modifications, amendments, additions and alterations thereto that may hereafter be made, according to its terms and its true intent and meaning, including repair and or replacement of defective work and guarantees of maintenance for the periods stated in the Contract, and shall fully indemnify and save harmless the City from all cost and damage which it may suffer by reason of the Principal's default of the Contract, and shall fully reimburse and repay the City for all outlay and expense which the City may incur in making good any such default and shall protect the said City of New York against, and pay any and all amounts, damages, cost and judgments which may or shall be recovered against said City or its officers or agents or which the said City of New York may be called upon to pay any person or corporation by reason of any damages arising or growing out of the Principal's default of the Contract, then this obligation shall be nulland void, otherwise to remain in full force and effect.

The Surety (Sureties), for value received, hereby stipulates and agrees, upon written notice from the Citythat the City has determined that the Principal is in default of the Contract, to (1) pay the City the cost tocomplete 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 thecost of completion plus any applicable damages and costs under option (1) above, or to commence anddiligently 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 timeas 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 costof 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 byany extension of time, modification, omission, addition, or change in or to the said Contract or the Workto 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 doneand 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 forthe completion of the Contract as if such sums had not been paid to the Principal, but shall not provide abasis 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.

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

_____ day of _____, 20_____.(Seal)

_____(L.S.)
Principal

(Seal)

By: _____.

Surety

By: _____.
_____.
(Seal) Surety

By: _____.
_____.
(Seal) Surety

By: _____.
_____.
(Seal) Surety

By: _____.
_____.
(Seal) Surety

By: _____.

Bond Premium Rate _____.

Bond Premium Cost _____.

If the Contractor (Principal) is a partnership, the bond should be signed by each of the individuals who are partners.

If the Contractor (Principal) is a corporation, the bond should be signed in its correct corporate name by aduly authorized officer, agent, or attorney-in-fact.

There should be executed an appropriate number of counterparts of the bond corresponding to the numberof counterparts of the Contract.

**ACKNOWLEDGMENT OF PRINCIPAL IF A CORPORATION**

State of_____ County of_____ ss:

On this_____ day of_____, 20_____ before me personally came_____,
to me known, who, being by me duly sworn did depose and say that he/she resides at _____
_____; that he/she is the _____
of the corporation described in and which executed the foregoing instrument; and that he/she signed his/her name to the foregoing instrument by order of the directors of said corporation as the duly authorized and binding act thereof.

_____
Notary Public or Commissioner of Deeds.

**ACKNOWLEDGMENT OF PRINCIPAL IF A PARTNERSHIP**

State of_____ County of_____ ss:

On this_____ day of_____, 20_____ before me personally came_____,
to me known, who, being by me duly sworn did dispose and say that he/she resides at _____
_____; that he/she is_____ partner of
_____, a limited/general partnership existing under the laws of the State of
_____, the partnership described in and which executed the foregoing instrument; and that he/she signed his/her name to the foregoing instrument as the duly authorized and binding act of said partnership.

_____
Notary Public or Commissioner of Deeds.

**ACKNOWLEDGMENT OF PRINCIPAL IF AN INDIVIDUAL**

State of_____ County of_____ ss:

On this_____ day of_____, 20_____ before me personally came_____,
to me known, who, being by me duly sworn did depose and say that he/she resides at _____
_____, and that he/she is the individual whose name is subscribed to the within instrument and acknowledged to me that by his/her signature on the instrument, said individual executed the instrument.

_____
Notary Public or Commissioner of Deeds

Each executed bond should be accompanied by: (a) appropriate acknowledgments of the respective parties; (b) appropriate duly certified copy of Power of Attorney or other certificate of authority where bond is executed by agent, officer or other representative of Principal or Surety; (c) a duly certified extract from By-Laws or resolutions of Surety under which Power of Attorney or other certificate of authority of its agent, officer or representative was issued, and (d) certified copy of latest published financial statement of assets and liabilities of Surety.

* * * * * * * *

Affix Acknowledgments and Justification of Sureties.

**PERFORMANCE BOND #2**

Performance Bond #2 (4 pages): Use if the total contract price is more than $5 Million.

PERFORMANCE BOND #2 (Page 1)

**PERFORMANCE BOND #2KNOW ALL PERSONS BY THESE PRESENTS:,**

That we, Corbex Inc.

351 Denton Avenue, New Hyde Park, NY 11040

hereinafter referred to as the "Principal,"
and, Berkley Insurance Company

475 Steamboat Road, Greenwich, CT 06830

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

Eighteen Million Nine Hundred Thirty Thousand Eight Hundred Nineteen Dollars and 16/100

($ 18,930,819.16 ) 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

CO294RF: Clarke Bronx Family Criminal Courthouse Roof Upgrade (Large GC PQL), Borough of Bronx, NY

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

**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 Cityfrom all cost and damage which it may suffer by reason of the Principal's default of the Contract, and shall fully reimburse and repay the City for all outlay and expense which the City may incur in making

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

The Surety (Sureties), for value received, hereby stipulates and agrees, upon written notice from the Citythat the City has determined that the Principal is in default of the Contract, to either (1) pay the full amount of the above penal sum in complete discharge and exoneration of this bond and of all the liabilities of the Surety relating to this bond, or (2) fully perform and complete the Work to be performed under theContract, pursuant to the terms, conditions, and covenants thereof. The Surety (Sureties) further agrees, at its option, either to tender the penal sum or to commence and diligently perform the Work specified in the Contract, including physical site work, within twenty-five (25) business days after written notice thereoffrom the City and to complete all Work within the time set forth in the Contract or such other time as agreed to between the City and Surety in accordance with the Contract. The Surety and the City reserve all rights and defenses each may have against the other; provided, however, that the Surety expressly agrees that its reservation of rights shall not provide a basis for non-performance of its obligation to commence and to complete all Work as provided herein.

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

**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

29th day of June 20 26.

(Seal)

Corbex Inc. (L.S.)
Principal
By: _____

(Seal)

Berkley Insurance Company
Surety
By: _____
Peter Henry, Attorney-In-Fact

By: _____.
_____.
(Seal) Surety

By: _____.
_____.
(Seal) Surety

By: _____.
_____.
(Seal) Surety

By: _____.
_____.
(Seal) Surety

By: _____.

Bond Premium Rate _____.

Bond Premium Cost _____.

If the Contractor (Principal) is a partnership, the bond should be signed by each of the individuals who are partners.

If the Contractor (Principal) is a corporation, the bond should be signed in its correct corporate name by aduly authorized officer, agent, or attorney-in-fact.

There should be executed an appropriate number of counterparts of the bond corresponding to the numberof counterparts of the Contract.

**ACKNOWLEDGMENT OF PRINCIPAL IF A CORPORATION**

State of New York County of Nassau ss:

On this 30th day of June, 20 26 before me personally came Adam Pietek,
to me known, who, being by me duly sworn did depose and say that he resides at 73 Hoodledge Rd Manhasset NY; that he/she is the President of the corporation described in and which executed the foregoing instrument; that he/she signed his/her name to the foregoing instrument by order of the directors of said corporation as the duly authorized and binding act thereof.

MICHELINA SOKOLOWSKI
NOTARY PUBLIC STATE OF NEW YORK
Qualified in Suffolk County
01SO6341828
MY COMMISSION EXPIRES 05/16/2028

Notary Public or Commissioner of Deeds.

**ACKNOWLEDGMENT OF PRINCIPAL IF A PARTNERSHIP**

State of_____ County of_____ ss:

On this_____ day of_____, 20_____ before me personally came_____,
to me known, who, being by me duly sworn did depose and say that he/she resides at_____
_____; that he/she is_____ partner of _____, a limited/general partnership existing under the laws of the State of _____, the partnership described in and which executed the foregoing instrument;and that he/she signed his/her name to the foregoing instrument as the duly authorized and binding act of said partnership.

_____
Notary Public or Commissioner of Deeds

**ACKNOWLEDGMENT OF PRINCIPAL IF AN INDIVIDUAL**

State of_____ County of_____ ss:

On this_____ day of_____, 20_____ before me personally came_____,
to me known, who, being by me duly sworn did depose and say that he/she resides at_____
_____, and that he/she is the individual whose name is subscribed to the within instrument and acknowledged to me that by his/her signature on the instrument, said individual executed the instrument.

_____
Notary Public or Commissioner of Deeds

Each executed bond should be accompanied by: (a) appropriate acknowledgments of the respective parties; (b) appropriate duly certified copy of Power of Attorney or other certificate of authority where bond is executed by agent, officer or other representative of Principal or Surety; (c) a duly certified extract from By-Laws or resolutions of Surety under which Power of Attorney or other certificate of authority of its agent, officer or representative was issued, and (d) certified copy of latest published financial statement of assets and liabilities of Surety.

* * * * * * * *

Affix Acknowledgments and Justification of Sureties.

# ACKNOWLEDGEMENT OF SURETY

STATE OF NEW YORK }
COUNTY OF NASSAU } ss:

On June 29, 2026 before me personally came Peter Henry to me known who, being by me duly sworn, did depose and say that he/she resides at 255 Executive Drive, Plainview, New York 11803, that he/she is the Attorney-In-Fact of Berkley Insurance Company the corporation described in and which executed the foregoing instrument; and that he/she signed his/her name thereto by order of the Board of Directors of said corporation.




Notary Public

No. BI-108c-el

POWER OF ATTORNEY
**BERKLEY INSURANCE COMPANY**
WILMINGTON, DELAWARE

KNOW ALL MEN BY THESE PRESENTS, that BERKLEY INSURANCE COMPANY (the "Company"), a corporation duly organized and existing under the laws of the State of Delaware, having its principal office in Greenwich, CT, has made, constituted and appointed, and does by these presents make, constitute and appoint: ***Peter T. Henry; Robert Finnell; Jennifer L. Johnston-Ogeka; or Fern Perry of Surre, Goldberg & Henry Associates, Inc. of Plainview, NY*** its true and lawful Attorney-in-Fact, to sign its name as surety only as delineated below and to execute, seal, acknowledge and deliver any and all bonds and undertakings, with the exception of Financial Guaranty Insurance, providing that no single obligation shall exceed **One Hundred Million and 00/100 U.S. Dollars (U.S.$100,000,000.00),** to the same extent as if such bonds had been duly executed and acknowledged by the regularly elected officers of the Company at its principal office in their own proper persons.

This Power of Attorney shall be construed and enforced in accordance with, and governed by, the laws of the State of Delaware, without giving effect to the principles of conflicts of laws thereof. This Power of Attorney is granted pursuant to the following resolutions which were duly and validly adopted at a meeting of the Board of Directors of the Company held on January 25, 2010:

**RESOLVED**, that, with respect to the Surety business written by Berkley Surety, the Chairman of the Board, Chief Executive Officer, President or any Vice President of the Company, in conjunction with the Secretary or any Assistant Secretary are hereby authorized to execute powers of attorney authorizing and qualifying the attorney-in-fact named therein to execute bonds, undertakings, recognizances, or other suretyship obligations on behalf of the Company, and to affix the corporate seal of the Company to powers of attorney executed pursuant hereto; and said officers may remove any such attorney-in-fact and revoke any power of attorney previously granted; and further

**RESOLVED**, that such power of attorney limits the acts of those named therein to the bonds, undertakings, recognizances, or other suretyship obligations specifically named therein, and they have no authority to bind the Company except in the manner and to the extent therein stated; and further

**RESOLVED**, that such power of attorney revokes all previous powers issued on behalf of the attorney-in-fact named; and further

**RESOLVED**, that the signature of any authorized officer and the seal of the Company may be affixed by facsimile to any power of attorney or certification thereof authorizing the execution and delivery of any bond, undertaking, recognizance, or other suretyship obligation of the Company; and such signature and seal when so used shall have the same force and effect as though manually affixed. The Company may continue to use for the purposes herein stated the facsimile signature of any person or persons who shall have been such officer or officers of the Company, notwithstanding the fact that they may have ceased to be such at the time when such instruments shall be issued.

IN WITNESS WHEREOF, the Company has caused these presents to be signed and attested by its appropriate officers and its corporate seal hereunto affixed this 30th day of March, 2023.

BERKLEY INSURANCE COMPANY CORPORATE SEAL 1975 DELAWARE

Attest:

By _____
Ira S. Lederman
Executive Vice President & Secretary

Berkley Insurance Company

By _____
Jeffrey M. Hafter
Senior Vice President

STATE OF CONNECTICUT )
) ss:
COUNTY OF FAIRFIELD )

Sworn to before me, a Notary Public in the State of Connecticut, this 30th day of March, 2023, by Ira S. Lederman and Jeffrey M. Hafter who are sworn to me to be the Executive Vice President and Secretary, and the Senior Vice President, respectively, of Berkley Insurance Company.

MARIA C RUNDBAKEN
NOTARY PUBLIC
CONNECTICUT
MY COMMISSION EXPIRES
APRIL 30, 2024

_____
Notary Public, State of Connecticut

**CERTIFICATE**

I, the undersigned, Assistant Secretary of BERKLEY INSURANCE COMPANY, DO HEREBY CERTIFY that the foregoing is a true, correct and complete copy of the original Power of Attorney; that said Power of Attorney has not been revoked or rescinded and that the authority of the Attorney-in-Fact set forth therein, who executed the bond or undertaking to which this Power of Attorney is attached, is in full force and effect as of this date.

BERKLEY INSURANCE COMPANY CORPORATE SEAL 1975 DELAWARE

Given under my hand and seal of the Company, this 29th day of June, 2026.

_____
Vincent P. Forte

# BERKLEY INSURANCE COMPANY

## STATUTORY BALANCE SHEET
## DECEMBER 31, 2025
(AMOUNTS IN THOUSANDS)

**Admitted Assets**

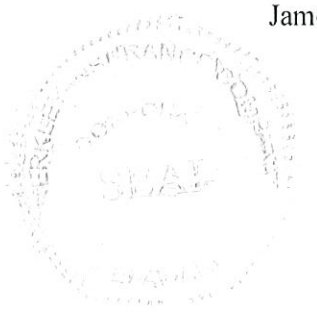
| | | |
|---|---|---|
| Bonds | $ | 18,994,824 |
| Common & Preferred Stocks | | 6,735,186 |
| Cash & Short Term Investments | | 1,345,985 |
| Premiums Receivable | | 3,001,206 |
| Other Assets | | 4,128,062 |
| Total Admitted Assets | $ | 34,205,262 |

**Liabilities & Surplus**

| | | |
|---|---|---|
| Loss & LAE Reserves | $ | 17,857,131 |
| Unearned Premium Reserves | | 5,320,581 |
| Other Liabilities | | 1,170,413 |
| Total Liabilities | $ | 24,348,125 |
| Common Stock | $ | 43,000 |
| Preferred Stock | | 10 |
| Additional Paid In Capital | | 3,047,887 |
| Unassigned Surplus | | 6,766,240 |
| Total Policyholders' Surplus | $ | 9,857,138 |
| Total Liabilities & Surplus | $ | 34,205,262 |

**Officers:**
President: William Robert Berkley, Jr.
Secretary: Philip Stanley Welt
Treasurer: Richard Mark Baio
Asst. Treasurer: Bertman Adam Braud, Jr.
Asst. Secretary: Michelle Rene Rodemyer
Asst. Treasurer: Ted William Rogers

**Directors:**
William Robert Berkley
(Executive Chairman)
William Robert Berkley, Jr.
Philip Stanley Welt
Richard Mark Baio
Paul James Hancock
Carol Josephine LaPunzina
James Gerald Shiel



Bond # 0272718

**PAYMENT BOND**

Use for any contract for which a Payment Bond is required.

PAYMENT BOND (Page 1)

PAYMENT BOND

KNOW ALL PERSONS BY THESE PRESENTS, That we, Corbex Inc.

351 Denton Avenue, New Hyde Park, NY 11040

hereinafter referred to as the "Principal", and Berkley Insurance Company

475 Steamboat Road, Greenwich, CT 06830

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

Eighteen Million Nine Hundred Thirty Thousand Eight Hundred Nineteen Dollars and 16/100

($ 18,930,819.16) 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

CQ294RF: Clarke Bronx Family Criminal Courthouse Roof Upgrade (Large GC PQL), Borough of Bronx, NY

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

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

(a) Wages and compensation for labor performed and services rendered by all persons engaged in the prosecution of the Work under said Contract, and any amendment or extension thereof or addition thereto, whether such persons be agents servants or employees of the Principal or any such Subcontractor, including all persons so engaged who perform the work of laborers or mechanics at or in the vicinity of the site of the Project regardless of any contractual relationship between the Principal or such Subcontractors, or his or their successors or assigns, on the one hand and such laborers or mechanics on the other, but not including office employees not regularly stationed at the site of the project; and

(b) Materials and supplies (whether incorporated in the permanent structure or not), as well as teams, fuels, oils, implements or machinery furnished, used or consumed by said Principal or any subcontractor at or in the vicinity of the site of the Project in the prosecution of the Work under said Contract and any amendment or extension thereof or addition thereto; then this obligation shall be void, otherwise to remain infull 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 rightof the City to require a bond containing the foregoing provisions, and they do hereby further expressly waiveany defense which they or either of them might interpose to an action brought hereon by any person, firm or corporation, including subcontractors, materialmen and third persons, for work, labor, services, supplies or material performed rendered, or furnished as aforesaid upon the ground that there is no law authorizing the City to require the foregoing provisions to be place in this bond.

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

IN WITNESS WHEREOF, the Principal and the Surety (Sureties) have hereunto set their handsand 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 29th day of June, 2026.

(Seal) Corbex Inc. (L.S.)Principal

By:

(Seal) Berkley Insurance Company Surety

By: Peter Henry
Attorney-In-Fact

(Seal) _____ Surety

By: _____

(Seal) _____ Surety

By: _____

(Seal) _____ Surety

By: _____

If the Contractor (Principal) is a partnership, the bond should be signed by each of the individuals who are partners.

If the Contractor (Principal) is a corporation, the bond should be signed in its correct corporate name by aduly authorized officer, agent, or attorney-in-fact.

There should be executed an appropriate number of counterparts of the bond corresponding to the numberof counterparts of the Contract.

**ACKNOWLEDGMENT OF PRINCIPAL, IF A CORPORATION**

State of New York County of Nassau ss:

On this 30th day of June, 2026, before me personally came Adam Piatek to me known, who, being by me duly sworn did depose and say that he resides at 73 Woodedge Rd Manhasset NY that he is the President of the corporation described in and which executed the foregoing instrument; that he knows the seal of said corporation; that one of the seals affixed to said instrument is such seal; that it was so affixed by order of the directors of said corporation, and that he signed his name thereto by like order.

EWELINA SOKOLOWSKI
STATE OF NEW YORK
NOTARY PUBLIC
Qualified in Suffolk County
01SO6341828
MY COMMISSION EXPIRES 05/16/2028

Notary Public or Commissioner of Deeds

**ACKNOWLEDGMENT OF PRINCIPAL, IF A PARTNERSHIP**

State of_____ County of_____ ss:

On this_____day of_____,_____, before me personally appeared _____ to me known, and known to me to be one of the members of the firm of _____ _____ described in and who executed the foregoing instrument; and he acknowledged to me that he executed the same as and for the act and deed of said firm.

_____
Notary Public or Commissioner of Deeds

**ACKNOWLEDGMENT OF PRINCIPAL, IF AN INDIVIDUAL**

State of_____ County of_____ ss:

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

_____
Notary Public or Commissioner of Deeds

Each executed bond should be accompanied by: (a) appropriate acknowledgments of the respective parties; (b) appropriate duly certified copy of Power of Attorney or other certificate of authority where bondis 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.

# ACKNOWLEDGEMENT OF SURETY

**STATE OF NEW YORK }**
**COUNTY OF NASSAU } ss:**

**On** June 29, 2026 **before me personally came** Peter Henry **to me known who, being by me duly sworn, did depose and say that he/she resides at 255 Executive Drive, Plainview, New York 11803, that he/she is the Attorney-In-Fact of** Berkley Insurance Company **the corporation described in and which executed the foregoing instrument; and that he/she signed his/her name thereto by order of the Board of Directors of said corporation.**




**Notary Public**

No. BI-108c-el

POWER OF ATTORNEY
**BERKLEY INSURANCE COMPANY**
WILMINGTON, DELAWARE

KNOW ALL MEN BY THESE PRESENTS, that BERKLEY INSURANCE COMPANY (the "Company"), a corporation duly organized and existing under the laws of the State of Delaware, having its principal office in Greenwich, CT, has made, constituted and appointed, and does by these presents make, constitute and appoint: ***Peter T. Henry; Robert Finnell; Jennifer L. Johnston-Ogeka; or Fern Perry of Surre, Goldberg & Henry Associates, Inc. of Plainview, NY*** its true and lawful Attorney-in-Fact, to sign its name as surety only as delineated below and to execute, seal, acknowledge and deliver any and all bonds and undertakings, with the exception of Financial Guaranty Insurance, providing that no single obligation shall exceed **One Hundred Million and 00/100 U.S. Dollars (U.S.$100,000,000.00),** to the same extent as if such bonds had been duly executed and acknowledged by the regularly elected officers of the Company at its principal office in their own proper persons.

This Power of Attorney shall be construed and enforced in accordance with, and governed by, the laws of the State of Delaware, without giving effect to the principles of conflicts of laws thereof. This Power of Attorney is granted pursuant to the following resolutions which were duly and validly adopted at a meeting of the Board of Directors of the Company held on January 25, 2010:

**RESOLVED**, that, with respect to the Surety business written by Berkley Surety, the Chairman of the Board, Chief Executive Officer, President or any Vice President of the Company, in conjunction with the Secretary or any Assistant Secretary are hereby authorized to execute powers of attorney authorizing and qualifying the attorney-in-fact named therein to execute bonds, undertakings, recognizances, or other suretyship obligations on behalf of the Company, and to affix the corporate seal of the Company to powers of attorney executed pursuant hereto; and said officers may remove any such attorney-in-fact and revoke any power of attorney previously granted; and further

**RESOLVED**, that such power of attorney limits the acts of those named therein to the bonds, undertakings, recognizances, or other suretyship obligations specifically named therein, and they have no authority to bind the Company except in the manner and to the extent therein stated; and further

**RESOLVED**, that such power of attorney revokes all previous powers issued on behalf of the attorney-in-fact named; and further

**RESOLVED**, that the signature of any authorized officer and the seal of the Company may be affixed by facsimile to any power of attorney or certification thereof authorizing the execution and delivery of any bond, undertaking, recognizance, or other suretyship obligation of the Company; and such signature and seal when so used shall have the same force and effect as though manually affixed. The Company may continue to use for the purposes herein stated the facsimile signature of any person or persons who shall have been such officer or officers of the Company, notwithstanding the fact that they may have ceased to be such at the time when such instruments shall be issued.

IN WITNESS WHEREOF, the Company has caused these presents to be signed and attested by its appropriate officers and its corporate seal hereunto affixed this 30th day of March, 2023.

BERKLEY INSURANCE COMPANY CORPORATE SEAL 1975 DELAWARE

Attest:

By _____
Ira S. Lederman
Executive Vice President & Secretary

Berkley Insurance Company

By _____
Jeffrey M. Hafter
Senior Vice President

STATE OF CONNECTICUT )
) ss:
COUNTY OF FAIRFIELD )

Sworn to before me, a Notary Public in the State of Connecticut, this 30th day of March, 2023, by Ira S. Lederman and Jeffrey M. Hafter who are sworn to me to be the Executive Vice President and Secretary, and the Senior Vice President, respectively, of Berkley Insurance Company.

MARIA C RUNDBAKEN
NOTARY PUBLIC
CONNECTICUT
MY COMMISSION EXPIRES
APRIL 30, 2024

_____
Notary Public, State of Connecticut

**CERTIFICATE**

I, the undersigned, Assistant Secretary of BERKLEY INSURANCE COMPANY, DO HEREBY CERTIFY that the foregoing is a true, correct and complete copy of the original Power of Attorney; that said Power of Attorney has not been revoked or rescinded and that the authority of the Attorney-in-Fact set forth therein, who executed the bond or undertaking to which this Power of Attorney is attached, is in full force and effect as of this date.

BERKLEY INSURANCE COMPANY CORPORATE SEAL 1975 DELAWARE

Given under my hand and seal of the Company, this 29th day of June, 2026.

_____
Vincent P. Forte

# BERKLEY INSURANCE COMPANY

## STATUTORY BALANCE SHEET
## DECEMBER 31, 2025
(AMOUNTS IN THOUSANDS)

**Admitted Assets**

| | | |
|---|---|---|
| Bonds | $ | 18,994,824 |
| Common & Preferred Stocks | | 6,735,186 |
| Cash & Short Term Investments | | 1,345,985 |
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**Liabilities & Surplus**

| | | |
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President: William Robert Berkley, Jr.
Secretary: Philip Stanley Welt
Treasurer: Richard Mark Baio
Asst. Treasurer: Bertman Adam Braud, Jr.
Asst. Secretary: Michelle Rene Rodemyer
Asst. Treasurer: Ted William Rogers

**Directors:**
William Robert Berkley
(Executive Chairman)
William Robert Berkley, Jr.
Philip Stanley Welt
Richard Mark Baio
Paul James Hancock
Carol Josephine LaPunzina
James Gerald Shiel



# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 06/26/2026

**THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.**

**IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).**

| | |
|---|---|
| **PRODUCER**<br>Coverage by Design Corp.<br>87J N. Industry Ct<br><br>Deer Park NY 11729 | **CONTACT NAME:** Joyce Alessi<br>**PHONE (A/C, No, Ext):** (631) 649-7999 **FAX (A/C, No):** (631) 649-9324<br>**E-MAIL ADDRESS:** Jalessi@coveragebydesign.com |
| **INSURED**<br>Corbex Inc.<br>351 Denton Avenue<br><br>New Hyde Park NY 11040 | **INSURER(S) AFFORDING COVERAGE** — **NAIC #**<br>**INSURER A :** United Specialty Insurance Co. — 12537<br>**INSURER B :** New York State Insurance Fund — 41840<br>**INSURER C :**<br>**INSURER D :**<br>**INSURER E :**<br>**INSURER F :** |

**COVERAGES** **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

| INSR LTR | TYPE OF INSURANCE | ADDL INSD | SUBR WVD | POLICY NUMBER | POLICY EFF (MM/DD/YYYY) | POLICY EXP (MM/DD/YYYY) | LIMITS | |
|---|---|---|---|---|---|---|---|---|
| A | [X] COMMERCIAL GENERAL LIABILITY<br>[ ] CLAIMS-MADE [X] OCCUR<br>[X] Contractual Liability<br>[X] Primary & Non Contributory<br>GEN'L AGGREGATE LIMIT APPLIES PER:<br>[ ] POLICY [X] PRO-JECT [ ] LOC<br>[ ] OTHER: | X | X | PSS2602641 | 03/10/2026 | 03/10/2027 | EACH OCCURRENCE<br>DAMAGE TO RENTED PREMISES (Ea occurrence)<br>MED EXP (Any one person)<br>PERSONAL & ADV INJURY<br>GENERAL AGGREGATE<br>PRODUCTS - COMP/OP AGG<br> | $ 2,000,000<br>$ 50,000<br>$ 5,000<br>$ 2,000,000<br>$ 4,000,000<br>$ 4,000,000<br>$ |
| | AUTOMOBILE LIABILITY<br>[ ] ANY AUTO<br>[ ] OWNED AUTOS ONLY [ ] SCHEDULED AUTOS<br>[ ] HIRED AUTOS ONLY [ ] NON-OWNED AUTOS ONLY | | | | | | COMBINED SINGLE LIMIT (Ea accident)<br>BODILY INJURY (Per person)<br>BODILY INJURY (Per accident)<br>PROPERTY DAMAGE (Per accident)<br> | $<br>$<br>$<br>$<br>$ |
| | [ ] UMBRELLA LIAB [ ] OCCUR<br>[ ] EXCESS LIAB [ ] CLAIMS-MADE<br>[ ] DED [ ] RETENTION $ | | | | | | EACH OCCURRENCE<br>AGGREGATE<br> | $<br>$<br>$ |
| B | WORKERS COMPENSATION AND EMPLOYERS' LIABILITY<br>ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y / N [ ]<br>**(Mandatory in NH)**<br>If yes, describe under DESCRIPTION OF OPERATIONS below | N / A | | 25826546 | 01/01/2026 | 01/01/2027 | [X] PER STATUTE [ ] OTH-ER<br>E.L. EACH ACCIDENT<br>E.L. DISEASE - EA EMPLOYEE<br>E.L. DISEASE - POLICY LIMIT | <br>$ 1,000,000<br>$ 1,000,000<br>$ 1,000,000 |

**DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)**

Project: DDC- CO294RF: Clarke Bronx Family Criminal Courthouse Roof Upgrade (Large GC PQL) Borough of Bronx

Additional insureds:

1. City of New York, including its officials and employees, with coverage at least as broad as ISO Forms CG2010 and CG2037, 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). The Additional Insured endorsement shall either specify the entity's name, of known, or the entity's title (e.g., Project Manager).

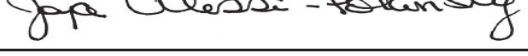
**CERTIFICATE HOLDER**

New York City Department of Design and Construction
30-30 Thomson Avenue
Long Island City, NY 11101

**CANCELLATION**

**SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.**

**AUTHORIZED REPRESENTATIVE**



**© 1988-2015 ACORD CORPORATION. All rights reserved.**

AGENCY CUSTOMER ID: _____

LOC #: _____

# ADDITIONAL REMARKS SCHEDULE

Page ____ of ____

| AGENCY | | NAMED INSURED |
|---|---|---|
| Coverage by Design Corp. | | Corbex Inc. |
| POLICY NUMBER | | |
| CARRIER | NAIC CODE | EFFECTIVE DATE: |

**ADDITIONAL REMARKS**

**THIS ADDITIONAL REMARKS FORM IS A SCHEDULE TO ACORD FORM,**

**FORM NUMBER:** 25 **FORM TITLE:** Certificate of Liability Insurance

3. The Bronx Family Criminal Courthouse, including its officials and employees.



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The ACORD name and logo are registered marks of ACORD

# BLANKET ADDITIONAL INSURED

It is agreed that this Policy shall include as additional Insureds any person or organization to whom the Named Insured has agreed by written and executed contract to provide coverage, but only with respect to operations performed by or on behalf of the Named Insured and only with respect to occurrences subsequent to the execution of such contract.

**THE INCLUSION OF AN ADDITIONAL INSURED SHALL BE SUBJECT TO ALL OTHER TERMS AND CONDITIONS CONTAINED IN THIS POLICY.**

PRIME SPECIALTY

**ALL OTHER TERMS AND CONDITIONS REMAINING UNCHANGED.**

**THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.**

# ADDITIONAL INSURED – OWNERS, LESSEES OR CONTRACTORS – SCHEDULED PERSON OR ORGANIZATION

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

**SCHEDULE**

| Name Of Additional Insured Person(s) Or Organization(s) | Location(s) Of Covered Operations |
|---|---|
| Applies to: As required by written contract executed and signed by the Named Insured prior to the commencement of work that is called for in the contract. | All locations which are afforded coverage under this policy. |
| Information required to complete this Schedule, if not shown above, will be shown in the Declarations. | |

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

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

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

However:

1. The insurance afforded to such additional insured only applies to the extent permitted by law; and
2. If coverage provided to the additional insured is required by a contract or agreement, the insurance afforded to such additional insured will not be broader than that which you are required by the contract or agreement to provide for such additional insured.

**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 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.

 © Insurance Services Office, Inc., 2018 

**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
PRODUCTS/COMPLETED OPERATIONS LIABILITY COVERAGE PART

**SCHEDULE**

| Name Of Additional Insured Person(s) Or Organization(s) | Location And Description Of Completed Operations |
|---|---|
| Applies to: As required by written contract executed and signed by the Named Insured prior to the commencement of work that is called for in the contract. | All locations which are afforded coverage under this policy. |
| Information required to complete this Schedule, if not shown above, will be shown in the Declarations. | |

**A.** **Section II – Who Is An Insured** is amended to include as an additional insured the person(s) or organization(s) shown in the Schedule, but only with respect to liability for "bodily injury" 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".

However:

1. The insurance afforded to such additional insured only applies to the extent permitted by law; and
2. If coverage provided to the additional insured is required by a contract or agreement, the insurance afforded to such additional insured will not be broader than that which you are required by the contract or agreement to provide for such additional insured.

**B.** With respect to the insurance afforded to these additional insureds, the following is added to **Section III – Limits Of Insurance:**

If coverage provided to the additional insured is required by a contract or agreement, the most we will pay on behalf of the additional insured is the amount of insurance:

1. Required by the contract or agreement; or
2. Available under the applicable limits of insurance;

whichever is less.

This endorsement shall not increase the applicable limits of insurance.

 © Insurance Services Office, Inc., 2018 

# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 06/25/2026

**THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.**

**IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).**

**PRODUCER**

State Farm

John Perrone
1644 Hillside Avenue
New Hyde Park NY 110402604

**CONTACT NAME:** John Perrone
**PHONE (A/C, No, Ext):** 516-502-0540 **FAX (A/C, No):**
**E-MAIL ADDRESS:** john.perrone.vaaj3k@statefarm.com

| INSURER(S) AFFORDING COVERAGE | NAIC # |
|---|---|
| INSURER A : State Farm Fire and Casualty Company | 25143 |
| INSURER B : State Farm Mutual Automobile Insurance Company | 25178 |
| INSURER C : | |
| INSURER D : | |
| INSURER E : | |
| INSURER F : | |

**INSURED**

CORBEX INC
351 DENTON AVE
NEW HYDE PARK NY 110403404

**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 | ADD INSD | SUB WVD | POLICY NUMBER | POLICY EFF (MM/DD/YYYY) | POLICY EXP (MM/DD/YYYY) | LIMITS | |
|---|---|---|---|---|---|---|---|---|
| | COMMERCIAL GENERAL LIABILITY | | | | | | EACH OCCURRENCE | $ |
| | ☐ CLAIMS-MADE ☐ OCCUR | | | | | | DAMAGE TO RENTED PREMISES (Ea occurrence) | $ |
| | | | | | | | MED EXP (Any one person) | $ |
| | | | | | | | PERSONAL & ADV INJURY | $ |
| | GEN'L AGGREGATE LIMIT APPLIES PER: | | | | | | GENERAL AGGREGATE | $ |
| | ☐ POLICY ☐ PRO-JECT ☐ LOC | | | | | | PRODUCTS - COMP/OP AGG | $ |
| | OTHER: | | | | | | | $ |
| A | AUTOMOBILE LIABILITY | | | 0002139-SFO-32 | 09/12/2025 | 09/12/2026 | COMBINED SINGLE LIMIT (Ea accident) | $ 1,000,000 |
| | ☐ ANY AUTO | | | | | | BODILY INJURY (Per person) | $ |
| B | ☒ OWNED AUTOS ONLY ☐ SCHEDULED AUTOS | Y | Y | 345 6983-C13-32 | 03/13/2026 | 03/13/2027 | BODILY INJURY (Per accident) | $ |
| | ☒ HIRED AUTOS ONLY ☒ NON-OWNED AUTOS ONLY | | | | | | PROPERTY DAMAGE (Per accident) | $ |
| | | | | | | | | $ |
| | UMBRELLA LIAB ☐ OCCUR | | | | | | EACH OCCURRENCE | $ |
| | EXCESS LIAB ☐ CLAIMS-MADE | | | | | | AGGREGATE | $ |
| | DED ☐ RETENTION $ | | | | | | | $ |
| | WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y / N | | | | | | ☐ PER STATUTE ☐ OTH-ER | $ |
| | ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? ☐ | N / A | | | | | E.L. EACH ACCIDENT | $ |
| | (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below | | | | | | E.L. DISEASE - EA EMPLOYEE | $ |
| | | | | | | | E.L. DISEASE - POLICY LIMIT | $ |
| | | | | | | | | |

**DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)**

PROJECT: CO294RF-Bronx Family Criminal Courthouse Roof Upgrade-Borough of Bronx

**CERTIFICATE HOLDER**

New York City Department of Design and Construction
30-30 Thomson Avenue
Long Island City NY 11101

**CANCELLATION**

**SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.**

**AUTHORIZED REPRESENTATIVE**

Ana Castellanos This form was system-generated on 06/25/2026 .

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**SCHEDULE A (FOR PUBLICLY BID PROJECTS)**

**Relating to Article 22 - Insurance**

**PART III. Certification by Insurance Broker or Agent**

The undersigned insurance broker or agent represents to the City of New York that the attached Certificate of Insurance is accurate in all material respects.

Coverage By Design, Corp

[Name of broker or agent (typewritten)]

87 North Industry Ct Ste J Deer Park, NY 11729

[Address of broker or agent (typewritten)]

Jalessi@coveragebydesign.com

[Email address of broker or agent (typewritten)]

631-649-7999 / 631-649-9324

[Phone number/Fax number of broker or agent (typewritten)]

[Signature of authorized official or broker or agent]

Joyce Alessi - President

[Name and title of authorized official, broker or agent (typewritten)]

State of New York )
County of Suffolk ) ss:

ALEXANDER D POLANSKY
NOTARY PUBLIC-STATE OF NEW YORK
No. 01PO6318692
Qualified in Suffolk County
My Commission Expires 02-02-2027

Sworn to before me this

26th day of June, 2026

NOTARY PUBLIC FOR THE STATE OF NY

## SCHEDULE A (FOR PUBLICLY BID PROJECTS)

### Relating to Article 22 - Insurance

### PART III. Certification by Insurance Broker or Agent

The undersigned insurance broker or agent represents to the City of New York that the attached Certificate of Insurance is accurate in all material respects.

John Perrone, Agent

[Name of broker or agent (typewritten)]

1644 Hillside Avenue New Hyde Park, NY 11040

[Address of broker or agent (typewritten)]

ana@sfagentjohn.com

[Email address of broker or agent (typewritten)]

Ph: 516-502-0540 Fax:516-673-4092

[Phone number/Fax number of broker or agent (typewritten)]

Ana Castellanos

[Signature of authorized official or broker or agent]

Ana Castellanos - LSA54, John Perrone, Agent

[Name and title of authorized official, broker or agent (typewritten)]

State of New York )
) ss:
County of Nassau )

Sworn to before me this
26th day of June, 2026

Susan Perrone

NOTARY PUBLIC FOR THE STATE OF New York

SUSAN PERRONE
NOTARY PUBLIC, STATE OF NEW YORK
Registration No. 01PE4940217
Qualified in Nassau County
Commission Expires August 8, 2026

NYSIF
New York State Insurance Fund

PO Box 66699, Albany, NY 12206
| nysif.com

# CERTIFICATE OF WORKERS' COMPENSATION INSURANCE

^ ^ ^ ^ ^ ^ 113430481
COVERAGE BY DESIGN CORP
87J NORTH INDUSTRY CT
DEER PARK NY 11729

SCAN TO VALIDATE
AND SUBSCRIBE

| POLICYHOLDER | CERTIFICATE HOLDER |
|---|---|
| CORBEX INC<br>351 DENTON AVENUE<br>NEW HYDE PARK NY 11040 | NEW YORK CITY DEPARTMENT<br>OF DESIGN AND CONSTRUCTION<br>30-30 THOMSON AVENUE<br>LONG ISLAND CITY NY 11101 |

| POLICY NUMBER | CERTIFICATE NUMBER | POLICY PERIOD | DATE |
|---|---|---|---|
| H2582 654-6 | 164780 | 01/01/2026 TO 01/01/2027 | 6/26/2026 |

THIS IS TO CERTIFY THAT THE POLICYHOLDER NAMED ABOVE IS INSURED WITH THE NEW YORK STATE INSURANCE FUND UNDER POLICY NO. 2582 654-6, COVERING THE ENTIRE OBLIGATION OF THIS POLICYHOLDER FOR WORKERS' COMPENSATION UNDER THE NEW YORK WORKERS' COMPENSATION LAW WITH RESPECT TO ALL OPERATIONS IN THE STATE OF NEW YORK, EXCEPT AS INDICATED BELOW, AND, WITH RESPECT TO OPERATIONS OUTSIDE OF NEW YORK, TO THE POLICYHOLDER'S REGULAR NEW YORK STATE EMPLOYEES ONLY.

**IF YOU WISH TO RECEIVE NOTIFICATIONS REGARDING SAID POLICY, INCLUDING ANY NOTIFICATION OF CANCELLATIONS, OR TO VALIDATE THIS CERTIFICATE, VISIT OUR WEBSITE AT HTTPS://WWW.NYSIF.COM/CERT/CERTVAL.ASP. THE NEW YORK STATE INSURANCE FUND IS NOT LIABLE IN THE EVENT OF FAILURE TO GIVE SUCH NOTIFICATIONS.**

THIS 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: 326312352

U-26.3

NEW YORK STATE | Workers' Compensation Board

# CERTIFICATE OF INSURANCE COVERAGE
## DISABILITY AND PAID FAMILY LEAVE BENEFITS LAW

**PART 1. To be completed by Disability and Paid Family Leave Benefits Carrier or Licensed Insurance Agent of that Carrier**

1a. Legal Name & Address of Insured (use street address only)
CORBEX INC.
351 DENTON AVENUE
NEW HYDE PARK, NY 11040

1b. Business Telephone Number of Insured
(516) 739-2000

Work Location of Insured *(Only required if coverage is specifically limited to certain locations in New York State, i.e., a Wrap-Up Policy)*

1c. Federal Employer Identification Number of Insured or Social Security Number
113430481

2. Name and Address of Entity Requesting Proof of Coverage
(Entity Being Listed as the Certificate Holder)
NEW YORK CITY DEPARTMENT OF DESIGN AND CONSTRUCTION
30-30 THOMSON AVENUE
LONG ISLAND CITY, NY 11101

3a. Name of Insurance Carrier
**New York State Insurance Fund (NYSIF)**

3b. Policy Number of Entity Listed in Box "1a"
DBL 6616 60 - 2

3c. Policy effective period
04/26/2026 to 04/26/2027

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 6/26/2026 By Kristin Markwica
(Signature of insurance carrier's authorized representative or NYS Licensed Insurance Agent of that insurance carrier)

Telephone Number (866) 697-4332 Name and Title **Kristin Markwica, Head of Disability Insurance Unit**

IMPORTANT: If Box 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, DB 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.***



**Certificate Number 893278**

# Additional Instructions for Form DB-120.1

By signing this form, the insurance carrier identified in box "3" on this form is certifying that it is insuring the business referenced in box "1a" for disability 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 Worker's 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 not withstanding 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.

# LABOR LAW ARTICLE 8 - NYC PUBLIC WORKS

**Workers, Laborers and Mechanics employed on a public work project must receive not less than the prevailing rate of wage and benefits for the classification of work performed by each upon such public work. Pursuant to New York Labor Law Article 8 the Comptroller of the City of New York has promulgated this schedule solely for Workers, Laborers and Mechanics engaged by private contractors on New York City public work projects. Prevailing rates are required to be annexed to and form part of the public work contract pursuant to Labor Law section 220 (3).**

**This schedule is a compilation of separate determinations of the prevailing rate of wage and supplements made by the Comptroller for each trade classification listed herein pursuant to Labor Law section 220 (5). The source of the wage and supplement rates, whether a collective bargaining agreement, survey data or other, is listed at the end of each classification.**

**Agency Chief Contracting Officers should contact the Bureau of Labor Law's Classification Unit with any questions concerning trade classifications, prevailing rates or prevailing practices with respect to procurement on New York City public work contracts. Contractors are advised to review the Comptroller's Prevailing Wage Schedule before bidding on public work contracts. Contractors with questions concerning trade classifications, prevailing rates or prevailing practices with respect to public work contracts in the procurement stage must contact the contracting agency responsible for the procurement.**

**Any error as to compensation under the prevailing wage law or other information as to trade classification, made by the contracting agency in the contract documents or in any other communication, will not preclude a finding against the contractor of prevailing wage violation.**

**Any questions concerning trade classifications, prevailing rates or prevailing practices on New York City public work contracts that have already been awarded may be directed to the Bureau of Labor Law's Classification Unit by calling (212) 669-4443. All callers must have the agency name and contract registration number available when calling with questions on public work contracts. Please direct all other compliance issues to: laborlaw@comptroller.nyc.gov or Bureau of Labor Law, Attn: Paul Brumlik, Office of the Comptroller, 1 Centre Street, Room 651, New York, N.Y. 10007.**

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

**This schedule is applicable to work performed during the effective period, unless otherwise noted. Changes to this schedule are published on our web site comptroller.nyc.gov/wages. Contractors must pay the wages and supplements in effect when the worker, laborer, mechanic performs the work. Preliminary schedules for future one-year periods appear in the City Record on or about June 1 each succeeding year. Final schedules appear on or about July 1 in the City Record and on our web site comptroller.nyc.gov/wages.**

**Prevailing rates and ratios for apprentices are published in the Construction Apprentice Prevailing Wage Schedule. Pursuant to Labor Law § 220 (3-e), only apprentices who are individually**

**registered in a bona fide program to which the employer contractor is a participant, registered with the New York State Department of Labor, may be paid at the apprentice rates. Apprentices who are not so registered must be paid as journey persons.**

**New York City public work projects awarded pursuant to a Project Labor Agreement ("PLA") in accordance with Labor Law section 222 may have different labor standards for shift, premium and overtime work. Please refer to the PLA's pre-negotiated labor agreements for wage and benefit rates applicable to work performed outside of the regular workday. More information is available at the Mayor's Office of Contract Services (MOCS) web page at:**

**https://www.nyc.gov/site/mocs/regulations/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.**

**Paul Brumlik**
**Director of Classifications**
**Bureau of Labor Law**

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# ASBESTOS HANDLER

**SEE HAZARDOUS MATERIAL HANDLER**

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# BLASTER

## Blaster

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $58.81**
**Supplemental Benefit Rate per Hour: $55.73**

## Blaster - Hydraulic Trac Drill

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $52.95**
**Supplemental Benefit Rate per Hour: $55.73**

## Blaster - Wagon: Air Trac: Quarry Bar: Drillrunners

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $52.12**
**Supplemental Benefit Rate per Hour: $55.73**

## 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: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $45.60**
**Supplemental Benefit Rate per Hour: $55.73**

## Blaster - Magazine Keepers: (Watch Person)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $22.80**
**Supplemental Benefit Rate per Hour: $55.73**

## Overtime Description

**Paid Holidays: Labor Day, Thanksgiving Day.**

**Excluding Supplemental Benefits.**

## 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**

## 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: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $68.88**
**Supplemental Benefit Rate per Hour: $49.83**
**Supplemental Note: For time and one half overtime - $74.17 For double overtime - $98.51**

## Overtime Description
**For Repair and Maintenance work:**
**Time and one half the regular rate after an 8 hour day.**
**Time and one half the regular rate for Saturday.**
**Double time the regular rate for Sunday.**
**For New Construction work:**
**Double time the regular rate after an 8 hour day.**
**Double time the regular time rate for Saturday.**
**Double time the regular rate for Sunday.**

## Overtime Holidays
**Double time the regular rate for work on the following holiday(s).**

**New Year's Day**
**President's Day**
**Memorial Day**
**Independence Day**
**Columbus Day**
**Election Day**
**Veteran's Day**
**Thanksgiving Day**
**Christmas Day**

**Quadruple time the regular rate for work on the following holiday(s).**
**Labor Day**

## Paid Holidays
**Good Friday**
**Day after Thanksgiving**
**Day before Christmas**
**Day before New Year's Day**

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

**(Local #5)**

---

# BRICKLAYER

## Bricklayer

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $60.04**
**Supplemental Benefit Rate per Hour: $45.35**

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

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

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

## Paid Holidays
**None**

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

**(Bricklayer District Council)**

---

# CARPENTER - BUILDING COMMERCIAL

## Building Commercial

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $59.05**
**Supplemental Benefit Rate per Hour: $49.08**

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

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

**Thanksgiving Day**
**Day after Thanksgiving**
**Christmas Day**

## Paid Holidays
**None**

## Shift Rates
**The second shift will receive one hour at the double time rate of pay for the last hour of the shift; eight hours pay for seven hours of work, nine hours pay for eight hours of work. There must be a first shift in order to work a second shift. When it is not possible to conduct alteration or repair work during regular working hours in a building occupied by tenants, the rule for the second shift will apply.**

**(Carpenters District Council)**

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

## Heavy Construction Work

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $61.59**
**Supplemental Benefit Rate per Hour: $56.84**

## 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 and the supplemental benefits shall be paid at the straight time rate. When two (2) or more shifts of Carpenters are employed, single time will be paid for each shift.**

**(Carpenters District Council)**

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

## Carpenter High Rise A

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $51.48**
**Supplemental Benefit Rate per Hour: $44.74**

## 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: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $40.89**
**Supplemental Benefit Rate per Hour: $18.05**

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

## Overtime Holidays
**Time and one half the regular rate for work on the following holiday(s).**
**New Year's Day**
**President's Day**
**Good Friday**

**Memorial Day**
**Independence Day**
**Labor Day**
**Columbus Day**
**Presidential Election Day**
**Thanksgiving Day**
**Christmas Day**

## Paid Holidays
**None**

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

**(Carpenters District Council)**

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# CARPENTER - SIDEWALK SHED, SCAFFOLD AND HOIST

## Carpenter - Hod Hoist

**(Assisted by Mason Tender)**

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $56.20**
**Supplemental Benefit Rate per Hour: $49.95**

## 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 112% of the straight time hourly rate. Benefit fund contributions shall be paid at the straight time rate. There must be a first shift in order to work a second shift. When it is not possible to conduct alteration or repair work during regular working hours in a building occupied by tenants, the rule for the second shift will apply.**

**(Carpenters District Council)**

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# CARPENTER - WOOD WATER STORAGE TANK

## Tank Mechanic

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $38.83**
**Supplemental Benefit Rate per Hour: $26.06**

## Tank Helper

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $30.44**
**Supplemental Benefit Rate per Hour: $26.06**

## Overtime
**Time and one half the regular rate after an 8 hour day.**
**Time and one half the regular rate for Saturday.**
**Double time the regular rate for Sunday.**
**Time and one half the regular rate for work on a holiday plus the day's pay.**

## Paid Holidays
**New Year's Day**
**President's Day**
**Good Friday**
**Memorial Day**
**Independence Day**
**Labor Day**

**Columbus Day**
**Thanksgiving Day**
**Day after Thanksgiving**
**1/2 day on Christmas Eve if work is performed in the A.M.**
**Christmas Day**
**1/2 day on New Year's Eve if work is performed in the A.M.**

## Vacation

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

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

**(Carpenters District Council)**

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# CEMENT & CONCRETE WORKER

### Building Work

## Cement & Concrete Worker

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $47.28**
**Supplemental Benefit Rate per Hour: $34.20**
**Supplemental Note: $39.20 on Saturdays; $44.20 on Sundays & Holidays**

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

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $36.80**
**Supplemental Benefit Rate per Hour: $26.20**
**Supplemental Note: $29.20 on Saturdays; $32.20 on Sundays & Holidays**

## Overtime Description

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

## Overtime

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

## Overtime Holidays

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

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

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

**(Cement & Concrete Workers District Council 16)**

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# CEMENT MASON

## Cement Mason

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $59.87**
**Supplemental Benefit Rate per Hour: $34.76**
**Supplemental Note: Supplemental benefit time and one half rate: $63.22; Double time rate: double the base supplemental benefit rate.**

## Overtime Description
**Time and one-half the regular rate after an 8 hour day, double time the regular rate after 10 hours. Time and one-half the regular rate on Saturday, double time the regular rate after 10 hours. Double time the regular rate on Sunday. Four Days a week at Ten (10) hours straight time is allowed.**

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

**Thanksgiving Day**
**Christmas Day**

## Paid Holidays

**Any worker who reports to work on Christmas Eve or New Year's Eve pursuant to his employer's instruction shall be entitled to three (3) hours afternoon pay without working.**

## Shift Rates

**For off shift work, (at times other than the regular 7:00 A.M. to 3:30 P.M. work day) a cement mason shall be paid at the regular hourly rate plus a 25% per hour differential.**

**(Local #780) (BCA)**

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# CORE DRILLER

## Test Boring

### Core Driller

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $47.88**
**Supplemental Benefit Rate per Hour: $34.35**

### Core Driller Helper

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $37.58**
**Supplemental Benefit Rate per Hour: $34.35**

### Core Driller Helper(Third year in the industry)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $33.80**
**Supplemental Benefit Rate per Hour: $34.35**

### Core Driller Helper (Second year in the industry)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $30.04**
**Supplemental Benefit Rate per Hour: $34.35**

### Core Driller Helper (First year in the industry)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $26.26**
**Supplemental Benefit Rate per Hour: $34.35**

## 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**
**Veteran's Day**
**Thanksgiving Day**
**Christmas Day**

## Shift Rates
**When two (2) or more shifts are employed, single time shall be paid for each shift, but those employees employed on a shift other than from 8:00 A.M. to 5:00 P.M. shall, in addition, receive two dollars ($2.00) 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)**

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# DERRICKPERSON AND RIGGER

## Derrick Person & Rigger

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $61.11**
**Supplemental Benefit Rate per Hour: $62.71**

## Derrick Person & Rigger - Site Work

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

**Effective Period: 7/1/2025 - 6/30/2026**

**Wage Rate per Hour:** **$48.40**
**Supplemental Benefit Rate per Hour:** **$49.70**

## 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.**

## 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)**

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# DIVER

## Diver (Marine)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour:** **$76.46**
**Supplemental Benefit Rate per Hour:** **$56.84**

## Diver Tender (Marine)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour:** **$56.00**
**Supplemental Benefit Rate per Hour:** **$56.84**

## 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)**

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# DOCKBUILDER - PILE DRIVER

## Dockbuilder - Pile Driver

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $61.59**
**Supplemental Benefit Rate per Hour: $56.84**

## 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 and the supplemental benefits shall be paid at the straight time rate. When two (2) or more shifts of Dockbuilders are employed, single time will be paid for each shift.**

**(Carpenters District Council)**

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# DRIVER: TRUCK (TEAMSTER)

**Including work involving the delivery to and hauling from such worksites of aggregate supply construction materials and any time spent loading/unloading**

## Driver - Dump Truck

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $46.12**
**Supplemental Benefit Rate per Hour: $59.65**
**Supplemental Note: Over 40 hours worked: at time and one half rate - $25.50; at double time rate - $34.00**

## Driver - Tractor Trailer

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $48.82**
**Supplemental Benefit Rate per Hour: $57.65**
**Supplemental Note: Over 40 hours worked: at time and one half rate - $26.33; at double time rate - $35.10**

## Driver - Euclid & Turnapull Operator

**Effective Period: 7/1/2025 - 6/30/2026**

**Wage Rate per Hour: $49.38**
**Supplemental Benefit Rate per Hour: $57.65**
**Supplemental Note: Over 40 hours worked: at time and one half rate - $26.33; at double time rate - $35.10**

## 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.**

## 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
**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**

## Shift Rates
**Off 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**

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# Driver Redi-Mix (Sand & Gravel)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $44.50**
**Supplemental Benefit Rate per Hour: $52.22**
**Supplemental Note: Over 40 hours worked: time and one half rate $22.35; double time rate $29.80**

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

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

## Overtime Holidays
**Double time the regular rate for work on the following holiday(s).**
**Martin Luther King Jr. Day**
**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**
**Martin Luther King Jr. Day**
**President's Day**
**Memorial Day**
**Independence Day**
**Labor Day**
**Columbus Day**
**Election Day**
**Thanksgiving Day**
**Christmas Day**

**(Local #282)**

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# 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: 7/1/2025 - 1/1/2026**
**Wage Rate per Hour: $62.00**
**Supplemental Benefit Rate per Hour: $66.90**
*** Supplemental Note: See Supplemental Benefit Rate per Hour Note below**

**Effective Period: 1/2/2026 - 4/15/2026**
**Wage Rate per Hour: $62.00**
**Supplemental Benefit Rate per Hour: $67.40**
*** Supplemental Note: See Supplemental Benefit Rate per Hour Note below**

**Effective Period: 4/16/2026 - 6/30/2026**
**Wage Rate per Hour: $64.00**
**Supplemental Benefit Rate per Hour: $70.28**
*** Supplemental Note: See Supplemental Benefit Rate per Hour Note below**

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

**Effective Period: 7/1/2025 - 1/1/2026**
**Wage Rate per Hour: $93.00**
**Supplemental Benefit Rate per Hour: $68.90**
*** Supplemental Note: See Supplemental Benefit Rate per Hour Note below**

**Effective Period: 1/2/2026 - 4/15/2026**
**Wage Rate per Hour: $93.00**
**Supplemental Benefit Rate per Hour: $69.40**
*** Supplemental Note: See Supplemental Benefit Rate per Hour Note below**

**Effective Period: 4/16/2026 - 6/30/2026**
**Wage Rate per Hour: $96.00**
**Supplemental Benefit Rate per Hour: $72.34**
*** Supplemental Note: See Supplemental Benefit Rate per Hour Note below**

## Electrician "A" (Swing Shift)

**Effective Period: 7/1/2025 - 1/1/2026**
**Wage Rate per Hour: $72.75**
**Supplemental Benefit Rate per Hour: $75.27**
*** Supplemental Note: See Supplemental Benefit Rate per Hour Note below**

**Effective Period: 1/2/2026 - 4/15/2026**
**Wage Rate per Hour: $72.75**
**Supplemental Benefit Rate per Hour: $75.77**
*** Supplemental Note: See Supplemental Benefit Rate per Hour Note below**

**Effective Period: 4/16/2026 - 6/30/2026**
**Wage Rate per Hour: $75.10**
**Supplemental Benefit Rate per Hour: $78.93**

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

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

**Effective Period: 7/1/2025 - 1/1/2026**
**Wage Rate per Hour: $109.13**
**Supplemental Benefit Rate per Hour: $77.61**
*** Supplemental Note: See Supplemental Benefit Rate per Hour Note below**

**Effective Period: 1/2/2026 - 4/15/2026**
**Wage Rate per Hour: $109.13**
**Supplemental Benefit Rate per Hour: $78.11**
*** Supplemental Note: See Supplemental Benefit Rate per Hour Note below**

**Effective Period: 4/16/2026 - 6/30/2026**
**Wage Rate per Hour: $112.65**
**Supplemental Benefit Rate per Hour: $81.35**
*** Supplemental Note: See Supplemental Benefit Rate per Hour Note below**

## Electrician "A" (Graveyard Shift)

**Effective Period: 7/1/2025 - 1/1/2026**
**Wage Rate per Hour: $81.49**
**Supplemental Benefit Rate per Hour: $82.39**
*** Supplemental Note: See Supplemental Benefit Rate per Hour Note below**

**Effective Period: 1/2/2026 - 4/15/2026**
**Wage Rate per Hour: $81.49**
**Supplemental Benefit Rate per Hour: $82.89**
*** Supplemental Note: See Supplemental Benefit Rate per Hour Note below**

**Effective Period: 4/16/2026 - 6/30/2026**
**Wage Rate per Hour: $84.12**
**Supplemental Benefit Rate per Hour: $86.28**
*** Supplemental Note: See Supplemental Benefit Rate per Hour Note below**

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

**Effective Period: 7/1/2025 - 1/1/2026**
**Wage Rate per Hour: $122.24**
**Supplemental Benefit Rate per Hour: $85.01**
*** Supplemental Note: See Supplemental Benefit Rate per Hour Note below**

**Effective Period: 1/2/2026 - 4/15/2026**
**Wage Rate per Hour: $122.24**
**Supplemental Benefit Rate per Hour: $85.51**
*** Supplemental Note: See Supplemental Benefit Rate per Hour Note below**

**Effective Period: 4/16/2026 - 6/30/2026**
**Wage Rate per Hour: $126.18**
**Supplemental Benefit Rate per Hour: $88.98**
*** Supplemental Note: See Supplemental Benefit Rate per Hour Note below**

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

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

## Overtime Holidays
**Time and one half the regular rate for work on a holiday.**
**New Year's Day**
**Martin Luther King Jr. Day**
**President's Day**
**Memorial Day**
**Independence Day**
**Labor Day**
**Columbus Day**
**Veteran's Day**
**Thanksgiving Day**
**Day after Thanksgiving**
**Christmas Day**

## Paid Holidays
**None**

## Shift Rates
**For multiple shifts of temporary light and/or power, the temporary light and/or power employee shall be paid for 8 hours at the straight time rate. For three or less workers performing 8 hours temporary light and/or power the supplemental benefit rate is $26.99, effective 1/2/2026 the supplemental benefit rate is $27.49, effective 4/16/2026 the supplemental benefit rate is $27.91 - See * Supplemental Benefit Rate per Hour Note above.**

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# Electrician "M" 1st Year

**"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: 7/1/2025 - 4/15/2026**

**Wage Rate per Hour:** **$27.50**
**Supplemental Benefit Rate per Hour:** **$26.29**

**Effective Period: 4/16/2026 - 6/30/2026**
**Wage Rate per Hour:** **$27.50**
**Supplemental Benefit Rate per Hour:** **$26.79**

## Electrician "M" 1st Year (Overtime)

**Effective Period: 7/1/2025 - 4/15/2026**
**Wage Rate per Hour:** **$41.25**
**Supplemental Benefit Rate per Hour:** **$28.02**

**Effective Period: 4/16/2026 - 6/30/2026**
**Wage Rate per Hour:** **$41.25**
**Supplemental Benefit Rate per Hour:** **$28.52**

## Electrician "M" 2nd Year

**Effective Period: 7/1/2025 - 4/15/2026**
**Wage Rate per Hour:** **$28.50**
**Supplemental Benefit Rate per Hour:** **$26.82**

**Effective Period: 4/16/2026 - 6/30/2026**
**Wage Rate per Hour:** **$28.50**
**Supplemental Benefit Rate per Hour:** **$27.32**

## Electrician "M" 2nd Year (Overtime)

**Effective Period: 7/1/2025 - 4/15/2026**
**Wage Rate per Hour:** **$42.75**
**Supplemental Benefit Rate per Hour:** **$28.62**

**Effective Period: 4/16/2026 - 6/30/2026**
**Wage Rate per Hour:** **$42.75**
**Supplemental Benefit Rate per Hour:** **$29.12**

## Electrician "M" 3rd Year

**Effective Period: 7/1/2025 - 4/15/2026**
**Wage Rate per Hour:** **$30.50**
**Supplemental Benefit Rate per Hour:** **$27.90**

**Effective Period: 4/16/2026 - 6/30/2026**
**Wage Rate per Hour:** **$30.50**
**Supplemental Benefit Rate per Hour:** **$28.40**

## Electrician "M" 3rd Year (Overtime)

**Effective Period: 7/1/2025 - 4/15/2026**
**Wage Rate per Hour: $45.75**
**Supplemental Benefit Rate per Hour: $29.83**

**Effective Period: 4/16/2026 - 6/30/2026**
**Wage Rate per Hour: $45.75**
**Supplemental Benefit Rate per Hour: $30.33**

## Electrician "M" 4th Year

**Effective Period: 7/1/2025 - 4/15/2026**
**Wage Rate per Hour: $33.50**
**Supplemental Benefit Rate per Hour: $29.51**

**Effective Period: 4/16/2026 - 6/30/2026**
**Wage Rate per Hour: $33.50**
**Supplemental Benefit Rate per Hour: $30.01**

## Electrician "M" 4th Year (Overtime)

**Effective Period: 7/1/2025 - 4/15/2026**
**Wage Rate per Hour: $50.25**
**Supplemental Benefit Rate per Hour: $31.63**

**Effective Period: 4/16/2026 - 6/30/2026**
**Wage Rate per Hour: $50.25**
**Supplemental Benefit Rate per Hour: $32.13**

## Electrician "M" 5th Year

**Effective Period: 7/1/2025 - 4/15/2026**
**Wage Rate per Hour: $36.50**
**Supplemental Benefit Rate per Hour: $31.12**

**Effective Period: 4/16/2026 - 6/30/2026**
**Wage Rate per Hour: $36.50**
**Supplemental Benefit Rate per Hour: $31.62**

## Electrician "M" 5th Year (Overtime)

**Effective Period: 7/1/2025 - 4/15/2026**
**Wage Rate per Hour: $54.75**
**Supplemental Benefit Rate per Hour: $33.43**

**Effective Period: 4/16/2026 - 6/30/2026**

**Wage Rate per Hour:** **$54.75**
**Supplemental Benefit Rate per Hour:** **$33.93**

## Electrician "M" 6th Year

**Effective Period: 7/1/2025 - 4/15/2026**
**Wage Rate per Hour:** **$43.50**
**Supplemental Benefit Rate per Hour:** **$34.89**

**Effective Period: 4/16/2026 - 6/30/2026**
**Wage Rate per Hour:** **$43.50**
**Supplemental Benefit Rate per Hour:** **$35.39**

## Electrician "M" 6th Year (Overtime)

**Effective Period: 7/1/2025 - 4/15/2026**
**Wage Rate per Hour:** **$65.25**
**Supplemental Benefit Rate per Hour:** **$37.64**

**Effective Period: 4/16/2026 - 6/30/2026**
**Wage Rate per Hour:** **$65.25**
**Supplemental Benefit Rate per Hour:** **$38.14**

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

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

### Paid Holidays
**None**

**(Local #3)**

# ELECTRICIAN - ALARM TECHNICIAN

**(Scope of Work - Inspect, test, repair, and replace defective, malfunctioning, or broken devices, components and controls of Fire, Burglar and Security Systems)**

## Alarm Technician

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $37.40**
**Supplemental Benefit Rate per Hour: $21.44**
**Supplemental Note: $19.31 only after 8 hours worked in a day**

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

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

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

### Shift Rates
**Night Differential is based upon a ten percent (10%) differential between the hours of 4:00 P.M. and 12:30 A.M. and a fifteen percent (15%) differential for the hours 12:00 A.M. to 8:30 A.M.**

### Vacation
**At least 1 year of employment.....ten (10) days**
**5 years or more of employment.....fifteen (15) days**
**10 years of employment.....twenty (20) days**
**Plus one Personal Day per year**

**Sick Days:**
**One day per Year. Up to 4 vacation days may be used as sick days.**

**(Local #3)**

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# ELECTRICIAN-STREET LIGHTING WORKER

## Electrician - Electro Pole Electrician

**Effective Period: 7/1/2025 - 12/31/2025**
**Wage Rate per Hour: $62.00**
**Supplemental Benefit Rate per Hour: $69.01**
*** Supplemental Note: See Supplemental Benefit Rate per Hour Note below**

**Effective Period: 1/1/2026 - 4/21/2026**
**Wage Rate per Hour: $62.00**
**Supplemental Benefit Rate per Hour: $69.51**
*** Supplemental Note: See Supplemental Benefit Rate per Hour Note below**

**Effective Period: 4/22/2026 - 6/30/2026**
**Wage Rate per Hour: $64.00**
**Supplemental Benefit Rate per Hour: $72.46**
*** Supplemental Note: See Supplemental Benefit Rate per Hour Note below**

## Electrician - Electro Pole Foundation Installer

**Effective Period: 7/1/2025 - 12/31/2025**
**Wage Rate per Hour: $47.66**
**Supplemental Benefit Rate per Hour: $51.27**
*** Supplemental Note: See Supplemental Benefit Rate per Hour Note below**

**Effective Period: 1/1/2026 - 4/21/2026**
**Wage Rate per Hour: $47.66**
**Supplemental Benefit Rate per Hour: $51.77**
*** Supplemental Note: See Supplemental Benefit Rate per Hour Note below**

**Effective Period: 4/22/2026 - 6/30/2026**
**Wage Rate per Hour: $49.66**
**Supplemental Benefit Rate per Hour: $53.91**
*** Supplemental Note: See Supplemental Benefit Rate per Hour Note below**

## Electrician - Electro Pole Maintainer

**Effective Period: 7/1/2025 - 12/31/2025**
**Wage Rate per Hour: $41.61**

**Supplemental Benefit Rate per Hour: $46.32**

**Effective Period: 1/1/2026 - 4/21/2026**
**Wage Rate per Hour: $41.61**
**Supplemental Benefit Rate per Hour: $46.82**

**Effective Period: 4/22/2026 - 6/30/2026**
**Wage Rate per Hour: $43.61**
**Supplemental Benefit Rate per Hour: $48.96**
*** Supplemental Note: See Supplemental Benefit Rate per Hour Note below**

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

## Overtime Description

**Electrician - Electro Pole Electrician: Time and one half the regular rate after a 7 hour day and after 5 consecutive days worked per week.**
**Electrician - Electro Pole Foundation Installer: Time and one half the regular rate after 8 hours within a 24 hour period and Saturday and Sunday.**
**Electrician - Electro Pole Maintainer: Time and one half the regular rate after a 7 hour day and after 5 consecutive days worked per week. Saturdays and Sundays may be used as a make-up day at straight time when a day is lost during the week to inclement weather.**

## Overtime Holidays

**Time and one half the regular rate for work on the following holiday(s).**
**New Year's Day**
**Martin Luther King Jr. Day**
**President's Day**
**Memorial Day**
**Independence Day**
**Labor Day**
**Columbus Day**
**Veteran's Day**
**Thanksgiving Day**
**Day after Thanksgiving**
**Christmas Day**

## Paid Holidays

**None**

**(Local #3)**

# ELEVATOR CONSTRUCTOR

## Elevator Constructor

**Effective Period: 7/1/2025 - 3/16/2026**
**Wage Rate per Hour: $83.27**
**Supplemental Benefit Rate per Hour: $42.33**

**Effective Period: 3/17/2026 - 6/30/2026**
**Wage Rate per Hour: $86.43**
**Supplemental Benefit Rate per Hour: $43.43**

### Overtime Description
**For New Construction: work performed after an 8 hour day, Saturday, Sunday or between 5:30pm and 6:00am shall be paid at double time rate.**

**Existing buildings: work performed after an 8 hour day, Saturday, Sunday or between 6:00pm and 5:00 am shall be paid time and one half.**

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

### Paid Holidays
**New Year's Day**
**President's Day**
**Good Friday**
**Memorial Day**
**Independence Day**
**Labor Day**
**Columbus Day**
**Veteran's Day**
**Thanksgiving Day**
**Day after Thanksgiving**
**Christmas Day**

### Vacation
**Employer contributes 8% of regular basic hourly rate as vacation pay for employees with more than 15 years of service, and 6% for employees with 5 to 15 years of service, and 4% for employees with less than 5 years of service.**

**(Local #1)**

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# ELEVATOR REPAIR & MAINTENANCE

## Elevator Service/Modernization Mechanic

**Effective Period: 7/1/2025 - 3/16/2026**
**Wage Rate per Hour: $65.54**
**Supplemental Benefit Rate per Hour: $42.28**

**Effective Period: 3/17/2026 - 6/30/2026**
**Wage Rate per Hour: $68.06**
**Supplemental Benefit Rate per Hour: $43.38**

## 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 5:00am.**

## Overtime
**Time and one half the regular rate after an 8 hour day.**
**Time and one half the regular rate for Saturday.**
**Time and one half the regular rate for Sunday.**
**Time and one half the regular rate for work on a holiday plus the day's pay.**

## Paid Holidays
**New Year's Day**
**President's Day**
**Good Friday**
**Memorial Day**
**Independence Day**
**Labor Day**
**Columbus Day**
**Veteran's Day**
**Thanksgiving Day**
**Day after Thanksgiving**
**Christmas Day**

## Shift Rates
**Afternoon shift - regularly hourly rate plus a (15%) fifteen percent differential. Graveyard shift - time and one half the regular rate.**

## Vacation
**Employer contributes 8% of regular basic hourly rate as vacation pay for employees with more than 15 years of service, and 6% for employees with 5 to 15 years of service, and 4% for employees with less than 5 years of service.**

**(Local #1)**

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# ENGINEER

## Engineer - Heavy Construction Operating Engineer I

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

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $78.33**
**Supplemental Benefit Rate per Hour: $50.01**
**Supplemental Note: $92.62 on overtime**
**Shift Wage Rate: $125.33**

## Engineer - Heavy Construction Operating Engineer II

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

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $75.84**
**Supplemental Benefit Rate per Hour: $50.01**
**Supplemental Note: $92.62 on overtime**
**Shift Wage Rate: $121.34**

## 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: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $71.70**
**Supplemental Benefit Rate per Hour: $50.01**
**Supplemental Note: $92.62 on overtime**
**Shift Wage Rate: $114.72**

## Engineer - Heavy Construction Maintenance Engineer I

**Installing, Repairing, Maintaining, Dismantling 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: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $75.45**
**Supplemental Benefit Rate per Hour: $50.01**
**Supplemental Note: $92.62 on overtime**
**Shift Wage Rate: $120.72**

## Engineer - Heavy Construction Maintenance Engineer II

**On Base Mounted Tower Cranes**

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $100.74**
**Supplemental Benefit Rate per Hour: $50.01**
**Supplemental Note: $92.62 on overtime**
**Shift Wage Rate: $161.18**

## Engineer - Heavy Construction Maintenance Engineer III

**On Generators, Light Towers**

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $48.02**
**Supplemental Benefit Rate per Hour: $50.01**
**Supplemental Note: $92.62 on overtime**
**Shift Wage Rate: $76.83**

## Engineer - Heavy Construction Maintenance Engineer IV

**On Pumps and Mixers including mud sucking**

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $49.39**
**Supplemental Benefit Rate per Hour: $50.01**
**Supplemental Note: $92.62 on overtime**
**Shift Wage Rate: $79.02**

## Engineer - Heavy Construction Service Engineer

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

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $67.50**
**Supplemental Benefit Rate per Hour: $50.01**

**Supplemental Note: $92.62 on overtime**
**Shift Wage Rate: $108.00**

## Engineer - Heavy Construction Service Mechanic

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

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $45.09**
**Supplemental Benefit Rate per Hour: $50.01**
**Supplemental Note: $92.62 on overtime**
**Shift Wage Rate: $72.14**

## Engineer - Steel Erection Maintenance Engineers

**Derrick, Travelers, Tower, Crawler Tower and Climbing Cranes**

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $72.71**
**Supplemental Benefit Rate per Hour: $50.01**
**Supplemental Note: $92.62 on overtime**
**Shift Wage Rate: $116.34**

## Engineer - Steel Erection Oiler I

**On a Truck Crane**

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $67.75**
**Supplemental Benefit Rate per Hour: $50.01**
**Supplemental Note: $92.62 on overtime**
**Shift Wage Rate: $108.40**

## Engineer - Steel Erection Oiler II

**On a Crawler Crane**

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $47.58**
**Supplemental Benefit Rate per Hour: $50.01**
**Supplemental Note: $92.62 on overtime**
**Shift Wage Rate: $76.13**

## Overtime Description

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

## Overtime

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

## Paid Holidays

**New Year's Day**
**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**

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## Engineer - Building Work Maintenance Engineers I

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

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $62.18**
**Supplemental Benefit Rate per Hour: $49.01**
**Supplemental Note: $90.80 on overtime**

## Engineer - Building Work Maintenance Engineers II

**On Pumps, Generators, Mixers and Heaters**

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $47.13**
**Supplemental Benefit Rate per Hour: $49.01**
**Supplemental Note: $90.80 on overtime**

## Engineer - Building Work Oilers I

**All gasoline, electric, diesel or air operated Gradealls: Concrete Pumps, Overhead Cranes in Power Houses: Their duties shall be to assist the Engineer in oiling, greasing and repairing of all machines; Driving Truck**

**Cranes: Driving and Operating Fuel and Grease Trucks, Cherrypickers (hydraulic cranes) over 70,000 GVW, and machines of a similar nature.**

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $58.86**
**Supplemental Benefit Rate per Hour: $49.01**
**Supplemental Note: $90.80 on overtime**

## Engineer - Building Work Oilers II

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

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $42.39**
**Supplemental Benefit Rate per Hour: $49.01**
**Supplemental Note: $90.80 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**
**Martin Luther King Jr. Day**
**President's Day**
**Memorial Day**
**Independence Day**
**Labor Day**
**Columbus Day**
**Veteran's Day**
**Thanksgiving Day**
**Christmas Day**

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

**(Local #15)**

# ENGINEER - CITY SURVEYOR AND CONSULTANT

## Party Chief

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $46.32**
**Supplemental Benefit Rate per Hour: $29.32**
**Supplemental Note: Overtime Benefit Rate - $35.01 per hour (time & one half) $40.69 per hour (double time).**

## Instrument Person

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $37.60**
**Supplemental Benefit Rate per Hour: $29.32**
**Supplemental Note: Overtime Benefit Rate - $35.01 per hour (time & one half) $40.69 per hour (double time).**

## Rodperson

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $32.08**
**Supplemental Benefit Rate per Hour: $29.32**
**Supplemental Note: Overtime Benefit Rate - $35.01 per hour (time & one half) $40.69 per hour (double time).**

## Rodperson 1st Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $25.00**
**Supplemental Benefit Rate per Hour: $29.32**
**Supplemental Note: Overtime Benefit Rate - $35.01 per hour (time & one half) $40.69per 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**
**Martin Luther King Jr. Day**
**President's Day**
**Memorial Day**
**Independence Day**
**Labor Day**
**Columbus Day**
**Veteran's Day**
**Thanksgiving Day**
**Day after Thanksgiving**
**Christmas Day**
**Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday**

**(Operating Engineer Local #15-D)**

# ENGINEER - FIELD (BUILDING CONSTRUCTION)

**(Construction of Building Projects, Concrete Superstructures, etc.)**

## Field Engineer - BC Party Chief

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $70.53**
**Supplemental Benefit Rate per Hour: $44.03**
**Supplemental Note: Overtime Benefit Rate - $62.35 per hour (time & one half) $80.66 per hour (double time).**

## Field Engineer - BC Instrument Person

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $50.03**
**Supplemental Benefit Rate per Hour: $44.03**
**Supplemental Note: Overtime Benefit Rate - $62.35 per hour (time & one half) $80.66 per hour (double time).**

## Field Engineer - BC Rodperson

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $30.96**
**Supplemental Benefit Rate per Hour: $44.03**
**Supplemental Note: Overtime Benefit Rate - $62.35 per hour (time & one half) $80.66 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**
**Martin Luther King Jr. Day**
**President's Day**
**Memorial Day**
**Independence Day**
**Labor Day**
**Columbus Day**
**Veteran's Day**
**Thanksgiving Day**
**Day after Thanksgiving**
**Christmas Day**

**Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday**

**(Operating Engineer Local #15-D)**

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# ENGINEER - FIELD (HEAVY CONSTRUCTION)

**(Construction of Roads, Tunnels, Bridges, Sewers, Building Foundations, Engineering Structures etc.)**

## Field Engineer - HC Party Chief

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $79.60**
**Supplemental Benefit Rate per Hour: $49.02**
**Supplemental Note: Overtime benefit rate - $69.71 per hour (time & one half), $90.40 per hour (double time).**

## Field Engineer - HC Instrument Person

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $56.67**
**Supplemental Benefit Rate per Hour: $49.02**
**Supplemental Note: Overtime benefit rate - $69.71 per hour (time & one half), $90.40 per hour (double time).**

## Field Engineer - HC Rodperson

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $46.48**
**Supplemental Benefit Rate per Hour: $49.02**
**Supplemental Note: Overtime benefit rate - $69.71 per hour (time & one half), $90.40 per hour (double time).**

## Field Engineer - HC Rodperson 1st Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $25.00**
**Supplemental Benefit Rate per Hour: $49.02**
**Supplemental Note: Overtime benefit rate - $69.71 per hour (time & one half), $90.40 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**
**Martin Luther King Jr. Day**
**President's Day**
**Memorial Day**
**Independence Day**
**Labor Day**
**Columbus Day**
**Veteran's Day**
**Thanksgiving Day**
**Day after Thanksgiving**
**Christmas Day**
**Employees must work at least one day in the payroll week in which the holiday occurs to receive the paid holiday**

**(Operating Engineer Local #15-D)**

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# ENGINEER - FIELD (STEEL ERECTION)

## Field Engineer - Steel Erection Party Chief

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $75.53**
**Supplemental Benefit Rate per Hour: $47.36**
**Supplemental Note: Overtime benefit rate - $67.22 per hour (time & one half), $87.07 per hour (double time).**

## Field Engineer - Steel Erection Instrument Person

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $54.68**
**Supplemental Benefit Rate per Hour: $47.36**
**Supplemental Note: Overtime benefit rate - $67.22 per hour (time & one half), $87.07 per hour (double time).**

## Field Engineer - Steel Erection Rodperson

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $34.80**
**Supplemental Benefit Rate per Hour: $47.36**
**Supplemental Note: Overtime benefit rate - $67.22 per hour (time & one half), $87.07 per hour (double time).**

## Field Engineer - Steel Erection Rodperson 1st Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $25.00**
**Supplemental Benefit Rate per Hour: $47.36**

**Supplemental Note: Overtime benefit rate - $67.22 per hour (time & one half), $87.07 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**
**Martin Luther King Jr. Day**
**President's Day**
**Memorial Day**
**Independence Day**
**Labor Day**
**Columbus Day**
**Veteran's Day**
**Thanksgiving Day**
**Day after Thanksgiving**
**Christmas Day**
**Employees must work at least one (1) day in the payroll week in which the holiday occurs to receive the paid holiday**

**(Operating Engineer Local #15-D)**

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# ENGINEER - OPERATING

## Operating Engineer - Road & Heavy Construction I

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

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $93.74**
**Supplemental Benefit Rate per Hour: $38.90**
**Supplemental Note: $71.50 overtime hours**
**Shift Wage Rate: $149.98**

## Operating Engineer - Road & Heavy Construction II

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

**Effective Period: 7/1/2025 - 6/30/2026**

**Wage Rate per Hour: $97.06**
**Supplemental Benefit Rate per Hour: $38.90**
**Supplemental Note: $71.50 overtime hours**
**Shift Wage Rate: $155.30**

## Operating Engineer - Road & Heavy Construction III

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

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $100.18**
**Supplemental Benefit Rate per Hour: $38.90**
**Supplemental Note: $71.50 overtime hours**
**Shift Wage Rate: $160.29**

## 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: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $97.75**
**Supplemental Benefit Rate per Hour: $38.90**
**Supplemental Note: $71.50 overtime hours**
**Shift Wage Rate: $156.40**

## Operating Engineer - Road & Heavy Construction V

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

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $95.83**
**Supplemental Benefit Rate per Hour: $38.90**
**Supplemental Note: $71.50 overtime hours**
**Shift Wage Rate: $153.33**

## Operating Engineer - Road & Heavy Construction VI

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

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $91.04**
**Supplemental Benefit Rate per Hour: $38.90**
**Supplemental Note: $71.50 overtime hours**
**Shift Wage Rate: $145.66**

## Operating Engineer - Road & Heavy Construction VII

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

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $73.56**
**Supplemental Benefit Rate per Hour: $38.90**
**Supplemental Note: $71.50 overtime hours**
**Shift Wage Rate: $117.70**

## Operating Engineer - Road & Heavy Construction VIII

**Utility Compressors**

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $57.14**
**Supplemental Benefit Rate per Hour: $38.90**
**Supplemental Note: $71.50 overtime hours**
**Shift Wage Rate: $71.98**

## Operating Engineer - Road & Heavy Construction IX

**Horizontal Boring Rig**

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $86.61**
**Supplemental Benefit Rate per Hour: $38.90**
**Supplemental Note: $71.50 overtime hours**
**Shift Wage Rate: $138.58**

## Operating Engineer - Road & Heavy Construction X

**Elevators (manually operated as personnel hoist).**

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $79.62**
**Supplemental Benefit Rate per Hour: $38.90**
**Supplemental Note: $71.50 overtime hours**
**Shift Wage Rate: $127.39**

## 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: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $61.87**
**Supplemental Benefit Rate per Hour: $38.90**
**Supplemental Note: $71.50 overtime hours**

**Shift Wage Rate: $98.99**

## Operating Engineer - Road & Heavy Construction XII

**All Drills and Machines of a similar nature.**

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $92.01**
**Supplemental Benefit Rate per Hour: $38.90**
**Supplemental Note: $71.50 overtime hours**
**Shift Wage Rate: $147.22**

## Operating Engineer - Road & Heavy Construction XIII

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

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $89.14**
**Supplemental Benefit Rate per Hour: $38.90**
**Supplemental Note: $71.50 overtime hours**
**Shift Wage Rate: $142.62**

## Operating Engineer - Road & Heavy Construction XIV

**Concrete Mixer**

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $85.21**
**Supplemental Benefit Rate per Hour: $38.90**
**Supplemental Note: $71.50 overtime hours**
**Shift Wage Rate: $136.34**

## Operating Engineer - Road & Heavy Construction XV

**Compressors (Portable Single or two in Battery, not over 100 feet apart), Pumps (River Cofferdam) and Welding Machines, Push Button Machines, All Engines Irrespective of Power (Power-Pac) used to drive auxiliary equipment, Air, Hydraulic, etc.**

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $57.52**
**Supplemental Benefit Rate per Hour: $38.90**
**Supplemental Note: $71.50 overtime hours**
**Shift Wage Rate: $92.03**

## 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: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $81.38**
**Supplemental Benefit Rate per Hour: $38.90**
**Supplemental Note: $71.50 overtime hours**
**Shift Wage Rate: $130.21**

## Operating Engineer - Road & Heavy Construction XVII

**On-Site concrete plant engineer, On-site Asphalt Plant Engineer, and Vibratory console.**

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $81.97**
**Supplemental Benefit Rate per Hour: $38.90**
**Supplemental Note: $71.50 overtime hours**
**Shift Wage Rate: $131.15**

## Operating Engineer - Road & Heavy Construction XVIII

**Tower Crane**

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $117.60**
**Supplemental Benefit Rate per Hour: $38.90**
**Supplemental Note: $71.50 overtime hours**
**Shift Wage Rate: $188.16**

## Operating Engineer - Paving I

**Asphalt Spreaders, Autogrades (C.M.I.), Roto/Mil**

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $91.04**
**Supplemental Benefit Rate per Hour: $38.90**
**Supplemental Note: $71.50 overtime hours**
**Shift Wage Rate: $145.66**

## Operating Engineer - Paving II

**Asphalt Roller**

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $88.72**
**Supplemental Benefit Rate per Hour: $38.90**
**Supplemental Note: $71.50 overtime hours**
**Shift Wage Rate: $141.95**

## Operating Engineer - Paving III

**Asphalt Plants**

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $75.01**
**Supplemental Benefit Rate per Hour: $38.90**
**Supplemental Note: $71.50 overtime hours**
**Shift Wage Rate: $120.02**

## Operating Engineer - Concrete I

**Cranes**

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $97.32**
**Supplemental Benefit Rate per Hour: $38.90**
**Supplemental Note: $71.50 overtime hours**

## Operating Engineer - Concrete II

**Compressors**

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $57.96**
**Supplemental Benefit Rate per Hour: $38.90**
**Supplemental Note: $71.50 overtime hours**

## Operating Engineer - Concrete III

**Micro-traps (Negative Air Machines), Vac-All Remediation System.**

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $77.80**
**Supplemental Benefit Rate per Hour: $38.90**
**Supplemental Note: $71.50 overtime hours**

## Operating Engineer - Steel Erection I

**Three Drum Derricks**

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $101.49**
**Supplemental Benefit Rate per Hour: $38.90**
**Supplemental Note: $71.50 overtime hours**
**Shift Wage Rate: $162.38**

## Operating Engineer - Steel Erection II

**Cranes, 2 Drum Derricks, Hydraulic Cranes, Fork Lifts and Boom Trucks.**

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $97.52**
**Supplemental Benefit Rate per Hour: $38.90**
**Supplemental Note: $71.50 overtime hours**
**Shift Wage Rate: $156.03**

## Operating Engineer - Steel Erection III

**Compressors, Welding Machines.**

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $55.28**
**Supplemental Benefit Rate per Hour: $38.90**
**Supplemental Note: $71.50 overtime hours**
**Shift Wage Rate: $88.45**

## Operating Engineer - Steel Erection IV

**Compressors - Not Combined with Welding Machine. (Public Works Only)**

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $52.63**
**Supplemental Benefit Rate per Hour: $38.90**
**Supplemental Note: $71.50 overtime hours**
**Shift Wage Rate: $84.21**

## Operating Engineer - Building Work I

**Forklifts, Plaster (Platform machine), Plaster Bucket, Concrete Pump and all other equipment used for hoisting material.**

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $72.46**
**Supplemental Benefit Rate per Hour: $38.90**
**Supplemental Note: $71.50 overtime hours**

## Operating Engineer - Building Work II

**Compressors, Welding Machines (Cutting Concrete-Tank Work), Paint Spraying, Sandblasting, Pumps (with the exclusion of Concrete Pumps), All Engines irrespective of Power (Power-Pac) used to drive Auxiliary Equipment, Air, Hydraulic, Jacking System, etc.**

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $54.12**
**Supplemental Benefit Rate per Hour: $38.90**
**Supplemental Note: $71.50 overtime hours**

## Operating Engineer - Building Work III

**Double Drum**

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $92.32**
**Supplemental Benefit Rate per Hour: $38.90**
**Supplemental Note: $71.50 overtime hours**

## Operating Engineer - Building Work IV

**Stone Derrick, Cranes, Hydraulic Cranes Boom Trucks.**

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $97.79**
**Supplemental Benefit Rate per Hour: $38.90**
**Supplemental Note: $71.50 overtime hours**

## Operating Engineer - Building Work V

**Dismantling and Erection of Cranes, Relief Engineer.**

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $80.56**
**Supplemental Benefit Rate per Hour: $38.90**
**Supplemental Note: $71.50 overtime hours**

## Operating Engineer - Building Work VI

**4 Pole Hoist, Single Drum Hoists.**

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $79.70**
**Supplemental Benefit Rate per Hour: $38.90**
**Supplemental Note: $71.50 overtime hours**

## Operating Engineer - Building Work VII

**Rack & Pinion and House Cars**

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $63.27**
**Supplemental Benefit Rate per Hour: $38.90**
**Supplemental Note: $71.50 overtime hours**
**For New House Car projects Wage Rate per Hour $50.39**
**For New House Car projects: Supplemental Benefit overtime hours: $71.50**

## Overtime Description

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

**For House Cars and Rack & Pinion only: Overtime paid at time and one-half for all hours in excess of eight hours in a day, Saturday, Sunday and Holidays worked.**

## Overtime

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

## Paid Holidays

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

## Shift Rates

**When two (2) or more shifts are employed, single time will be paid for each shift.**
**For Steel Erection Only: Shifts may be worked at the single time rate at other than the regular working hours (8:00 A.M. to 4:30 P.M.) on the following work ONLY: Heavy construction jobs on work below the street level, over railroad tracks and on building jobs.**

**(Operating Engineer Local #14)**

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# FLAGGER

**Flagger to be paid at the rate of the journeyperson or apprentice in the trade performing the underlying work.**

**In accordance with the Comptroller's Prevailing Wage Memorandum Regarding Flag Persons dated June 1, 2024, this title includes traffic control duty only for City public works contracts and subcontracts solicited on or after July 1, 2024.**

**On City public works contracts and subcontracts solicited on or after July 1, 2024, traffic control worker to be paid at the rate of the journeyperson or apprentice in the trade performing the underlying work.**

**If the trade performing the underlying work does not regularly employ a flagger or traffic control worker, then one of the following titles must be used on such projects:**
**Laborer - Heavy & Highway**
**Laborer - Paver & Roadbuilder**
**Laborer - Paver & Roadbuilder Line Striping (Roadway)**

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# FLOOR COVERER

**(Interior vinyl composition tile, sheath vinyl linoleum and wood parquet tile including site preparation and synthetic turf not including site preparation)**

## Floor Coverer

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $59.05**
**Supplemental Benefit Rate per Hour: $49.08**

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

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

**Day before Christmas**
**Christmas Day**
**Day before New Year's Day**

## Shift Rates

**Two shifts may be utilized with the first shift working 8 a.m. to the end of the shift at straight time rate of pay. The wage rate for the second shift consisting of 7 hours shall be paid at 114.29% of straight time wage rate. The wage rate for the second shift consisting of 8 hours shall be paid 112.5% of the straight time wage rate. When it is not possible to conduct alteration or repair work during regular working hours in a building occupied by tenants, the rule for the second shift will apply.**

**(Carpenters District Council)**

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# GLAZIER

## (New Construction, Remodeling, and Alteration)

## Glazier

**Effective Period: 7/1/2025 - 10/31/2025**
**Wage Rate per Hour: $49.20**
**Supplemental Benefit Rate per Hour: $57.22**

**Effective Period: 11/1/2025 - 6/30/2026**
**Wage Rate per Hour: $49.45**
**Supplemental Benefit Rate per Hour: $58.62**

## Overtime

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

## Overtime Holidays

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

## Paid Holidays

**None**

**(Local #1281)**

# GLAZIER - REPAIR & MAINTENANCE

## (For the Installation of Glass - All repair and maintenance work on a particular building.)

## Craft Jurisdiction for repair, maintenance and fabrication

**Plate glass replacement, Storm windows and storm doors, Herculite door repairs, Door closer repairs, Glass tinting.**

**Effective Period: 7/1/2025 - 10/31/2025**
**Wage Rate per Hour: $27.69**
**Supplemental Benefit Rate per Hour: $28.43**

**Effective Period: 11/1/2025 - 6/30/2026**
**Wage Rate per Hour: $28.32**
**Supplemental Benefit Rate per Hour: $28.68**

## Overtime

**Time and one half the regular rate after an 8 hour day.**
**Double time the regular rate for Sunday.**
**Time and one half the regular rate for work on the following holiday(s).**
**Time and one half the regular hourly rate after 40 straight time hours in any work week.**

## Paid Holidays

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

**(Local #1281)**

# HAZARDOUS MATERIAL HANDLER

**(Removal, abatement, encapsulation or decontamination of asbestos, lead, mold, or other toxic or hazardous waste/materials)**

## Handler

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $39.95**
**Supplemental Benefit Rate per Hour: $23.76**

### Overtime
**Time and one half the regular rate after an 8 hour day.**
**Time and one half the regular rate for Sunday.**
**Time and one half the regular hourly rate after 40 straight time hours in any work week.**

### Overtime Holidays
**Time and one half the regular rate for work on the following holiday(s).**
**New Year's Day**
**Good Friday**
**Memorial Day**
**Independence Day**
**Labor Day**
**Thanksgiving Day**
**Christmas Day**
**Easter**

### Paid Holidays
**None**

**(Local #78 and Local #12A)**

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# HEAT AND FROST INSULATOR

## Heat & Frost Insulator

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $71.71**
**Supplemental Benefit Rate per Hour: $36.81**

### Overtime Description

**Supplemental Benefit contributions are to be made at the applicable overtime rates.**

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

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

**Triple time the regular rate for work on the following holiday(s).**
**Labor Day**

## Paid Holidays
**None**

## Shift Rates
**The first shift shall work seven hours at the regular straight time rate. The second and third shift shall work seven hours the regular straight time hourly rate plus a fourteen percent wage and benefit premium. There must be a first shift to work the second shift, and a second shift to work the third shift. Off-hour jobs in occupied buildings may be worked on weekdays with an increment of one-dollar ($1.00) per hour and eight (8) hours pay for seven (7) hours worked.**

**(Local #12) (BCA)**

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# 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: 7/1/2025 - 6/30/2026**

**Wage Rate per Hour:** **$40.00**
**Supplemental Benefit Rate per Hour:** **$32.40**

## House Wrecker - Tier B

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour:** **$29.23**
**Supplemental Benefit Rate per Hour:** **$24.81**

### 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.**

### 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)**

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# IRON WORKER - ORNAMENTAL

## Iron Worker - Ornamental

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour:** **$48.15**
**Supplemental Benefit Rate per Hour:** **$67.62**
**Supplemental Note: Supplemental benefits are to be paid at the applicable overtime rate when overtime is in effect.**

### Overtime Description
**Monday through Friday- the first eight hours are paid at straight time, the 9th and 10th hours are paid at time and one-half the regular rate, all additional weekday overtime is paid at double the regular rate. Saturdays- the first eight hours are paid at time and one-half the regular rate, double time thereafter. Sunday-all shifts are paid at double time. Four Days a week at Ten (10) hours straight time is allowed.**

## Overtime
**Double time the regular rate for Sunday.**

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

## Paid Holidays
**None**

## Shift Rates
**When two or three shifts are employed on a job, Monday through Friday, each shift will be paid eight (8) hours at the straight time rate for eight (8) hours of work; at time and one-half the regular straight time rate for the first two (2) hours of overtime worked beyond eight (8) hours; and at double time for all work thereafter. When it is not possible to conduct alteration or repair work during regular working hours in a building occupied by tenants, eight (8) hours will be paid at straight time rate for seven (7) hours of work, and all overtime shall be paid at time and one-half the regular straight time rates. On Saturday, Sundays and Holidays, time and one-half the regular straight time rate shall be paid for all work up to seven (7) hours and double time shall be paid for all work thereafter.**

**(Local #580)**

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# IRON WORKER - STRUCTURAL

## Iron Worker - Structural

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $58.95**
**Supplemental Benefit Rate per Hour: $92.02**
**Supplemental Note: Supplemental benefits are to be paid at the applicable overtime rate when overtime is in effect.**

## Overtime Description
**Monday through Friday- the first eight hours are paid at straight time, the 9th and 10th hours are paid at time and one-half the regular rate, all additional weekday overtime is paid at double the regular rate. Saturdays- the first eight hours are paid at time and one-half the regular rate, double time thereafter. Sunday-all shifts are paid at double time. Four Days a week at Ten (10) hours straight time is allowed.**

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

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

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

## Shift Rates
**Monday through Friday - First Shift: First eight hours are paid at straight time, the 9th & 10th hours are paid at time and a half, double time paid thereafter. Second and third Shifts: First eight hours are paid at time and one-half, double time thereafter. Saturdays: All shifts, first eight hours paid at time and one-half, double time thereafter: Sunday all shifts are paid at double time.**

**Four (4), ten (10) hour days may be worked at straight time during a week, Monday thru Thursday.**

**(Local #40 & #361)**

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# LABORER – HEAVY & HIGHWAY
### (Foundation, Concrete, Excavating, Street Pipe Layer and Common)

## Laborer - Heavy & Highway

**Excavation and foundation work for buildings, heavy construction, street pipe laying, 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. In accordance with the Comptroller's Prevailing Wage Memorandum Regarding Flag Persons dated June 1, 2024, for City public work contracts and subcontracts solicited on or after July 1, 2024 only, includes traffic control duty associated with such projects.**

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $45.60**
**Supplemental Benefit Rate per Hour: $55.73**

## Overtime Description
**Paid Holidays: Labor Day, Thanksgiving Day**
**No Supplemental Benefits are paid for non-worked holidays.**

## 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**

## 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)**

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# LABORER - PAVER & ROADBUILDER

## Laborer - Paver & Roadbuilder

**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. In accordance with the Comptroller's Prevailing Wage Memorandum Regarding Flag Persons dated June 1, 2024, for City public work contracts and subcontracts solicited on or after July 1, 2024 only, includes traffic control duty associated with such projects.**

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $46.33**
**Supplemental Benefit Rate per Hour: $55.00**
**Supplemental Note: For time and one half overtime - $59.63 For double overtime - $64.25**

## Paver & Roadbuilder - Formsetter

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $50.20**
**Supplemental Benefit Rate per Hour: $55.00**
**Supplemental Note: For time and one half overtime - $59.63 For double overtime - $64.25**

## 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: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $46.33**
**Supplemental Benefit Rate per Hour: $55.00**
**Supplemental Note: For time and one half overtime - $59.63 For double overtime - $64.25**

## Production Paver & Roadbuilder - Raker

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $50.20**
**Supplemental Benefit Rate per Hour: $55.00**
**Supplemental Note: For time and one half overtime - $59.63 For double overtime - $64.25**

## 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: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $50.80**
**Supplemental Benefit Rate per Hour: $55.00**
**Supplemental Note: For time and one half overtime - $59.63 For double overtime - $64.25**

## Overtime Description
**If an employee works New Year's Day or Christmas Day, they receive the single time rate plus 25%.**

**For Paid Holidays: Holiday pay for all holidays shall be prorated based two hours per day for each day worked in the holiday week, not to exceed 8 hours of holiday pay.**

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

## Overtime Holidays
**Double time the regular rate for work on the following holiday(s).**

**Memorial Day**
**Independence Day**
**Labor Day**
**Columbus Day**
**Thanksgiving Day**

## Paid Holidays

**Memorial Day**
**Independence Day**
**Labor Day**
**Thanksgiving Day**

## Shift Rates

**When two shifts are employed, the work period for each shift shall be a continuous eight (8) hours. When three shifts are employed, each shift will work seven and one half (7 ½) hours but will be paid for eight (8) hours at the straight time rate since only one half (1/2) hour is allowed for meal time.**
**When two or more shifts are employed, single time will be paid for each shift.**

**(Local #1010)**

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# LABORER - PAVER & ROADBUILDER LINE STRIPING (ROADWAY)

**(Road markings, applications of striping and surface coatings on Roadways, Bus lanes, Bike lanes & Pedestrian Plazas)**

## Striping - Machine Operator (Thermoplastic & Epoxy)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $42.00**
**Supplemental Benefit Rate per Hour: $21.17**
**Supplemental Note: For time and one half overtime - $22.87 For double overtime - $24.57**

## Lineperson - Crew Chief

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $46.00**
**Supplemental Benefit Rate per Hour: $21.17**
**Supplemental Note: For time and one half overtime - $22.87 For double overtime - $24.57**

## Laborer: Striping Assistant - Green Infrastructure - Traffic Control

**In accordance with the Comptroller's Prevailing Wage Memorandum Regarding Flag Persons dated June 1, 2024, for City public work contracts and subcontracts solicited on or after July 1, 2024 only, includes traffic control duty associated with such projects.**

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $40.00**
**Supplemental Benefit Rate per Hour: $21.17**
**Supplemental Note: For time and one half overtime - $22.87 For double overtime - $24.57**

## Overtime Description
**For Paid Holidays: Employees will only receive Holiday Pay for holidays not worked if said employee worked both the regularly scheduled workday before and after the holiday.**

## Overtime
**Time and one half the regular rate 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 the following holiday(s).**

## Paid Holidays
**New Year's Day**
**Good Friday**
**Memorial Day**
**Independence Day**
**Labor Day**
**Columbus Day**
**Presidential Election Day**
**Thanksgiving Day**
**Christmas Day**

## Vacation
**Vacation Employees with one to two years service shall accrue vacation based on hours worked: 250 hours worked - 1 day vacation; 500 hours worked - 2 days vacation; 750 hours worked - 3 days vacation; 900 hours worked - 4 days vacation; 1,000 hours worked - 5 days vacation. Employees with two to five years service receive two weeks vacation. Employees with five to twenty years service receive three weeks vacation. Employees with twenty to twenty-five years service receive four weeks vacation. Employees with 25 or more years service receive five weeks vacation.**

**(Local #1010)**

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# LANDSCAPING
**(Landscaping tasks, such as tree pruning, tree removing and spraying in connection with Green Infrastructure maintenance and the planting of street trees and trees in City parks, but not when such activities are performed as part of construction or reconstruction projects.)**

## Landscaper (Year 6 and above)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $38.94**
**Supplemental Benefit Rate per Hour: $18.55**

## Landscaper (Year 3 - 5)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $37.70**
**Supplemental Benefit Rate per Hour: $18.55**

## Landscaper (up to 3 years)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $34.60**
**Supplemental Benefit Rate per Hour: $18.55**

## Groundperson

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $34.60**
**Supplemental Benefit Rate per Hour: $18.55**

## Tree Remover / Pruner

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $45.17**
**Supplemental Benefit Rate per Hour: $18.55**

## Landscaper Sprayer (Pesticide Applicator)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $32.74**
**Supplemental Benefit Rate per Hour: $18.55**

## Watering - Plant Maintainer

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $26.50**
**Supplemental Benefit Rate per Hour: $18.55**

## Overtime Description

**For all overtime work performed, supplemental benefits shall include an additional seventy-five ($0.75) cents per hour.**

## Overtime

**Time and one half the regular rate after an 8 hour day.**
**Time and one half the regular rate for Saturday.**
**Double time the regular rate for Sunday.**
**Time and one half the regular rate for work on a holiday plus the day's pay.**

## Paid Holidays

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

## Shift Rates

**Work performed on a 4pm to 12am shift has a 15% differential. Work performed on a 12am to 8am shift has a 20% differential.**

**(Local #175)**

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# MARBLE MECHANIC

## Marble Setter

**Effective Period: 7/1/2025 - 7/6/2025**
**Wage Rate per Hour: $59.21**
**Supplemental Benefit Rate per Hour: $44.46**

**Effective Period: 7/7/2025 - 6/30/2026**
**Wage Rate per Hour: $59.66**
**Supplemental Benefit Rate per Hour: $44.76**

## Marble Finisher

**Effective Period: 7/1/2025 - 7/6/2025**
**Wage Rate per Hour: $45.67**
**Supplemental Benefit Rate per Hour: $41.36**

**Effective Period: 7/7/2025 - 6/30/2026**
**Wage Rate per Hour: $45.89**
**Supplemental Benefit Rate per Hour: $41.66**

## Marble Polisher

**Effective Period: 7/1/2025 - 7/6/2025**
**Wage Rate per Hour: $44.68**
**Supplemental Benefit Rate per Hour: $34.31**

**Effective Period: 7/7/2025 - 6/30/2026**
**Wage Rate per Hour: $44.95**
**Supplemental Benefit Rate per Hour: $34.61**

## Marble Maintenance Finisher

**Effective Period: 7/1/2025 - 7/6/2025**
**Wage Rate per Hour: $27.99**
**Supplemental Benefit Rate per Hour: $15.44**

**Effective Period: 7/7/2025 - 6/30/2026**
**Wage Rate per Hour: $28.15**
**Supplemental Benefit Rate per Hour: $15.69**

## Overtime Description
**Supplemental Benefit contributions are to be made at the applicable overtime rates.**

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

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

## Paid Holidays
**None**

**(Local #7)**

# MASON TENDER
## Building Laborer

### Mason Tender

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $41.80**
**Supplemental Benefit Rate per Hour: $34.14**

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

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

### Paid Holidays
**None**

### Shift Rates
**The employer may work two (2) shifts with the first shift at the straight time wage rate and the second shift receiving eight (8) hours paid for seven (7) hours work at the straight time wage rate. When it is not possible to conduct alteration work during regular working hours in a building occupied by tenants, the rule for the second shift will apply**

**(Local #79)**

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# 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: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $38.40**
**Supplemental Benefit Rate per Hour: $26.89**

## 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.**

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $27.59**
**Supplemental Benefit Rate per Hour: $21.21**

### 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)**

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# METALLIC LATHER

## Metallic Lather

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $46.50**
**Supplemental Benefit Rate per Hour: $56.46**
**Supplemental Note: For time and one half overtime - $68.21 For double overtime - $89.86**

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

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

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

## Shift Rates
**Off-shift work outside of normal working hours shall receive straight time rate plus $12 per hour for the first eight (8) hours.**

**(Local #46)**

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# MILLWRIGHT

## Millwright

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $60.83**
**Supplemental Benefit Rate per Hour: $59.18**

## 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**
**Good Friday**
**Memorial Day**

**Independence Day**
**Labor Day**
**Columbus Day**
**Presidential Election Day**
**Veteran's Day**
**Thanksgiving Day**
**Christmas Day**

## Paid Holidays

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

## Shift Rates

**Second and third shifts receives the straight time rate of pay plus fifteen (15%) percent allowing for one half hour for a meal. There must be a first shift to work a second and third shift. All additional hours worked shall be paid at the time and one-half rate of pay plus fifteen (15%) percent for weekday hours.**

**(Local #740)**

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# MOSAIC MECHANIC

## Mosaic Mechanic - Mosaic & Terrazzo Mechanic

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $54.77**
**Supplemental Benefit Rate per Hour: $48.42**

## Mosaic Mechanic - Mosaic & Terrazzo Finisher

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $53.17**
**Supplemental Benefit Rate per Hour: $48.42**

## Mosaic Mechanic - Machine Operator Grinder

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $53.17**
**Supplemental Benefit Rate per Hour: $48.42**

## Overtime

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

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

## Paid Holidays
**None**

**(Local #7)**

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# PAINTER

## Painter - Brush & Roller

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $44.75**
**Supplemental Benefit Rate per Hour: $44.13**
**Supplemental Note: $52.76 on overtime**

## Spray & Scaffold / Decorative / Sandblast

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $47.75**
**Supplemental Benefit Rate per Hour: $44.13**
**Supplemental Note: $52.76 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
**Double time the regular rate for work on the following holiday(s).**
**New Year's Day**
**President's Day**
**Memorial Day**

**Independence Day**
**Labor Day**
**Thanksgiving Day**
**Day after Thanksgiving**
**Christmas Day**

## Paid Holidays
**None**

**(District Council of Painters #9)**

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# PAINTER - BRIDGE & STRUCTURAL STEEL

## Painters on Structural Steel

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $56.25**
**Supplemental Benefit Rate per Hour: $55.09**

## Painter - Power Tool

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $64.70**
**Supplemental Benefit Rate per Hour: $55.09**
**Overtime Wage Rate: $7.00 above the "Painters on Structural Steel" overtime rate.**

## Overtime Description
**Supplemental Benefits shall be paid for each hour worked, up to forty (40) hours per week for the period of May 1st to November 15th or up to fifty (50) hours per week for the period of November 16th to April 30th.**

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

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

## Paid Holidays
**None**

## Shift Rates
**Second shift is paid at regular hourly wage rates plus a ten percent (10%) differential. There must be a first shift to work a second shift.**

**(Local #806)**

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# PAINTER - METAL POLISHER

## METAL POLISHER

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $35.00**
**Supplemental Benefit Rate per Hour: $12.84**

## METAL POLISHER - NEW CONSTRUCTION

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $35.95**
**Supplemental Benefit Rate per Hour: $12.84**

## METAL POLISHER - SCAFFOLD OVER 34 FEET

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $38.50**
**Supplemental Benefit Rate per Hour: $12.84**

## ASSISTANT METAL POLISHER

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $27.19**
**Supplemental Benefit Rate per Hour: $12.47**

## ASSISTANT METAL POLISHER - NEW CONSTRUCTION

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $27.94**
**Supplemental Benefit Rate per Hour: $12.47**

## ASSISTANT METAL POLISHER - SCAFFOLD OVER 34 FEET

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $29.69**
**Supplemental Benefit Rate per Hour: $12.47**

### 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.**

**Holiday Pay**
**Double time the regular rate for work on the following Holiday plus the day's pay. Only employees who have completed one year of service, including any trial period shall be eligible for 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.**
**Saturday may be used as a make-up day at straight time when a day is lost during that week to inclement weather.**

### 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**

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# PAINTER - SIGN

## Sign Painter

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $49.39**
**Supplemental Benefit Rate per Hour: $29.75**

## Assistant Sign Painter

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $41.98**
**Supplemental Benefit Rate per Hour: $29.04**

### Overtime Description
**If any employee is required to work on any of the paid holidays then the employee shall receive double time rate of wages as well as the holiday pay for that day.**

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

### Paid Holidays
**New Year's Day**
**President's Day**
**Memorial Day**
**Independence Day**
**Labor Day**
**Columbus Day**
**Election Day**
**Thanksgiving Day**
**Day after Thanksgiving**
**Christmas Day**
**Personal 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)**

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# PAPERHANGER

## Paperhanger

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $48.02**

**Supplemental Benefit Rate per Hour: $45.56**
**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.**
**Double time the regular rate for Sunday.**

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

## Paid Holidays
**None**

## Shift Rates
**Evening shift - 4:30 P.M. to 12:00 Midnight (regular rate of pay); any work performed before 7:00 A.M. shall be at time and one half the regular base rate of pay.**

**(District Council of Painters #9)**

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# PLASTERER

## Plasterer

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $52.99**
**Supplemental Benefit Rate per Hour: $26.10**

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

## Overtime Holidays

**Double time the regular rate for work on the following holiday(s).**
**New Year's Day**
**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 percent (12%) per hour differential. Workers on shift work shall be allowed a paid one-half hour meal break.**

**(Local #262)**

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# PLASTERER - TENDER

## Plasterer - Tender

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $41.80**
**Supplemental Benefit Rate per Hour: $34.14**

## 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)**

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# PLUMBER

## Plumber

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $76.30**
**Supplemental Benefit Rate per Hour: $45.15**
**Supplemental Note: Double time shall be paid for supplemental benefits during overtime work.**

## Plumber - Temporary Services

**Temporary Services - When there are no Plumbers on the job site, there may be three shifts designed to cover the entire twenty-four hour period, including weekends if necessary, at the following rate straight time.**

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $61.12**
**Supplemental Benefit Rate per Hour: $36.04**
**Supplemental Note: Double time shall be paid for supplemental benefits during overtime work.**

## Overtime Description
**Where the plumbing contract price is one and one half million dollars ($1,500,000.00) or less, double time the regular rate after an 8 hour day.**

## 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**

## Shift Rates

**Shift work, when directly specified in public agency or authority contract documents, and continues for a period of not less than ten (10) consecutive work days. A shift shall consist of seven (7) hours with one-half (1/2) hour for lunch after the first four (4) hours of each shift. A premium of thirty percent (30%) for wages and supplemental benefits on shift work performed Monday through Friday on the 4 P.M. and midnight shifts. For shift work performed on weekends the shift premium shall be fifty percent (50%) of wages and supplemental benefits. For shift work performed on holidays designated below, double time wages and supplemental benefits shall be paid. Also noted that the normal workday Monday through Friday 8:00 A.M. to 3:30 P.M. is not considered shift work, and therefore not subject to shift premium.**

**(Plumbers Local #1)**

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# PLUMBER (MECHNICAL EQUIPMENT AND SERVICE)

**Mechanical Equipment and Service work is any repair and/or replacement of the present plumbing system that does not change existing roughing or water supply lines. Projects regardless of work type which have approved plans and specifications wherein the plumbing exceeds $725,000 are excluded.**

## Plumber

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $48.90**
**Supplemental Benefit Rate per Hour: $22.26**

## 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

**Double time 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)**

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# PLUMBER (RESIDENTIAL RATES FOR 1, 2 AND 3 FAMILY HOME CONSTRUCTION)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $53.02**
**Supplemental Benefit Rate per Hour: $32.33**

## 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
**Shift work, when directly specified in public agency or authority contract documents, and continues for a period of not less than ten (10) consecutive work days. A shift shall consist of seven (7) hours with one-half (1/2) hour for lunch after the first four (4) hours of each shift. A premium of thirty percent (30%) for wages and supplemental benefits on shift work performed Monday through Friday on the 4 P.M. and midnight shifts. For shift work performed on weekends the shift premium shall be fifty percent (50%) of wages and supplemental benefits. For shift work performed on holidays designated below, double time wages and supplemental benefits shall be paid. Also noted that the normal workday Monday through Friday 8:00 A.M. to 3:30 P.M. is not considered shift work, and therefore not subject to shift premium.**

(Plumbers Local #1)

# PLUMBER: PUMP & TANK

## Oil Trades (Installation and Maintenance)

### Plumber - Pump & Tank

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $74.00**
**Supplemental Benefit Rate per Hour: $34.31**

### Overtime

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

### Overtime Holidays

**Time and one half the regular rate for work on the following holiday(s).**
**New Year's Day**
**President's Day**
**Memorial Day**
**Independence Day**
**Labor Day**
**Columbus Day**
**Election 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 4:30 P.M.) is to be paid at time and one half the regular hourly rate**

(Plumbers Local #1)

# POINTER, WATERPROOFER, CAULKER, SANDBLASTER, STEAMBLASTER

**(Exterior Building Renovation)**

## Journeyperson

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $65.33**
**Supplemental Benefit Rate per Hour: $32.35**

### Overtime

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

### Overtime Holidays

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

### Paid Holidays

**None**

### Shift Rates

**All work outside the regular work day (an eight hour workday between the hours of 6:00 A.M. and 4:00 P.M.) is to be paid at time and one half the regular rate. However, the employer may establish one (1) or two (2) shifts starting at or after 4:00 P.M. to be paid at the regular hourly rate plus a 10% differential. For projects bid and performed after July 1, 2023, the first shift shall be paid at the regular hourly rate plus a 5% differential.**

**(Bricklayer District Council)**

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# ROOFER

## Roofer

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $50.25**
**Supplemental Benefit Rate per Hour: $39.53**

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

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

### Paid Holidays
**None**

### Shift Rates
**Second shift - Regular hourly rate plus a 10% differential. Third shift - Regular hourly rate plus a 15% differential. There must be a first shift to work the second shift, and a second shift to work the third shift. All other work outside the regular work day (an eight hour workday between the hours of 5:00 A.M. and 4:00 P.M.) is to be paid at time and one half the regular rate.**

**(Local #8)**

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# SHEET METAL WORKER

## Sheet Metal Worker

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $54.60**
**Supplemental Benefit Rate per Hour: $60.18**
**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: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $43.68**
**Supplemental Benefit Rate per Hour: $60.18**

## Sheet Metal Worker - Duct Cleaner

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $19.84**
**Supplemental Benefit Rate per Hour: $13.08**

### 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)**

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# SHEET METAL WORKER - SPECIALTY
## (Decking & Siding)

## Sheet Metal Specialty Worker

**The first worker to perform this work must be paid at the rate of the Sheet Metal Worker. The second and third workers shall be paid the Specialty Worker Rate. The ratio of One Sheet Metal Worker, then Two Specialty Workers shall be utilized thereafter.**

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $50.50**
**Supplemental Benefit Rate per Hour: $31.26**
**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)**

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# SHIPYARD WORKER

## Shipyard Mechanic - First Class

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $32.63**
**Supplemental Benefit Rate per Hour: $3.40**

## Shipyard Mechanic - Second Class

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $22.91**
**Supplemental Benefit Rate per Hour: $2.12**

## Shipyard Laborer - First Class

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $26.83**
**Supplemental Benefit Rate per Hour: $3.55**

## Shipyard Laborer - Second Class

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $19.02**
**Supplemental Benefit Rate per Hour: $2.68**

## Shipyard Dockhand - First Class

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $25.76**
**Supplemental Benefit Rate per Hour: $3.59**

## Shipyard Dockhand - Second Class

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $20.14**
**Supplemental Benefit Rate per Hour: $3.34**

## Overtime Description

**Work performed on holiday is paid double time the regular hourly wage rate plus holiday pay.**

## Overtime

**Time and one half the regular rate after an 8 hour day.**
**Time and one half the regular rate for Saturday.**
**Double time the regular rate for Sunday.**
**Time and one half the regular hourly rate after 40 straight time hours in any work week.**

## Paid Holidays

**New Year's Day**
**Martin Luther King Jr. Day**
**President's Day**
**Good Friday**
**Memorial Day**
**Independence Day**
**Labor Day**
**Thanksgiving Day**

**Day after Thanksgiving**
**Christmas Day**

**Based on Survey Data**

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# SIGN ERECTOR
## (Sheet Metal, Plastic, Electric, and Neon)

## Sign Erector

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $58.00**
**Supplemental Benefit Rate per Hour: $63.44**

### 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 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)**

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# STEAMFITTER

## Steamfitter

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $61.80**
**Supplemental Benefit Rate per Hour: $61.89**
**Supplemental Note: Overtime supplemental benefit rate: $123.04**

## Steamfitter -Temporary Services

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $46.97**
**Supplemental Benefit Rate per Hour: $50.22**

## Overtime Description
**Double time after a 7 hour day except for Temporary Services.**

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

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

## Paid Holidays
**None**

## Shift Rates
**May be performed outside of the regular workday except Saturday, Sunday and Holidays. When shift work is performed the wage rate for regular time worked is a 15% percent premium on wage and 15% percent premium on supplemental benefits.**

**Local 638**

# STEAMFITTER - REFRIGERATION AND AIR CONDITIONER

**(Maintenance and Installation Service Person)**

## Refrigeration and Air Conditioner Mechanic

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $46.10**
**Supplemental Benefit Rate per Hour: $21.96**

### Overtime

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

### Overtime Holidays

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

**Double time and one half the regular rate for work on the following holiday(s).**
**Martin Luther King Jr. Day**
**President's Day**
**Memorial Day**
**Columbus Day**

### Paid Holidays

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

**(Local #638-B)**

# STONE MASON - SETTER

## Stone Mason - Setter

**(Assisted by Derrickperson and Rigger)**

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $59.47**
**Supplemental Benefit Rate per Hour: $56.67**

### Overtime Description
**Monday through Friday: Time and one quarter after seven hours worked. Time and one half after eight hours worked. Double time after 9 hours worked.**
**Saturday: Time and one half for the first nine hours worked. Double time after 9 hours worked.**
**Sunday and Holiday: double time for all hours worked.**
**Site Work: (paving and base course) paid at straight time for the first eight hours.**

### 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**
**Thanksgiving Day**
**Christmas Day**

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

### Shift Rates
**For all hours worked outside 8:00 am to 3:30 pm shall be paid double time unless flex band hours and/or site work are in use.**

**(Bricklayers District Council)**

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# TAPER

## Drywall Taper

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $48.47**
**Supplemental Benefit Rate per Hour: $35.91**

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

## Overtime Holidays
**Double time the regular rate for work on the following holiday(s).**
**New Year's Day**
**Martin Luther King Jr. Day**
**President's Day**
**Good Friday**
**Memorial Day**
**Independence Day**
**Columbus Day**
**Thanksgiving Day**
**Day before Christmas**
**Christmas Day**
**Day before New Year's Day**

## Paid Holidays
**Labor Day**

**(Local #1974)**

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# 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: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $47.03**
**Supplemental Benefit Rate per Hour: $23.15**
**Supplemental Note: The above rate applies for Manhattan, Bronx, Brooklyn, Queens. $22.84 for Staten Island only.**

## Overtime
**Time and one half the regular rate after an 8 hour day.**

**Time and one half the regular rate for Saturday.**
**Time and one half the regular rate for Sunday.**

## Overtime Holidays

**Time and one half the regular rate for work on the following holiday(s).**
**New Year's Day**
**Lincoln's Birthday**
**Washington's Birthday**
**Memorial Day**
**Independence Day**
**Labor Day**
**Columbus Day**
**Election Day**
**Veteran's Day**
**Thanksgiving Day**
**Christmas Day**

## Paid Holidays

**New Year's Day**
**Lincoln's Birthday**
**Washington's Birthday**
**Memorial Day**
**Independence Day**
**Labor Day**
**Columbus Day**
**Election Day**
**Veteran's Day**
**Thanksgiving Day**
**Christmas Day**
**Employees have the option of observing either Martin Luther King's Birthday or the day after Thanksgiving instead of Lincoln's Birthday**

## Shift Rates

**For any workday that starts before 8A.M. or ends after 6P.M. there is a 10% differential for the applicable worker's hourly rate.**

## Vacation

**After 6 months.....one week.**
**After 12 months but less than 7 years.....two weeks.**
**After 7 or more but less than 15 years.....three weeks.**
**After 15 years or more but less than 25 years.....four weeks.**

**(C.W.A.)**

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# TILE FINISHER

## Tile Finisher

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $50.11**
**Supplemental Benefit Rate per Hour: $33.61**

## 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**
**Good Friday**
**Memorial Day**
**Independence Day**
**Labor Day**
**Columbus Day**
**Veteran's Day**
**Thanksgiving Day**
**Day after Thanksgiving**
**Christmas Day**

## Paid Holidays
**None**

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

**(Local #7)**

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# TILE LAYER - SETTER

## Tile Layer - Setter

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $65.03**
**Supplemental Benefit Rate per Hour: $37.11**

## 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**
**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)**

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# TIMBERPERSON

## Timberperson

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $56.59**
**Supplemental Benefit Rate per Hour: $56.41**

## 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. Benefits for off-shift work shall be paid at the straight time rate.**

**(Local #1556)**

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# TUNNEL WORKER

## Blasters, Mucking Machine Operators (Compressed Air Rates)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $75.14**
**Supplemental Benefit Rate per Hour: $66.51**

## Tunnel Workers (Compressed Air Rates)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $72.46**
**Supplemental Benefit Rate per Hour: $64.41**

## Top Nipper (Compressed Air Rates)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $71.24**
**Supplemental Benefit Rate per Hour: $63.14**

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

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $69.83**
**Supplemental Benefit Rate per Hour: $62.11**

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

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $69.83**
**Supplemental Benefit Rate per Hour: $62.11**

## Changehouse Attendant: Powder Watchperson (Compressed Air Rates)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $61.57**
**Supplemental Benefit Rate per Hour: $58.18**

## Blasters (Free Air Rates)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $71.69**
**Supplemental Benefit Rate per Hour: $63.84**

## Tunnel Workers (Free Air Rates)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $68.58**
**Supplemental Benefit Rate per Hour: $61.18**

## All Others (Free Air Rates)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $63.40**
**Supplemental Benefit Rate per Hour: $56.62**

## Microtunneling (Free Air Rates)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $54.86**
**Supplemental Benefit Rate per Hour: $48.95**

## 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 8 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**
**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**

**(Local #147)**

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# UTILITY LOCATOR

**(Locate & mark underground utilities including gas for street excavation and utility line repairs)**

## Utility Locator (Year 7 and above)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $35.50**
**Supplemental Benefit Rate per Hour: $1.43**

## Utility Locator (Year 5 Second 6 months & Year 6)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $35.50**
**Supplemental Benefit Rate per Hour: $1.43**

## Utility Locator (Year 5 first 6 months)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $34.80**
**Supplemental Benefit Rate per Hour: $1.43**

## Utility Locator (Year 4)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $31.54**
**Supplemental Benefit Rate per Hour: $1.43**

## Utility Locator (Year 3)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $28.28**
**Supplemental Benefit Rate per Hour: $1.43**

## Utility Locator (Year 2)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $25.02**
**Supplemental Benefit Rate per Hour: $1.43**

## Utility Locator (Year 1)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $21.76**
**Supplemental Benefit Rate per Hour: $1.43**

## Utility Locator (Up to 1 year)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $18.50**
**Supplemental Benefit Rate per Hour: $1.43**
**Supplemental Note: No benefits for the first 90 days of employment.**

### Overtime
**Time and one half the regular rate for work on the following holiday(s).**
**Time and one half the regular hourly rate after 40 straight time hours in any work week.**

### Paid Holidays
**New Year's Day**
**Memorial Day**
**Independence Day**
**Thanksgiving Day**
**Christmas Day**

### Shift Rates
**10% shift differential to employees working any shift starting between noon and 5 AM.**

### Vacation
**For up to 1 year 0 hours**
**For year 1 - 2 48 hours per year**
**For year 3 - 9 96 hours per year**
**For year 10 or more 144 hours per year**

**Sick Days:**
**For up to 1 year employee receives 40 hours paid sick leave.**
**For year 1 employee earns 2 hours of paid sick leave for every 100 overtime hours worked.**
**For year 2 - 9 years employee earns 4 hours of paid sick leave for every 100 overtime hours worked.**
**For year 10 or more employee earns 6 hours of paid sick leave for every 100 overtime hours worked.**

(C.W.A.)

# WELDER

## WELDER AND FIREWATCH TO BE PAID AT THE RATE OF THE JOURNEYPERSON OR REGISTERED APPRENTICE IN THE TRADE PERFORMING THE WORK.

# 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.**

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# BOILERMAKER

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

### Boilermaker (First Year)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: 65% of Journeyperson's rate**
**Supplemental Benefit Rate Per Hour: $35.27**

### Boilermaker (Second Year: 1st Six Months)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: 70% of Journeyperson's rate**
**Supplemental Benefit Rate Per Hour: $37.34**

### Boilermaker (Second Year: 2nd Six Months)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: 75% of Journeyperson's rate**
**Supplemental Benefit Rate Per Hour: $39.44**

### Boilermaker (Third Year: 1st Six Months)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: 80% of Journeyperson's rate**
**Supplemental Benefit Rate Per Hour: $41.50**

### Boilermaker (Third Year: 2nd Six Months)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: 85% of Journeyperson's rate**
**Supplemental Benefit Rate Per Hour: $43.59**

### Boilermaker (Fourth Year: 1st Six Months)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: 90% of Journeyperson's rate**
**Supplemental Benefit Rate Per Hour: $45.68**

### Boilermaker (Fourth Year: 2nd Six Months)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: 95% of Journeyperson's rate**
**Supplemental Benefit Rate Per Hour: $47.76**

**(Local #5)**

# BRICKLAYER

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

### Bricklayer (First 650 Hours)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: 40% of Journeyperson's rate**
**Supplemental Benefit Rate Per Hour: $29.65**

### Bricklayer (Second 650 Hours)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: 50% of Journeyperson's rate**
**Supplemental Benefit Rate Per Hour: $29.65**

### Bricklayer (Third 650 Hours)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: 60% of Journeyperson's rate**
**Supplemental Benefit Rate Per Hour: $29.65**

### Bricklayer (Fourth 650 Hours)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: 70% of Journeyperson's rate**
**Supplemental Benefit Rate Per Hour: $29.65**

### Bricklayer (Fifth 650 Hours)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: 80% of Journeyperson's rate**
**Supplemental Benefit Rate Per Hour: $29.65**

### Bricklayer (Last 750 Hours)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: 90% of Journeyperson's rate**
**Supplemental Benefit Rate Per Hour: $29.65**

**(Bricklayer District Council)**

# CARPENTER

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

### Carpenter (First Year)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour For Building Apprentice: $24.20**
**Supplemental Benefit Rate Per Hour For Building Apprentice: $18.45**

**Wage Rate Per Hour For Heavy Apprentice: $27.98**
**Supplemental Benefit Rate Per Hour For Heavy Apprentice: $38.89**

### Carpenter (Second Year)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour For Building Apprentice: $27.20**
**Supplemental Benefit Rate Per Hour For Building Apprentice: $19.95**

**Wage Rate Per Hour For Heavy Apprentice: $33.58**
**Supplemental Benefit Rate Per Hour For Heavy Apprentice: $38.89**

### Carpenter (Third Year)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour For Building Apprentice: $31.45**
**Supplemental Benefit Rate Per Hour For Building Apprentice: $23.55**

**Wage Rate Per Hour For Heavy Apprentice: $41.96**
**Supplemental Benefit Rate Per Hour For Heavy Apprentice: $38.89**

### Carpenter (Fourth Year)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour For Building Apprentice: $39.33**
**Supplemental Benefit Rate Per Hour For Building Apprentice: $25.55**

**Wage Rate Per Hour For Heavy Apprentice: $50.35**
**Supplemental Benefit Rate Per Hour For Heavy Apprentice: $38.89**

**(Carpenters District Council)**

# CARPENTER - HIGH RISE CONCRETE FORMS

**(Ratio of Apprentice to Journeyperson: 1 to 1, 2 to 5)**

## Carpenter - High Rise (First Year)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $18.27**
**Supplemental Benefit Rate per Hour: $17.55**

## Carpenter - High Rise (Second Year)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $24.70**
**Supplemental Benefit Rate per Hour: $17.68**

## Carpenter - High Rise (Third Year)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $31.28**
**Supplemental Benefit Rate per Hour: $17.81**

## Carpenter - High Rise (Fourth Year)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $38.90**
**Supplemental Benefit Rate per Hour: $17.96**

**(Carpenters District Council)**

# CEMENT AND CONCRETE WORKER

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

## Cement & Concrete Worker (First 1333 hours)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: 53% of Journeyperson's rate**
**Supplemental Benefit Rate Per Hour: $17.97**

## Cement & Concrete Worker (Second 1333 hours)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: 69% of Journeyperson's rate**
**Supplemental Benefit Rate Per Hour: $23.41**

## Cement & Concrete Worker (Last 1334 hours)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: 85% of Journeyperson's rate**
**Supplemental Benefit Rate Per Hour: $24.85**

**(Cement Concrete Workers District Council)**

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# CEMENT MASON

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

## Cement Mason (First Year)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $23.77**
**Supplemental Benefit Rate per Hour: $14.86**

## Cement Mason (Second Year)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $28.74**
**Supplemental Benefit Rate per Hour: $15.16**

## Cement Mason (Third Year)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $34.27**
**Supplemental Benefit Rate per Hour: $15.27**

**(Local #780)**

---

# DERRICKPERSON & RIGGER (STONE)

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

## Derrickperson & Rigger (stone) - First Year

**Effective Period: 7/1/2025 - 6/30/2026**
**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: 7/1/2025 - 6/30/2026**
**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: 7/1/2025 - 6/30/2026**
**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: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: 90% of Journeyperson's rate**
**Supplemental Benefit Rate Per Hour: 75% of Journeyperson's rate**

**(Local #197)**

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# DOCKBUILDER/PILE DRIVER

**(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 6)**

## Dockbuilder/Pile Driver (First Year)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: $27.98**
**Supplemental Benefit Rate Per Hour: $38.89**

## Dockbuilder/Pile Driver (Second Year)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: $33.58**
**Supplemental Benefit Rate Per Hour: $38.89**

## Dockbuilder/Pile Driver (Third Year)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: $41.96**
**Supplemental Benefit Rate Per Hour: $38.89**

## Dockbuilder/Pile Driver (Fourth Year)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: $50.35**
**Supplemental Benefit Rate Per Hour: $38.89**

**(Carpenters District Council)**

---

# ELECTRICIAN

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

## Electrician 1st year

**Effective Period: 7/1/2025 - 4/15/2026**
**Wage Rate per Hour: $18.50**
**Supplemental Benefit Rate per Hour: $18.94**
**Overtime Supplemental Rate Per Hour: $20.17**

**Effective Period: 4/16/2026 - 6/30/2026**
**Wage Rate per Hour: $19.25**
**Supplemental Benefit Rate per Hour: $19.84**
**Overtime Supplemental Rate Per Hour: $21.11**

## Electrician 2nd Year

**Effective Period: 7/1/2025 - 4/15/2026**
**Wage Rate per Hour: $20.50**
**Supplemental Benefit Rate per Hour: $19.99**
**Overtime Supplemental Rate Per Hour: $21.35**

**Effective Period: 4/16/2026 - 6/30/2026**

**Wage Rate per Hour: $21.25**
**Supplemental Benefit Rate per Hour: $20.88**
**Overtime Supplemental Rate Per Hour: $22.29**

## Electrician 3rd Year

**Effective Period: 7/1/2025 - 4/15/2026**
**Wage Rate per Hour: $22.50**
**Supplemental Benefit Rate per Hour: $21.04**
**Overtime Supplemental Rate Per Hour: $22.53**

**Effective Period: 4/16/2026 - 6/30/2026**
**Wage Rate per Hour: $23.25**
**Supplemental Benefit Rate per Hour: $21.93**
**Overtime Supplemental Rate Per Hour: $23.48**

## Electrician 4th Year

**Effective Period: 7/1/2025 - 4/15/2026**
**Wage Rate per Hour: $25.50**
**Supplemental Benefit Rate per Hour: $22.61**
**Overtime Supplemental Rate Per Hour: $24.30**

**Effective Period: 4/16/2026 - 6/30/2026**
**Wage Rate per Hour: $26.25**
**Supplemental Benefit Rate per Hour: $23.50**
**Overtime Supplemental Rate Per Hour: $25.25**

## Electrician 5th Term (0-12 Months)

**MIJ 1**

**Effective Period: 7/1/2025 - 4/15/2026**
**Wage Rate per Hour: $27.50**
**Supplemental Benefit Rate per Hour: $26.29**
**Overtime Supplemental Rate Per Hour: $28.02**

**Effective Period: 4/16/2026 - 6/30/2026**
**Wage Rate per Hour: $27.50**
**Supplemental Benefit Rate per Hour: $26.79**
**Overtime Supplemental Rate Per Hour: $28.52**

## Electrician 5th Term (13-18 Months)

**MIJ 2**

**Effective Period: 7/1/2025 - 4/15/2026**
**Wage Rate per Hour: $33.50**

**Supplemental Benefit Rate per Hour: $29.51**
**Overtime Supplemental Rate Per Hour: $31.63**

**Effective Period: 4/16/2026 - 6/30/2026**
**Wage Rate per Hour: $33.50**
**Supplemental Benefit Rate per Hour: $30.01**
**Overtime Supplemental Rate Per Hour: $32.13**

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

**(Local #3)**

---

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

## Elevator (Constructor) - First Year

**Effective Period: 7/1/2025 - 3/16/2026**
**Wage Rate Per Hour: 50% of Journeyperson's rate**
**Supplemental Rate Per Hour: $35.48**

**Effective Period: 3/17/2026 - 6/30/2026**
**Wage Rate Per Hour: 50% of Journeyperson's rate**
**Supplemental Rate Per Hour: $36.18**

## Elevator (Constructor) - Second Year

**Effective Period: 7/1/2025 - 3/16/2026**
**Wage Rate Per Hour: 55% of Journeyperson's rate**
**Supplemental Rate Per Hour: $36.16**

**Effective Period: 3/17/2026 - 6/30/2026**
**Wage Rate Per Hour: 55% of Journeyperson's rate**
**Supplemental Rate Per Hour: $36.90**

## Elevator (Constructor) - Third Year

**Effective Period: 7/1/2025 - 3/16/2026**
**Wage Rate Per Hour: 65% of Journeyperson's rate**
**Supplemental Rate Per Hour: $37.53**

**Effective Period: 3/17/2026 - 6/30/2026**

**Wage Rate Per Hour: 65% of Journeyperson's rate**
**Supplemental Rate Per Hour: $38.35**

## Elevator (Constructor) - Fourth Year

**Effective Period: 7/1/2025 - 3/16/2026**
**Wage Rate Per Hour: 75% of Journeyperson's rate**
**Supplemental Rate Per Hour: $38.90**

**Effective Period: 3/17/2026 - 6/30/2026**
**Wage Rate Per Hour: 75% of Journeyperson's rate**
**Supplemental Rate Per Hour: $39.80**

**(Local #1)**

---

# ELEVATOR REPAIR & MAINTENANCE

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

## Elevator Service/Modernization Mechanic (First Year)

**Effective Period: 7/1/2025 - 3/16/2026**
**Wage Rate Per Hour: 50% of Journeyperson's rate**
**Supplemental Benefit Per Hour: $35.45**

**Effective Period: 3/17/2026 - 6/30/2026**
**Wage Rate Per Hour: 50% of Journeyperson's rate**
**Supplemental Benefit Per Hour: $36.15**

## Elevator Service/Modernization Mechanic (Second Year)

**Effective Period: 7/1/2025 - 3/16/2026**
**Wage Rate Per Hour: 55% of Journeyperson's rate**
**Supplemental Benefit Per Hour: $36.13**

**Effective Period: 3/17/2026 - 6/30/2026**
**Wage Rate Per Hour: 55% of Journeyperson's rate**
**Supplemental Benefit Per Hour: $36.87**

## Elevator Service/Modernization Mechanic (Third Year)

**Effective Period: 7/1/2025 - 3/16/2026**
**Wage Rate Per Hour: 65% of Journeyperson's rate**
**Supplemental Benefit Per Hour: $37.50**

**Effective Period: 3/17/2026 - 6/30/2026**
**Wage Rate Per Hour: 65% of Journeyperson's rate**
**Supplemental Benefit Per Hour: $38.32**

## Elevator Service/Modernization Mechanic (Fourth Year)

**Effective Period: 7/1/2025 - 3/16/2026**
**Wage Rate Per Hour: 75% of Journeyperson's rate**
**Supplemental Benefit Per Hour: $38.86**

**Effective Period: 3/17/2026 - 6/30/2026**
**Wage Rate Per Hour: 75% of Journeyperson's rate**
**Supplemental Benefit Per Hour: $39.76**

**(Local #1)**

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

## Engineer - First Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $28.68**
**Supplemental Benefit Rate per Hour: $35.26**

## Engineer - Second Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $35.85**
**Supplemental Benefit Rate per Hour: $35.26**

## Engineer - Third Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $39.44**
**Supplemental Benefit Rate per Hour: $35.26**

## Engineer - Fourth Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $43.02**
**Supplemental Benefit Rate per Hour: $35.26**

**(Local #15)**

---

# ENGINEER - OPERATING

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

### Operating Engineer - First Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: 40% of Operating Engineer - Road & Heavy Construction V's Rate**
**Supplemental Benefit Per Hour: $28.40**

### Operating Engineer - Second Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: 50% of Operating Engineer - Road & Heavy Construction V's Rate**
**Supplemental Benefit Per Hour: $28.40**

### Operating Engineer - Third Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: 60% of Operating Engineer - Road & Heavy Construction V's Rate**
**Supplemental Benefit Per Hour: $28.40**

**(Local #14)**

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# FLOOR COVERER

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

### Floor Coverer (First Year)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $26.54**
**Supplemental Benefit Rate per Hour: $18.04**

## Floor Coverer (Second Year)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $29.60**
**Supplemental Benefit Rate per Hour: $19.69**

## Floor Coverer (Third Year)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $34.05**
**Supplemental Benefit Rate per Hour: $23.49**

## Floor Coverer (Fourth Year)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $42.40**
**Supplemental Benefit Rate per Hour: $25.49**

**(Carpenters District Council)**

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# GLAZIER

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

## Glazier (First Year)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage and Supplemental Rate Per Hour: 40% of Journeyperson's rate**

## Glazier (Second Year)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage and Supplemental Rate Per Hour: 50% of Journeyperson's rate**

## Glazier (Third Year)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage and Supplemental Rate Per Hour: 60% of Journeyperson's rate**

## Glazier (Fourth Year)

**Effective Period: 7/1/2025 - 6/30/2026**

**Wage and Supplemental Rate Per Hour: 80% of Journeyperson's rate**

**(Local #1281)**

---

# HAZARDOUS MATERIAL HANDLER

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

## Handler (First 1000 Hours)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $20.76**
**Supplemental Benefit Rate per Hour: $17.04**

## Handler (Second 1000 Hours)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $21.76**
**Supplemental Benefit Rate per Hour: $17.04**

## Handler (Third 1000 Hours)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $24.76**
**Supplemental Benefit Rate per Hour: $17.04**

## Handler (Fourth 1000 Hours)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $26.76**
**Supplemental Benefit Rate per Hour: $17.04**

**(Local #78)**

---

# HEAT & FROST INSULATOR

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

## Heat & Frost Insulator (First Year)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage and Supplemental Rate Per Hour: 45% of Journeyperson's rate**

## Heat & Frost Insulator (Second Year)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage and Supplemental Rate Per Hour: 55% of Journeyperson's rate**

## Heat & Frost Insulator (Third Year)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage and Supplemental Rate Per Hour: 65% of Journeyperson's rate**

## Heat & Frost Insulator (Fourth Year)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage and Supplemental Rate Per Hour: 75% of Journeyperson's rate**

**(Local #12)**

---

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

## House Wrecker - First Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $21.75**
**Supplemental Benefit Rate per Hour: $12.12**

## House Wrecker - Second Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $23.50**
**Supplemental Benefit Rate per Hour: $12.12**

## House Wrecker - Third Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $25.00**
**Supplemental Benefit Rate per Hour: $12.12**

## House Wrecker - Fourth Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $27.50**
**Supplemental Benefit Rate per Hour: $12.12**

**(Mason Tenders District Council)**

---

# IRON WORKER - ORNAMENTAL

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

## Iron Worker (Ornamental) - First Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $25.98**
**Supplemental Benefit Rate per Hour: $15.99**

## Iron Worker (Ornamental) - Second Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $28.45**
**Supplemental Benefit Rate per Hour: $17.99**

## Iron Worker (Ornamental) - Third Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $30.80**
**Supplemental Benefit Rate per Hour: $18.99**

## Iron Worker (Ornamental) - Fourth Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $34.39**
**Supplemental Benefit Rate per Hour: $20.99**

**(Local #580)**

# IRON WORKER - STRUCTURAL

**(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 6)**

## Iron Worker (Structural) - 1st Six Months

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $30.61**
**Supplemental Benefit Rate per Hour: $63.80**

## Iron Worker (Structural) - 7- 18 Months

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $31.21**
**Supplemental Benefit Rate per Hour: $63.80**

## Iron Worker (Structural) - 19 - 36 months

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $31.82**
**Supplemental Benefit Rate per Hour: $63.80**

**(Local #40 and #361)**

# LABORER - HEAVY & HIGHWAY

**(Ratio Apprentice to Journeyperson: 1 to 1, 1 to 3)**

## Laborer - Heavy & Highway - First 1000 hours

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: 50% of Journeyperson's rate**
**Supplemental Rate Per Hour: $55.73**

## Laborer - Heavy & Highway - Second 1000 hours

**Effective Period: 7/1/2025 - 6/30/2026**

**Wage Rate Per Hour: 60% of Journeyperson's rate**
**Supplemental Rate Per Hour: 55.73**

## Laborer - Heavy & Highway - Third 1000 hours

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: 75% of Journeyperson's rate**
**Supplemental Rate Per Hour: 55.73**

## Laborer - Heavy & Highway - Fourth 1000 hours

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: 90% of Journeyperson's rate**
**Supplemental Rate Per Hour: $55.73**

**(Local #731)**

---

# LABORER - PAVER & ROADBUILDER

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

## Paver and Roadbuilder - First Year (Minimum 1000 hours)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $32.21**
**Supplemental Benefit Rate per Hour: $27.82**

## Paver and Roadbuilder - Second Year (Minimum 1000 hours)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $33.85**
**Supplemental Benefit Rate per Hour: $27.82**

**(Local#1010)**

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# LABORER - PAVER AND ROADBUILDER - LINE STRIPING (ROADWAY)

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

## Paver and Roadbuilder - Line Striping (Roadway) - First Year (Minimum 1000 hours)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $31.36**
**Supplemental Benefit Rate per Hour: $19.27**

## Paver and Roadbuilder - Line Striping (Roadway) - Second Year (Minimum 1000 hours)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $33.00**
**Supplemental Benefit Rate per Hour: $19.27**

**(Local #1010)**

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# MARBLE MECHANICS

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

## Cutters & Setters - 0-3000 Hours

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage and Supplemental Rate Per Hour: 40% of Journeyperson's rate**

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

## Cutters & Setters - 3001-3750 Hours

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage and Supplemental Rate Per Hour: 60% of Journeyperson's rate**

## Cutters & Setters - 3751-4500 Hours

**Effective Period: 7/1/2025 - 6/30/2026**

**Wage and Supplemental Rate Per Hour: 65% of Journeyperson's rate**

## Cutters & Setters - 4501-5250 Hours

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage and Supplemental Rate Per Hour: 70% of Journeyperson's rate**

## Cutters & Setters - 5251-6000 Hours

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage and Supplemental Rate Per Hour: 75% of Journeyperson's rate**

## Cutters & Setters - 6001-7500 Hours

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage and Supplemental Rate Per Hour: 85% of Journeyperson's rate**

## Polishers & Finishers - First 750 Hours

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage and Supplemental Rate Per Hour: 50% of Journeyperson's rate**

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

## Polishers & Finishers - Second 750 Hours

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage and Supplemental Rate Per Hour: 55% of Journeyperson's rate**

## Polishers & Finishers - Third 750 Hours

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage and Supplemental Rate Per Hour: 65% of Journeyperson's rate**

## Polishers & Finishers - Fourth 750 Hours

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage and Supplemental Rate Per Hour: 75% of Journeyperson's rate**

## Polishers & Finishers Last 700 Hours

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage and Supplemental Rate Per Hour: 85% 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: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $21.75**
**Supplemental Benefit Rate per Hour: $11.62**

## Mason Tender - Second Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $23.50**
**Supplemental Benefit Rate per Hour: $11.62**

## Mason Tender - Third Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $25.00**
**Supplemental Benefit Rate per Hour: $11.62**

## Mason Tender - Fourth Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $27.50**
**Supplemental Benefit Rate per Hour: $11.62**

**(Local #79)**

# MASON TENDER (INTERIOR DEMOLITION WORKER)
**(Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)**

## Mason Tender (Interior Demolition) - First Year

**Effective Period: 7/1/2025 - 6/30/2026**

**Wage Rate per Hour:** **$21.75**
**Supplemental Benefit Rate per Hour:** **$11.27**

## Mason Tender (Interior Demolition) - Second Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour:** **$23.50**
**Supplemental Benefit Rate per Hour:** **$11.27**

## Mason Tender (Interior Demolition) - Third Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour:** **$25.00**
**Supplemental Benefit Rate per Hour:** **$11.27**

## Mason Tender (Interior Demolition) - Fourth Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour:** **$27.50**
**Supplemental Benefit Rate per Hour:** **$11.27**

**(Local #79)**

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# METALLIC LATHER

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

## Metallic Lather (First Year)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour:** **$22.55**
**Supplemental Benefit Rate per Hour:** **$17.87**

## Metallic Lather (Second Year)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour:** **$25.00**
**Supplemental Benefit Rate per Hour:** **$17.92**

## Metallic Lather (Third Year)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $28.00**
**Supplemental Benefit Rate per Hour: $16.92**

## Metallic Lather (Fourth Year)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $30.00**
**Supplemental Benefit Rate per Hour: $16.92**

**(Local #46)**

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

## Millwright (First Year)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $32.74**
**Supplemental Benefit Rate per Hour: $38.29**

## Millwright (Second Year)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $38.39**
**Supplemental Benefit Rate per Hour: $41.99**

## Millwright (Third Year)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $44.04**
**Supplemental Benefit Rate per Hour: $46.34**

## Millwright (Fourth Year)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $55.34**
**Supplemental Benefit Rate per Hour: $53.10**

**(Local #740)**

# PAINTER

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

## Painter - Brush & Roller - First Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $17.90**
**Supplemental Benefit Rate per Hour: $19.64**

## Painter - Brush & Roller - Second Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $22.38**
**Supplemental Benefit Rate per Hour: $25.19**

## Painter - Brush & Roller - Third Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $26.85**
**Supplemental Benefit Rate per Hour: $29.72**

## Painter - Brush & Roller - Fourth Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $35.80**
**Supplemental Benefit Rate per Hour: $38.54**

**(District Council of Painters)**

# PAINTER - BRIDGE & STRUCTURAL STEEL

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

## Painter - Bridge & Structural Steel (First Year)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage and Supplemental Rate Per Hour: 40% of Journeyperson's rate**

## Painter - Bridge & Structural Steel (Second Year)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage and Supplemental Rate Per Hour: 60% of Journeyperson's rate**

## Painter - Bridge & Structural Steel (Third Year)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage and Supplemental Rate Per Hour: 80% of Journeyperson's rate**

**(Local #806)**

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# PAINTER - METAL POLISHER

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

## Metal Polisher (First Year)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $20.17**
**Supplemental Benefit Rate per Hour: $8.91**
**New Construction - Wage Rate Per Hour: $20.56**
**Scaffold Over 34 Feet - Wage Rate Per Hour: $22.67**

## Metal Polisher (Second Year)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $22.18**
**Supplemental Benefit Rate per Hour: $8.91**
**New Construction - Wage Rate Per Hour: $22.62**
**Scaffold Over 34 Feet - Wage Rate Per Hour: $24.68**

## Metal Polisher (Third Year)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $24.20**
**Supplemental Benefit Rate per Hour: $8.91**
**New Construction - Wage Rate Per Hour: $24.74**
**Scaffold Over 34 Feet - Wage Rate Per Hour: $26.70**

**(Local 8A-28)**

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# PLASTERER

## (Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 3)
## (Each Term is 800 Hours.)

### Plasterer - First Term

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: 55% of Journeyperson's rate**
**Supplemental Rate Per Hour: $17.48**

### Plasterer - Second Term

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: 60% of Journeyperson's rate**
**Supplemental Rate Per Hour: $18.63**

### Plasterer - Third Term

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: 70% of Journeyperson's rate**
**Supplemental Rate Per Hour: $20.93**

### Plasterer - Fourth Term

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: 75% of Journeyperson's rate**
**Supplemental Rate Per Hour: $22.10**

**(Local #262)**

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# PLASTERER - TENDER

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

## Plasterer Tender - First Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $21.75**
**Supplemental Benefit Rate per Hour: $11.62**

## Plasterer Tender - Second Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $23.50**
**Supplemental Benefit Rate per Hour: $11.62**

## Plasterer Tender - Third Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $25.00**
**Supplemental Benefit Rate per Hour: $11.62**

## Plasterer Tender - Fourth Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $27.50**
**Supplemental Benefit Rate per Hour: $11.62**

**(Local #79)**

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# PLUMBER

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

## Plumber - First Year: 1st Six Months

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $19.00**
**Supplemental Benefit Rate per Hour: $5.43**

## Plumber - First Year: 2nd Six Months

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $21.00**
**Supplemental Benefit Rate per Hour: $6.43**

## Plumber - Second Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $30.90**
**Supplemental Benefit Rate per Hour: $23.81**

## Plumber - Third Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $33.00**
**Supplemental Benefit Rate per Hour: $23.81**

## Plumber - Fourth Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $35.85**
**Supplemental Benefit Rate per Hour: $23.81**

## Plumber - Fifth Year: 1st Six Months

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $37.25**
**Supplemental Benefit Rate per Hour: $23.81**

## Plumber - Fifth Year: 2nd Six Months

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $49.32**
**Supplemental Benefit Rate per Hour: $23.81**

**(Plumbers Local #1)**

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# POINTER, WATERPROOFER, CAULKER, SANDBLASTER, STEAMBLASTER

### (Exterior Building Renovation)
### (Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 4)

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

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $33.58**
**Supplemental Benefit Rate per Hour: $15.65**

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

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $38.04**
**Supplemental Benefit Rate per Hour: $21.00**

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

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $44.19**
**Supplemental Benefit Rate per Hour: $24.75**

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

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $53.10**
**Supplemental Benefit Rate per Hour: $25.75**

**(Bricklayer District Council)**

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# ROOFER

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

## Roofer - First Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: 38% of Journeyperson's rate**
**Supplemental Benefit Rate Per Hour: $7.86**

## Roofer - Second Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: 45% of Journeyperson's rate**
**Supplemental Benefit Rate Per Hour: $18.16**

## Roofer - Third Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: 50% of Journeyperson's rate**
**Supplemental Benefit Rate Per Hour: $20.10**

## Roofer - Fourth Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: 60% of Journeyperson's rate**
**Supplemental Benefit Rate Per Hour: $23.98**

## Roofer - Fifth Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: 75% of Journeyperson's rate**
**Supplemental Benefit Rate Per Hour: $29.82**

**(Local #8)**

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# SHEET METAL WORKER

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

## Sheet Metal Worker (0-6 Months)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $18.97**
**Supplemental Benefit Rate per Hour: $8.09**

## Sheet Metal Worker (7-18 Months)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $18.97**
**Supplemental Benefit Rate per Hour: $22.10**

## Sheet Metal Worker (19-30 Months)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $24.45**
**Supplemental Benefit Rate per Hour: $29.88**

## Sheet Metal Worker (31-36 Months)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $29.95**
**Supplemental Benefit Rate per Hour: $35.37**

## Sheet Metal Worker (37-42 Months)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $29.95**
**Supplemental Benefit Rate per Hour: $35.37**

## Sheet Metal Worker (43-48 Months)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $38.19**
**Supplemental Benefit Rate per Hour: $43.64**

## Sheet Metal Worker (49-54 Months)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $38.19**
**Supplemental Benefit Rate per Hour: $43.64**

## Sheet Metal Worker (55-60 Months)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $43.66**
**Supplemental Benefit Rate per Hour: $49.16**

**(Local #28)**

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# SIGN ERECTOR

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

## Sign Erector - First Year: 1st Six Months

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: 35% of Journeyperson's rate**
**Supplemental Rate Per Hour: $17.84**

## Sign Erector - First Year: 2nd Six Months

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: 40% of Journeyperson's rate**
**Supplemental Rate Per Hour: $20.25**

## Sign Erector - Second Year: 1st Six Months

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: 45% of Journeyperson's rate**
**Supplemental Rate Per Hour: $22.66**

## Sign Erector - Second Year: 2nd Six Months

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: 50% of Journeyperson's rate**
**Supplemental Rate Per Hour: $25.09**

## Sign Erector - Third Year: 1st Six Months

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: 55% of Journeyperson's rate**
**Supplemental Rate Per Hour: $33.83**

## Sign Erector - Third Year: 2nd Six Months

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: 60% of Journeyperson's rate**
**Supplemental Rate Per Hour: $36.81**

## Sign Erector - Fourth Year: 1st Six Months

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: 65% of Journeyperson's rate**
**Supplemental Rate Per Hour: $40.63**

## Sign Erector - Fourth Year: 2nd Six Months

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: 70% of Journeyperson's rate**
**Supplemental Rate Per Hour: $43.70**

## Sign Erector - Fifth Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: 75% of Journeyperson's rate**
**Supplemental Rate Per Hour: $46.76**

## Sign Erector - Sixth Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: 80% of Journeyperson's rate**
**Supplemental Rate Per Hour: $49.80**

**(Local #137)**

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# STEAMFITTER

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

### Steamfitter - First Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate and Supplemental Per Hour: 40% of Journeyperson's rate**

### Steamfitter - Second Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate and Supplemental Rate Per Hour: 50% of Journeyperson's rate.**

### Steamfitter - Third Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate and Supplemental Rate per Hour: 60% of Journeyperson's rate.**

### Steamfitter - Fourth Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate and Supplemental Rate Per Hour: 70% of Journeyperson's rate.**

### Steamfitter - Fifth Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate and Supplemental Rate Per Hour: 80% of Journeyperson's rate.**

**(Local #638)**

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# STEAMFITTER - REFRIGERATION & AIR CONDITIONER

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

## Refrigeration & Air Conditioner (First Year)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $22.31**
**Supplemental Benefit Rate per Hour: $14.47**

## Refrigeration & Air Conditioner (Second Year)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $26.94**
**Supplemental Benefit Rate per Hour: $15.91**

## Refrigeration & Air Conditioner (Third Year)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $31.38**
**Supplemental Benefit Rate per Hour: $17.41**

## Refrigeration & Air Conditioner (Fourth Year)

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $37.90**
**Supplemental Benefit Rate per Hour: $19.44**

**(Local #638-B)**

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# STONE MASON - SETTER

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

## Stone Mason - Setters - First 750 Hours

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage and Supplemental Rate Per Hour: 40% of Journeyperson's rate**

## Stone Mason - Setters - Second 750 Hours

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage and Supplemental Rate Per Hour: 50% of Journeyperson's rate**

## Stone Mason - Setters - Third 750 Hours

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage and Supplemental Rate Per Hour: 60% of Journeyperson's rate**

## Stone Mason - Setters - Fourth 750 Hours

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage and Supplemental Rate Per Hour: 70% of Journeyperson's rate**

## Stone Mason - Setters - Fifth 750 Hours

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage and Supplemental Rate Per Hour: 80% of Journeyperson's rate**

## Stone Mason - Setters - Sixth 750 Hours

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage and Supplemental Rate Per Hour: 90% of Journeyperson's rate**

**(Bricklayers District Council)**

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

## Drywall Taper - First Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $22.51**
**Supplemental Benefit Rate per Hour: $14.65**

## Drywall Taper - Second Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $24.24**
**Supplemental Benefit Rate per Hour: $25.28**

## Drywall Taper - Third Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $29.08**
**Supplemental Benefit Rate per Hour: $27.41**

## Drywall Taper - Fourth Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate per Hour: $38.78**
**Supplemental Benefit Rate per Hour: $31.66**

**(Local #1974)**

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# TILE LAYER - SETTER

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

## Tile Layer - Setter - First 750 Hours

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage and Supplemental Rate Per Hour:35% of Journeyperson's rate**

## Tile Layer - Setter - Second 750 Hours

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage and Supplemental Rate Per Hour 40% of Journeyperson's rate**

## Tile Layer - Setter - Third 750 Hours

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage and Supplemental Rate Per Hour: 50% of Journeyperson's rate**

## Tile Layer - Setter - Fourth 750 Hours

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage and Supplemental Rate Per Hour: 55% of Journeyperson's rate**

## Tile Layer - Setter - Fifth 750 Hours

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage and Supplemental Rate Per Hour: 60% of Journeyperson's rate**

## Tile Layer - Setter - Sixth 750 Hours

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage and Supplemental Rate Per Hour: 65% of Journeyperson's rate**

## Tile Layer - Setter - Seventh 750 Hours

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage and Supplemental Rate Per Hour: 70% of Journeyperson's rate**

## Tile Layer - Setter - Eighth 750 Hours

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage and Supplemental Rate Per Hour: 75% of Journeyperson's rate**

## Tile Layer - Setter - Ninth 750 Hours

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage and Supplemental Rate Per Hour:80% of Journeyperson's rate**

## Tile Layer - Setter - Tenth 750 Hours

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage and Supplemental Rate Per Hour: 90% of Journeyperson's rate**

**(Local #7)**

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# TIMBERPERSON

### (Ratio of Apprentice to Journeyperson: 1 to 1, 1 to 6)

## Timberperson - First Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: $25.96**
**Supplemental Rate Per Hour: $38.69**

## Timberperson - Second Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: $31.07**
**Supplemental Rate Per Hour: $38.69**

## Timberperson - Third Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: $38.72**
**Supplemental Rate Per Hour: $38.69**

## Timberperson - Fourth Year

**Effective Period: 7/1/2025 - 6/30/2026**
**Wage Rate Per Hour: $46.38**
**Supplemental Rate Per Hour: $38.69**

**(Local #1536)**

THE CITY OF NEW YORK
OFFICE OF THE COMPTROLLER
1 CENTRE STREET ROOM 1120
NEW YORK, N.Y. 10007-2341

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Leonard A. Mancusi
SENIOR ASSISTANT COMPTROLLER

ALAN G. HEVESI
COMPTROLLER

***MEMORANDUM***

*November 6, 2000*

*To* *Agency Chief Contracting Officers*

*From:* *Leonard A. Mancusi*

*Re:* *Security at Construction Sites*

*Prior to the enactment of Administrative Code §6-109, security guards on construction sites were not subject to prevailing wages. Security guards under the New York State labor law are covered under §230 which provides that prevailing wages are to be paid for security guards in existing buildings. §6-109 of the Administrative Code which was enacted in 1996 closed this loophole by including all security guards working pursuant to a city contract as a prevailing wage trade.*

*Although some construction contract boilerplate language has been amended to include §6-109, sub-contractors performing security services have advised us that they were not aware of this provision and, since traditionally, security guards were not a covered trade on construction sites, and they were not advised by a prime contractor that they would have to pay prevailing wages, they have not been doing so.*

*To avoid the possibility of issuing stop payments against prime contractors for the failure of their security service sub-contractors to pay*

*prevailing wages, we suggest that you write to all your existing security guard sub-contractors and their primes and in the future, upon approval of a security guard sub-contractor, advise the contractors of their obligation to pay prevailing wages under §6-109 of the Administrative Code.*

*As always, your cooperation is appreciated.*

*LAM:er*
*ACCO.SECURITY AT SITES*

THE CITY OF NEW YORK
OFFICE OF THE COMPTROLLER
BUREAU OF LABOR LAW
1 CENTRE STREET
NEW YORK, NY 10007

BRAD LANDER
COMPTROLLER

# COMPTROLLER'S PREVAILING WAGE MEMORANDUM REGARDING FLAG PERSONS

June 1, 2024

This memorandum supersedes and replaces the Comptroller's Prevailing Wage Memoranda dated May 21, 1998 and related clarification dated March 13, 2001 concerning Flag Persons. This memorandum sets forth the superseding determination of the New York City Comptroller concerning the applicability of Article 8, Section 220 of the New York Labor Law (the "Labor Law") to individuals who perform traffic control duty or "flagger" tasks in connection with public works construction projects within the jurisdiction of the City of New York. The guidance set forth herein is effective July 1, 2024 and applies only to public works contracts and subcontracts solicited on or after such date.

For purposes of this memorandum, "traffic control duty" means tasks necessary or appropriate to alleviate congestion by directing the flow of pedestrian and/or vehicular traffic away from the vicinity of the construction site using a sign or flag. Workers performing traffic control duty in connection with a public works construction project, whether or not such workers are on, adjacent to, or in close proximity to the construction site, are performing the work of a construction "laborer," as directing traffic away from the job site serves to protect the public and safeguard the work crew. Such workers are thus subject to the prevailing wage requirements of Article 8, Section 220 of the Labor Law as "laborers, workmen, or mechanics." Accordingly, the Prevailing Rate of Wages and Supplements applies to such individuals.

Additionally, workers who perform "flagger" tasks relating to the protection of the public and/or work crew, including but not limited to erecting traffic cones, setting up construction site barriers, and directing the movement of trucks or construction equipment in, on, and off the site, also are subject to the requirements of Article 8, Section 220 of the Labor Law and the Prevailing Rate of Wages and Supplements.

This position is consistent with the New York State Department of Labor's position under Article 8 of the New York Labor Law and the U.S. Department of Labor's position under the Davis-Bacon Act and will promote and streamline compliance with prevailing wage requirements on the various public works construction projects within New York City.

If the trade performing the underlying work performs its own flagging or traffic control, e.g., bridge painters, the flagger or traffic control worker shall receive the same wages as the underlying trade. In the absence of an underlying trade, the flagger or traffic control worker shall receive the wages as set forth in the "Flagger" section of the New York City Comptroller's Construction Worker Prevailing Wage Schedule.

Contractors, agencies, and members of the public are encouraged to contact the Bureau of Labor Law to seek clarification regarding specific instances to ensure compliance with prevailing wage regulations and this memorandum.

**Changes between the 7/1/2024 and 7/1/2025 Single Contract General Conditions**

*NOTE: The list below is intended as a guide and does not include minor editing.*
*The text of the General Conditions and the Addendum to the General Conditions govern.*

| Section No. | Change |
|---|---|
| 01 21 00.20 | Section revised throughout to clarify eligible scope of work and requirements |
| 01 32 16.10 | 1.10: language added to account for inspections and approvals<br>1.12C: language added related to baseline schedules |
| 01 32 16.20 | 1.10: language added to account for inspections and approvals<br>1.12C: language added related to baseline schedules |
| 01 32 16.30 | 1.10: language added to account for inspections and approvals<br>1.12C: language added related to baseline schedules |
| 01 35 03 | 1.2: language revised in coordination with Standard Construction Contract |
| 01 35 06 | 1.2: language revised in coordination with Standard Construction Contract |
| 01 73 00 | 3.11: requirements for trucking added |
| 01 81 13.03 | Section Removed |
| 01 81 13.13 | Section Removed |

Department of Design and Construction

Issue Date: July 1, 2025

# DDC STANDARD GENERAL CONDITIONS

# FOR SINGLE CONTRACT PROJECTS

# DIVISION 01 – DDC STANDARD GENERAL CONDITIONS – SINGLE CONTRACT PROJECTS
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# SECTION 01 10 00
# SUMMARY

## PART I – GENERAL

### 1.1 RELATED DOCUMENTS:

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

B. Addendum to the General Conditions: These General Conditions include and are supplemented by the Addendum to the General Conditions (the "Addendum"). The Addendum includes the following: (1) schedules referred to in these General Conditions, (2) information regarding the applicability of various articles, and (3) amended articles, if any.

### 1.2 SUMMARY:

A. This section includes the following:

1. Scope and Intent
2. Provisions Referenced in the Contract
3. Performance of Work During Non-Regular Work Hours (Pursuant to a Change Order)
4. Interruption of Services at Existing Facilities

### 1.3 DEFINITIONS:

A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.

B. Design Consultant: "Design Consultant" means the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.

### 1.4 SCOPE AND INTENT:

A. Description of Project: Refer to the Addendum for a description of the Project.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 1.4 B**

B. LEED: The City of New York will seek U.S. Green Building Council (USGBC) LEED (Leadership in Energy and Environmental Design) certification for this Project as specified in Section 01 81 13.04 "SUSTAINABLE DESIGN REQUIREMENTS FOR LEED v4 BUILDINGS", and the Addendum to the General Conditions.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 1.4 C**

C. COMMISSIONING: The Project will be commissioned by an independent third party under separate contract with the City of New York. Commissioning must be in accordance with ASHRAE and USGBC LEED-NC procedures, as described in Section 01 91 13 GENERAL COMMISSIONING REQUIREMENTS FOR MEP SYSTEMS, and/ or Section 01 91 15 GENERAL COMMISSIONING REQUIREMENTS FOR BUILDING ENCLOSURE and the Addendum to the General Conditions. The Contractor must cooperate with the commissioning agent and provide whatever assistance is required.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 1.4 D**

D. PROGRESS SCHEDULE: Refer to Section 01 32 16.1 PROGRESS SCHEDULES (METHOD A) or 01 32 16.2 PROGRESS SCHEDULES (METHOD B) or 01 32 16.3 PROGRESS SCHEDULES (METHOD C) and the Addendum to the General Conditions for requirements of the Project.

E. COMPLETION OF WORK: Work to be done under the Contract is comprised of the furnishing of all labor, materials, equipment and other appurtenances, and obtaining all regulatory agency approvals necessary and required to complete the construction work in accordance with the Contract.

F. OMISSION OF DETAILS: All work called for in the Specifications applicable to the Contract but not shown on the Contract Drawings in their present form, or vice versa, is required, and must be performed by the Contractor as though it were originally delineated or described. The cost of such work will be deemed included in the total Contract Price.

G. WORK NOT IN SPECIFICATIONS OR CONTRACT DRAWINGS: Work not particularly specified in the Specifications nor detailed on the Contract Drawings but involved in carrying out their intent or in the complete and proper execution of the Work, is required, and must be performed by the Contractor. The cost of such work will be deemed included in the total Contract Price.

H. SILENCE OF THE SPECIFICATIONS: The apparent silence of the Specifications as to any detail, or the apparent omission from them of a detailed description concerning any work to be done and materials to be furnished, will be regarded as meaning that only the best practice is to prevail and that only the best material and workmanship is to be used and interpretation of the Specifications will be made upon that basis.

I. CONFLICT BETWEEN CONTRACT DRAWINGS AND SPECIFICATIONS: Should any conflict occur in or between the Drawings and Specifications, the Contractor will be deemed to have estimated the most expensive way of doing the Work unless the Contractor asked for and obtained a decision in writing from the Commissioner before the submission of the bid as to what must govern.

## 1.5 CONTRACT DRAWINGS AND SPECIFICATIONS:

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

City of New York
Department of Design and Construction
Division of Public Buildings

B. DOCUMENTS FURNISHED TO THE CONTRACTOR - After the award of the Contract, the Contractor will be furnished with five (5) complete sets of paper prints of all Contract Drawings mentioned in Paragraph A above, as well as a copy of the Specifications.

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

D. SUPPLEMENTARY DRAWINGS - When, in the opinion of the Commissioner, it becomes necessary to more fully explain the work to be done, or to illustrate the work further, or to show any changes which may be required, drawings known as Supplementary Drawings will be prepared by the Commissioner.

E. COMPENSATION - Where Supplementary Drawings entail extra work, compensation therefore to the Contractor will be subject to the terms of the Contract. The Supplementary Drawings will be binding upon the Contractor with the same force as the Contract Drawings.

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

G. COPIES TO SUBCONTRACTORS - The Contractor must furnish each of its Subcontractors and material suppliers such copies of Contract Drawings, Supplementary Drawings, or copies of the Specifications as may be required for its work.

**1.6 COORDINATION:**

A. COORDINATION AND COOPERATION - The Contractor must consult and study the requirements of the Contract Drawings and Specifications for all required work, including all work to be performed by trade Subcontractors, so that the Contractor may become acquainted with the work of the Project as a whole in order to achieve the proper coordination and cooperation necessary for the efficient and timely performance of the work.

B. CONTRACTOR TO CHECK DRAWINGS: - The Contractor must verify all dimensions, quantities and details shown on the Contract Drawings, Schedules, or other data received from the Commissioner, and must notify the Commissioner of all errors, omissions, conflicts and discrepancies found therein. Notice of such errors will be given before the Contractor proceeds with any work. Figures must be used in preference to scale dimensions and large-scale drawings in preference to small-scale drawings.

**1.7 SHOP DRAWINGS AND RECORD DRAWINGS:**

A. Refer to Section 01 33 00 SUBMITTAL PROCEDURES and Section 01 78 39 CONTRACT RECORD DOCUMENTS for requirements applicable to shop drawings and record drawings.

**1.8 TEMPORARY FACILITIES, SERVICES AND CONTROLS:**

A. Refer to Section 01 50 00 TEMPORARY FACILITIES SERVICES AND CONTROLS for the responsibilities of the Contractor.

**1.9 DUST CONTROL:**

A. The Contractor must prepare, execute and manage a “Dust Control Plan” for the prevention of the emission of dust from construction related activities in compliance with 15 RCNY 13-01 et. seq.

**1.10 PROVISIONS REFERENCED IN THE CONTRACT:**

A. SCHEDULE A - Various Articles of the Contract refer to requirements set forth in Schedule A of the General Conditions. Schedule A, which is included in the Addendum, sets forth (1) the referenced Articles of the Contract, and (2) the specific requirements applicable to the Contract.

B. EXTENSION OF TIME - Applications for Extensions of Time, as indicated in Article 13 of the Contract, must be made in accordance with the Rules of the Procurement Policy Board.

C. ULTRA LOW SULFUR DIESEL FUEL AND BEST AVAILABLE TECHNOLOGY REPORTING: The Contractor must submit reports to the Commissioner regarding the use of Ultra Low Sulfur Diesel Fuel in Non-Road Vehicles, and the implementation of Best Available Technology (BAT), as set forth in Article 5.4 of the Contract. Such reports must be submitted in accordance with the schedule, format, directions, and procedures established by the Commissioner.

**1.11 PERFORMANCE OF WORK DURING NON-REGULAR WORK HOURS:**

A. NON-REGULAR WORK HOURS: The Commissioner may issue a change order in accordance with Article 25 of the Contract which, (1) directs the Contractor to perform the Work, or specific components thereof, during other than regular work hours (i.e., evenings, weekends and holidays), and (2) provides compensation to the Contractor for costs in connection with the performance of Work during other than regular work hours. The Commissioner may issue a change order if a delay has occurred and such delay is not the fault of the Contractor, or if the Work is of such an important nature that delay in completing such work would result in serious disadvantage to the public.

B. PROCEDURE: The Contractor must: (1) obtain whatever permits may be required for performance of the Work during other than regular business hours, and (2) pay all necessary fees in connection with such permits. In addition, if directed by the Commissioner, the Contractor must make immediate application to the Commissioner of the Department of Labor, State of New York, for dispensation in accordance with Subdivision 2 of Section 220 of the Labor Law.

**1.12 INTERRUPTION OF SERVICES AT EXISTING FACILITIES:**

A. EVENING AND WEEKEND WORK - Where performance of the Work requires the temporary shutdown(s) of services, such shutdown(s) must be made at night or on weekends or at such times that will cause no interference with the established routines and operations of the facility in question.

1 Where weekend or evening work is required due to unavoidable service shutdowns, such work will be performed at no extra cost to the City. Components of the Work that must be performed during other than regular work hours are indicated in the Drawings and/or the Specifications.

B. INTERRUPTION OF EXISTING FACILITIES:

1 The Contractor must not interrupt any of the services of the facility nor interfere with such services in any way without the permission of the Commissioner. Such interruption or interferences must be made as brief as possible, and only at such time stated.

2 Under no circumstances will the Contractor, its Subcontractors, or its workers, be permitted to use any part of the project as a shop, without the permission of the Commissioner.

3 Unnecessary noise must be avoided at all times and necessary noise must be reduced to a minimum.

4 Toilet facilities, water, and electricity must be operational at all times (i.e. 24/7). No services of the facility can be interrupted in any way without the permission of the Commissioner. Careful coordination of all Work with the Commissioner must be done to maintain the operational level of the Project personnel at the facility.

5 The Contractor must schedule the Work to avoid noise interference that will affect the normal functions of the facility. In particular, construction operations producing noises that are objectionable to the functions of the facility must be scheduled at times of day or night, day of the week, or weekend, which will not interfere with personnel at the facility. Any additional cost resulting from this scheduling will be borne by the Contractor.

6 The Contractor must arrange to work continuously, including evening and weekend hours, if required,

to assure that services will be shut down only during the time actually required to make the necessary connections to the existing facility.

7 The Contractor must give ample written notice in advance to the Commissioner and personnel at the facility of any required shutdown.

**PART II – PRODUCTS (Not Used)**

**PART III – EXECUTION (Not Used)**

**END OF SECTION 01 10 00**

# SECTION 01 21 00.10

# PRICE ADJUSTMENT ALLOWANCE

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SECTION 01 21 00.10**

## 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) City of New York Standard Construction Contract.

### 1.2 SUMMARY

A. This Section includes:

1. Asphalt Price Adjustment

2. Fuel Price Adjustment

3. Steel Price Adjustment

### 1.3 SCOPE AND INTENT

A. This section will provide for additional compensation to the Contractor for increases, or repayment by the Contractor for decreases, in the price of asphalt, fuel, or steel products.

B. Price Adjustments will be made only for eligible work as defined below. With respect to asphalt and steel eligible work items, price adjustment will be paid, if eligible, only after the items have been permanently incorporated into the Work and accepted by the Commissioner. With respect to fuel, price adjustment will be paid, if eligible, only after fuel has been delivered to the Project site.

C. No adjustment will be provided for any extra work paid by fixed price in accordance with the Standard Construction Contract Article 25.3.2 or paid for on a time and material basis per Standard Construction Contract Article 26. Additional quantities of existing Contract pay items at original bid prices will be considered eligible for asphalt, fuel, and steel price adjustments.

D. Temporary work performed by the Contractor at its own expense will not be eligible for price adjustment. Notwithstanding the foregoing, temporary asphalt will be eligible if shown on the Contract Drawings or required to complete the Work and must be approved in advance by the Commissioner.

E. The Contractor, its Subcontractor(s) and/or Materialmen, must, when directed by the Commissioner, provide

any and all Project documents and/or records the Commissioner deems pertinent to his/her determination with respect to the price adjustment. If requested by the Commissioner, the Contractor, its Subcontractor(s) and/or Materialmen, must provide copies of Project documents and/or records.

F. Failure by the Contractor, its Subcontractor(s) and/or Materialmen, to comply strictly with the requirement to provide Project records will constitute a waiver of any claim for additional compensation the Contractor may have in connection with the price adjustment request.

G. Project documents and/or records include, without limitation, Bid and Contract Documents, shop drawings, manufacturing and/or shipping data, as-built drawings, books of account, financial statements, invoices, vouchers, records, daily job diaries and reports.

H. If the Contractor is paid additional compensation in accordance with this Section, the Contractor must pay a properly allocated share of such additional compensation to the applicable Subcontractor(s) and/or Materialmen.

## 1.4 PRICE ADJUSTMENT VALUES

A. The monthly average asphalt prices, monthly average fuel prices, steel cost basis and steel index values will be posted on the NYS Department of Transportation (NYSDOT) website: https://www.dot.ny.gov/main/business-center/contractors/construction-division/fuel-asphalt-steel-price-adjustments

B. Historical index values are available as issued Engineering Bulletins on the NYSDOT website: https://www.dot.ny.gov/eieb

## 1.5 ASPHALT PRICE ADJUSTMENT

A. **Price Changes.** The asphalt price adjustment will be based solely on the price changes for asphalt as determined by the formulas below. No adjustment will be made if the monthly average posted price is within $15.00 of the asphalt index price. No consideration will be given to the situation where the price paid by the Contractor, its Subcontractors, or the Contractor's or Subcontractor's supplier(s) exceeds the monthly average posted price.

B. **Applicability**. The asphalt price adjustment will apply to all permanent asphalt pavement items. The asphalt price adjustment will apply to temporary asphalt pavement if the temporary asphalt is shown on the Contract Drawings or approved in advance by the Commissioner. No price adjustment will be made for tack coat or pothole cold patch.

C. **Prices**. The asphalt index price and the monthly average posted price are defined as follows:

1. Asphalt Index Price. The asphalt index price is a price per ton of binder (also referred to as liquid bitumen or asphaltic cement) used solely as a basis from which to compute asphalt price adjustments. The asphalt index price will be the monthly average posted price for the month and year the bid opening for the Project.

2. Monthly Average Posted Price. The monthly asphalt index prices will be determined by NYSDOT using the methods set forth in NYSDOT Standard Specification Section 698.

D. **Quantity**. The quantity of asphalt in tons considered for adjustment will be determined by the tons of asphalt

actually placed. This will be calculated using the measured volume of asphalt placed, and the asphalt's in-place density, as measured in the field. Quantities of asphalt will be measured to the nearest 0.1 ton.

E. **Adjustment**. Asphalt price adjustment will be based on the following formulas:

1. When price increases: Price Adjustment = (Quantity of Asphalt) x (Monthly Average Posted Price - Asphalt Index Price - $15.00)

2. When price decreases: Price Adjustment = (Quantity of Asphalt) x (Monthly Average Posted Price - Asphalt Index Price + $15.00)

F. **Payment of the Price Adjustment.** The Contractor is required to keep a log of all asphalt incorporated into the Project that is eligible for the price adjustment. The log must keep track of the date when the asphalt was purchased, the quantity of the asphalt, the Asphalt Index Price and the Monthly Average Posted Price, as determined in accordance with 1.5.C.

1. When the adjustment amount, calculated in accordance with 1.5.E, exceeds $10,000.00 for all eligible asphalt incorporated into the Project, the Contractor must submit with its monthly payment requisition, the request for payment of the asphalt price adjustment.

## 1.6 FUEL PRICE ADJUSTMENT

A. **Price Changes**. The fuel price adjustment will be based solely on the price changes for fuel as determined by the formulas below. No adjustment will be made if the monthly average posted price is within $0.10 per gallon of the fuel index price. No consideration will be given to the situation where the price paid by the Contractor, its Subcontractors, or the Contractor's or Subcontractor's supplier(s) exceeds the monthly average posted price.

B. **Applicability**. The intent of the fuel price adjustment is to cover on-site equipment and vehicles only as delineated below.

1. The fuel price adjustment will apply for fuel used in:
   a. Diesel equipment used on site, such as backhoes, excavators, cranes.
   b. Stationary equipment used on site, such as trailer or skid mounted compressors, generators, or light towers.
   c. Gasoline or diesel trucks and vans that are assigned to the site full-time, which may be used for off-site pickups and deliveries.
   d. Equipment used for temporary heating.

2. The fuel price adjustment will not apply to:
   a. On-site gasoline powered hand tools, such as chainsaws, cut-off saws, pressure washers, small generators, etc.
   b. Vehicles (cars, pickup trucks) that are also used for commuting.
   c. Delivery vehicles.
   d. Any equipment at the Contractor's shop, manufacturer's shop, or other off-site facility.

C. **Prices**. The fuel index price and the monthly average posted price are defined as follows:

1. Fuel Index Price. A price per gallon of fuel used solely as a basis from which to compute fuel price adjustments. The fuel index price will be the monthly average posted price for the month of the bid letting.

2. Monthly Average Posted Price. The monthly fuel index prices will be determined by NYSDOT using the methods set forth in NYSDOT Standard Specification Section 698.

D. **Quantity**. The quantity of fuel in gallons considered for adjustment will be determined by invoices for fuel delivered to the Project site. Quantities of fuel will be measured to the nearest 0.01 gallon.

E. **Adjustment**. Fuel price adjustment will be based on the following formulas:

1. When price increases: Price Adjustment = (Quantity of Fuel) x (Monthly Average Posted Price - Fuel Index Price - $0.10)

2. When price decreases: Price Adjustment = (Quantity of Fuel) x (Monthly Average Posted Price - Fuel Index Price + $0.10)

F. **Payment of the Price Adjustment.** The Contractor is required to keep a log of all fuel incorporated into the Project that is eligible for the price adjustment. The log must keep track of the date when the fuel was purchased, the quantity of the fuel, the Fuel Index Price and the Monthly Average Posted Price, as determined in accordance with 1.6.C.

1. When the adjustment amount, calculated in accordance with 1.6.E, exceeds $10,000.00 for all eligible fuel delivered to the Project site, the Contractor must submit with its monthly payment requisition, the request for payment of the fuel price adjustment.

## 1.7 STEEL PRICE ADJUSTMENT

A. **Applicability**. The intent of the steel price adjustment is to cover steel materials as follows. For the purposes of this section, steel includes all steel alloys, stainless steel alloys, iron, and ductile iron.

1. Steel price adjustment will apply to groups of similar material content ("Material Groups") within a specification section (e.g., structural steel shapes under 05 21 00 - STRUCTURAL STEEL FRAMING or reinforcing bars under 03 20 00 - CONCRETE REINFORCING).

2. The steel price adjustment will apply to the following Material Groups:
   a. Structural steel and joists
   b. Reinforcing bars
   c. Steel deck pans
   d. Cold formed steel framing and trusses
   e. Stair stringers and pans
   f. Steel dunnage for equipment
   g. Steel piling
   h. Drainage, water, and electrical piping and tubing
   i. Steel doors
   j. Municipal steel and iron castings (manhole covers, sewer grates, etc.)

3. The steel price adjustment will not apply to the following:
   a. Steel in fabricated elements, such as HVAC chillers or electrical fixtures and boxes
   b. Handrails, access ladders, and other miscellaneous metals
   c. Anchor bolts and fasteners

B. For each Material Group listed, the Contractor must also identify the parties whose relationship establishes the invoice date. If the parties are known, they must be identified by name. If the two parties are not

known, they must be identified by role (Contractor, Subcontractor, Materialman, fabricator, etc.). Different parties may be identified for scopes within a Material Group for the purposes of establishing an invoice date. If the Contractor does not provide a list of materials to which to apply the steel price adjustment, no steel price adjustment will be made.

C. If the percentage change for a given month does not exceed 5% plus or minus, from the benchmark steel index, no adjustments will be made for materials invoiced that month.

D. The percentage change for each material group identified in Article 1.7.A.2 above will be determined using the month that the largest value of materials were invoiced.

E. The weight of the steel must exclude minor appurtenances individually weighing less than 5 lbs (i.e., nuts, bolts, washers, etc.) and non-steel components, such as door insulation or glazing. Precast or prestressed concrete items must have total reinforcing steel weight listed on the approved shop drawings. The following sources must be used, in declining order of precedence, to determine the weight of steel: approved shop drawings; verified shipping documents; Contract Documents; industry standards (i.e., AISC Manual of Steel Construction, AWWA Standards, etc.); and manufacturer's data.

1. **Indexes and Prices**. Adjustments are based on the Producer Price Index (PPI) for Semifinished Steel Mill Products (WPU 101702). PPI values are published by the US Department of Labor, Bureau of Labor Statistics (BLS). Recent PPI values are posted on the NYSDOT website linked above. The Cost Basis, Benchmark Steel Index, Monthly Steel Index, and the Percentage Change are defined as follows:

   a. **Cost Basis (CB).** An average price of steel products in dollars per ton used solely as a cost basis from which to compute steel price adjustments. The cost basis for original Contract bid price items and additional work at the original Contract bid price will be the cost basis listed for the month of the bid letting. The cost basis for additional work at agreed price will be the value of the cost basis for the month the agreed price was submitted to the Commissioner.
   b. **Benchmark Steel Index (BI).** The benchmark steel index for original Contract bid price items and additional work at the original Contract bid price will be the value of the preliminary PPI for the month of the bid letting. The benchmark steel index for additional work at agreed price will be the value of the preliminary PPI for the month the agreed price was submitted to the Commissioner.
   c. **Monthly Steel Index (MI)**. Value of the final PPI for the month the material is invoiced.
   d. **Percent Change**. The percent change in any given month will be determined as follows:

$$Percentage\,Change = \left( \frac{MI - BI}{BI} \right) x\,100$$

F. The quantity of steel for adjustment of each Material Group will be measured to the nearest 0.1 tons.

1. **Percent Change Greater Than +5%**. If the Percentage Change is greater than +5% from the benchmark steel index, Price Adjustments will be made for materials invoiced that month. The Contractor must provide the Commissioner a detailed list of the weight of eligible materials within 60 calendar days after installation, including: the Contract pay item, the weight of steel, the month(s) of invoice, the source used to determine the weight, and if requested by the Commissioner, copies of invoices to verify the month of invoice.

2. **Percent Change -5% to +5%.** If the Percentage Change is between -5% and +5%, inclusive, from the benchmark steel index, no adjustments will be made for materials invoiced that month.

3. **Percent Change Lower Than -5%.** If the Percentage Change is lower than -5% from the benchmark steel index, a Price Adjustment will be charged to the Contractor for materials invoiced that month. The Contractor must provide the Commissioner a detailed list of the weight of eligible materials within 60 calendar days after installation, including: the Contract pay item, the weight of steel, the month(s) of invoice, the source used to determine the weight, and copies of invoices to verify the month of invoice.

G. **Adjustment.** Steel price adjustment will be made for all the materials which the Contractor opted to apply the steel price adjustment, based on the following formulas:

1. When price increases:

$$Price\ Adjustment = \left[\left(\frac{MI - BI}{BI}\right) - 0.05\right](CB)\,Qty$$

2. When price decreases:

$$Price\ Adjustment = -\left[\left(\frac{MI - BI}{BI}\right) + 0.05\right](CB)\,Qty$$

H. **Payment of the Price Adjustment.** Steel Price Adjustment will be paid once during the Project duration for each eligible Material Group after the final PPI is available to set the Monthly Steel Index for the invoice month determined in Article 1.7.D above.

## 1.8 MEASUREMENT AND PAYMENT

A. The fixed sum shown in the Bid Breakdown or Bid Schedule for Price Adjustments Allowance will be considered the price bid for this item. The fixed sum is not to be altered in any manner by the bidder. Should the amount shown be altered, the new figures will be disregarded and the original price will be used to determine the total amount bid for the Contract. The fixed sum payment made under this item will be equal to the sum of payments and credits for price adjustments, as approved by the Commissioner, with no markup for overhead, profit, or other fees allowed. The fixed sum amount is included in the bid solely to ensure that sufficient monies will be available to pay the Contractor for the price escalation adjustment payments as delineated herein, which may be more or less than the fixed sum amount.

## PART II - PRODUCTS (Not Used)

## PART III - EXECUTION (Not Used)

**END OF SECTION 01 21 00.10**

# SECTION 01 21 00.20

# EXPANDED WORK ALLOWANCE

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SECTION 01 21 00.20**

## PART I - GENERAL

### 1.1 PURPOSE

A. The total amount of the Contract will include an allowance ("Expanded Work Allowance" or "EWA") such that, subject to compliance with the terms of this Contract, can be used for the items set forth in sub-section 1.4 below (said items will be referred to as the "Expanded Work Items" and this Specification will be referred to as the "EWA Specification"). Payment for the Expanded Work Items may only be made through the EWA in accordance with this EWA Specification. Except as specifically provided in this EWA Specification, nothing in this Section alters, or will be deemed to alter, the interpretation or application of, the Standard Construction Contract, including but not limited to Articles 21, 24, 25, 26, 28, and 78 thereof.

### 1.2 DEFINITIONS

A. Capitalized terms not otherwise defined in this EWA Specification will have the meaning ascribed to them in the Standard Construction Contract.

### 1.3 PROCESS

A. Except for those provisions specifically applicable to Expanded Work Items, all other provisions of the Contract applicable to Work will be applicable to Expanded Work Items To be eligible for the EWA, all work must be authorized in conformance with this EWA Specification and payment for the Expanded Work Items will not be made without written authorization as set forth in this EWA Specification. This EWA Specification must not be used to make interim payment for work that is being progressed as disputed Work.

B. The EWA may be utilized only under the conditions set forth in this EWA Specification.

C. The Contractor may request that identified Extra Work be subject to the EWA. If the Commissioner determines that use of the EWA is appropriate, in their sole discretion, the Commissioner will prepare a written scope document for the Expanded Work Items for the Contractor's execution ("EWA Scope Memo"). Upon EAO approval, the Commissioner will issue a Notice of Direction ("NOD") to proceed under the EWA Scope Memo. The EWA Scope Memo will set forth the maximum amount payable from the EWA ("Maximum Amount") prior to the issuance of a final cost memorandum, in accordance with this Section. The Maximum Amount may be increased from time to time by the Commissioner, in their sole discretion, except that the Maximum Amount may not exceed 80% of the Commissioner's estimated total cost for such Work (the "Estimated Cost") unless and until a final cost and scope is determined and a final cost memorandum ("Final Cost Memo") is executed in accordance with this Section.

D. Neither the Maximum Amount nor the Estimated Cost will be deemed to be the final cost of the Expanded Work Items. The final cost for the Expanded Work Items will be determined in accordance with Article 26 of the Standard Construction Contract as if the Expanded Work Items were Extra Work. The Contractor must submit its detailed price proposal for the Expanded Work Items, calculated in accordance with the Contract, within the time period set forth in the EWA Scope Memo or within 90 Days after the executed EWA Scope Memo is issued to the Contractor, whichever is sooner ("Submission Period").

E. Once the EWA Scope Memo is executed and the Contractor is issued an NOD to proceed with the Work, DDC will make progress payments for completed work under the EWA Scope Memo, as provided in the Contract, up to the Maximum Amount.

F. DDC will not make any progress payments for the performance of the Expanded Work Items beyond the Submission Period set forth in sub-Section D, above, unless and until a final cost and scope has been determined and a Final Cost Memo executed in accordance with this Section. No amounts above the Maximum Amount will be payable from the EWA, unless and until a final cost and scope has been determined and a Final Cost Memo executed in accordance with this Section. In all events, the Contractor must promptly and diligently comply with the Commissioner's direction and perform all Work required by the Contract and the EWA Scope Memo.

G. Upon receipt of the Contractor's cost detailed proposal, the Commissioner will evaluate the proposal and initiate negotiations, as necessary, to determine the final cost of the Expanded Work Items in accordance with Article 26 of the Standard Construction Contract as if the Expanded Work Items were Extra Work. The Contractor is responsible to furnish time and material records in accordance with Article 28 of the Standard Construction Contract until a Final Cost Memo is executed. If the parties cannot agree on a unit price or fixed price, the Contractor will be paid on the basis of time and material records in accordance with Article 26 the Standard Construction Contract as if the Expanded Work Items were Extra Work, subject to the provisions of Article 28 of the Contract.

H. A Final Cost Memo will be prepared by the Commissioner to be executed by the parties. The total net sum of the amounts added and/or credited under the EWA Scope Memo and payment of the finalized Final Cost Memo constitutes full accord and satisfaction for the costs resulting from the Expanded Work Items. In the event the EWA is insufficient to pay the full amount of the Final Cost Memo, the parties agree to execute change order documents for the remaining funds, subject to registration in accordance with the New York City Charter.

I. Upon EAO approval, the Resident Engineer or Project Manager has the power to execute the Final Cost Memo on behalf of the Commissioner. The description of the work described in the Final Cost Memo shall be considered to be included in the description of the Work as if it were fully set out in the Contract Documents and the Contractor shall perform the Work necessary to complete the Expanded Work Items in the same manner and under the same terms as any other Work described in the Contract Documents.

J. All payments for EWA work will be billed with other Contract Work and paid pursuant to Article 42 of the Standard Construction Contract.

K. No payment will be made for incomplete items included in the EWA Scope Memo and/or the Final Cost Memo.

## 1.4 WORK ELIGIBLE FOR AN EXPANDED WORK ALLOWANCE

A. Only the items set forth below will be eligible for consideration by the Commissioner for payment using the EWA:

1. Non-material changes in the Work necessary to complete Contract Work due to the following:

a. Site conditions that significantly differ from those included in the Contract Documents and that could not have been anticipated by the Contractor (excluding pollution remediation).

b. Overruns of unit price items and quantity increases in accordance with Article 26.

c. NYCDOT traffic stipulations or permit requirements required for the operation of the construction

site that significantly differ from those included in the Contract Documents and that could not have been anticipated by the Contractor.

d. Changes to the sizes of materials or changes to specifications of materials from those provided in the Contract Documents that are approved by the Commissioner.

2. Non-material changes in the scope of Work directed by the Commissioner that result in a net change in the cost to the Contractor for the Work to be performed under this Contract, including, but not limited to, the following:

a. Increased costs of operation and maintenance of the Site due to changed 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 in accordance with Article 78.2 of the Standard Construction Contract.

b. Construction methodology changes issued in writing by the Commissioner.

c. Changes as a result of newly available technology that became available and/or approved for use by the City after the bidding opening was complete.

d. Safety enhancements not regulated or beyond Law.

e. Additional work to address non-regulatory changes in Agency or City policy.

f. The following administrative/regulatory non-material scope changes after Bid submission:

1) Changes to applicable federal, state and local laws, rules, ordinance, regulations, or requirements of the local authority having jurisdiction, including:

a) FDNY regulatory requirements that result in revisions or upgrades to existing standpipes, fire alarm systems, hydrants, pre-combustion gas compressors, or sprinkler systems that are not provided in the Contract Documents.

b) Changes to DOB regulatory requirements.

c) Changes to DEP and NYS DEC regulatory requirements.

d) Additions due to Local Law 94 of 2019 with respect to sustainable roof.

e) Public Design Commission regulatory requirements resulting in change in material/structure to match overall site scheme.

f) Addition of bypasses/shut off valves to avoid interruption of service to adjacent jurisdictions or neighborhoods.

2) Changes due to utility company requests.

## 1.5 WORK NOT ELIGIBLE FOR EWA

A. Items not specifically numerated in sub-section 1.4 are ineligible for EWA.

B. Notwithstanding anything in sub-section 1.4, the following work is not eligible for EWA:

1. Costs related to design errors and/or omissions.

2. Costs related to pollution remediation.

3. Costs associated with the purchase of standalone equipment.

4. Costs for initial outfitting.

## 1.6 BASIS OF PAYMENT

A. Eligible EWA payments will be made under the Allowance section of the PASSPort Item Grid titled “Allowance for Expanded Work.” The Contractor will only be entitled to payment from the EWA under the conditions and in accordance with the requirements set forth in this EWA Specification. In the event the EWA amount or any portion thereof remains unexpended at the conclusion of the Contract, such as amount will remain the sole property of the City.

B. The fixed sum must be considered the price bid for this item. The fixed sum is not to be altered in any manner by the bidder. Should the amount shown be altered, the new figures will be disregarded, and the original price will be used to determine the total amount bid for the contract.

C. The payment(s) made under this item will be equal to the Final Cost Memo prepared by the Commissioner and executed by the parties in accordance with sub-section 1.2(H) above as proof of work performed for this item as approved by the Commissioner.

D. The total estimated cost of this item is the "fixed sum" amount shown for this item and must not be varied in the bid. The "fixed sum" amount is included in the bid solely to ensure that sufficient monies will be available to pay the Contractor for this work, which may be more or less than the fixed sum amount.

E. The price will cover the cost of all labor, materials, equipment, insurance, and incidentals necessary to complete the work under this section in accordance with the Contract Drawings, the specifications, and the directions of the Commissioner.

**PART II – PRODUCTS (Not Used)**

**PART III – EXECUTION (Not Used)**

**END OF SECTION 01 21 00.20**

# SECTION 01 21 00.30

# PROJECT WORK ACCELERATION ALLOWANCE

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SECTION 01 21 00.30**

## 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) City of New York Standard Construction Contract.

### 1.2 SUMMARY

A. This Section includes:

1. Accelerated Project Work

### 1.3 INTENT

A. Under this Allowance, the Contractor will be paid for Work deemed necessary by the City to accelerate the Project work items during periods specified by the City. The use of this item will expire on the scheduled Substantial Completion date for the Project, or within the time to which such Substantial Completion date may be extended by the City.

B. Accelerated Project Work, as described below, will be paid for under this item in accordance with the requirements of Articles 25 and 26 of the City of New York Standard Construction Contract.

C. Payment made under this Allowance will cover the cost of all labor, materials, plant, equipment, insurance, and incidentals necessary to accelerate the Project Work as ordered by the Commissioner.

D. No guarantee is given that this Allowance will in fact be utilized in this Contract. The estimated allowance amount is included in the total bid solely to ensure a method of payment for any accelerated Project Work performed by the Contractor, when directed by the Commissioner.

### 1.4 ACCELERATED PROJECT WORK

A. The Accelerated Project Work Allowance may only be used to achieve a specific goal as directed by the Commissioner, such as reducing delays to the Project's critical path.

B. The Accelerated Project Work Allowance will not be utilized to accelerate the Project Work due to any delays caused by the Contractor. If the Project Work is delayed to Contractor's fault, the Contract must accelerate the Work at the Contractor's sole cost and expense.

C. The Commissioner will initiate all requests for Accelerated Project Work. The request will include the requested goal for the Accelerated Project Work.

1. The Contractor must prepare a Time Impact Analysis per the requirements of the applicable Project Schedules Section (01 32 16.10, 01 32 16.20, or 01 32 16.30) in order to determine the anticipated time savings for a specific use of Accelerated Project Work. The costs required for the Time Impact Analysis must be included in the prices bid for all work and will not be reimbursed under this Allowance.

**PART II – PRODUCTS (Not Used)**

**PART III – EXECUTION (Not Used)**

**END OF SECTION 01 21 00.30**

# SECTION 01 25 00

# SUBSTITUTION PROCEDURES

## PART I GENERAL

### 1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

### 1.2 SUMMARY

A. Section includes administrative and procedural requirements for substitutions.

B. Related Requirements:

1. Section 01 60 00 PRODUCT REQUIREMENTS for requirements for submitting comparable product submittals for products by named or unnamed manufacturers. (i.e., “or approved equal” products)

### 1.3 DEFINITIONS

A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents.

1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
2. Substitutions for Convenience: Changes proposed by Contractor that are not required to meet other Project requirements but may offer advantage to Contractor. Substitutions for Convenience are not permitted.

B. A substitution is not an “or approved equal” or a product, material, equipment, or method of construction that meets the requirements of the Contract Documents. A substitution is a change to the Contract, which, upon approval, will result in a change order.

### 1.4 ACTION SUBMITTALS

A. Substitution Requests: Submit documentation identifying product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Substitution Request Form: Use form acceptable to the Commissioner.
2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

a. Statement indicating why specified product or fabrication or installation method cannot be provided, if applicable.

b. Coordination of information, including a list of changes or revisions needed to other parts of the Work and to construction performed by others that will be necessary to accommodate proposed substitution.
c. Detailed comparison of significant qualities of proposed substitutions with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes, such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
e. Samples, where applicable or requested.
f. Certificates and qualification data, where applicable or requested.
g. List of similar installations for completed projects, with project names and addresses as well as names and addresses of architects and owners.
h. Material test reports from a qualified testing agency, indicating and interpreting test results for compliance with requirements indicated.
i. Research reports evidencing compliance with applicable codes and standards.
j. Detailed comparison of Contractor's construction schedule using proposed substitutions with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
k. Cost information, including a proposal of change, if any, in the Contract Sum.
l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents, except as indicated in substitution request, is compatible with related materials and is appropriate for applications indicated.
m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

3. Commissioner's Action: If necessary, Commissioner will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Commissioner will notify Contractor of acceptance or rejection of proposed substitution within 10 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.

a. Forms of Acceptance: Change Order, Construction Change Directive, or Commissioner's Supplemental Instructions for minor changes in the Work.
b. Use product specified if Commissioner does not issue a decision on use of a proposed substitution within time allocated.

## 1.5 QUALITY ASSURANCE

A. Compatibility of Substitutions: The Contractor must investigate and document compatibility of proposed substitution with related products and materials. The Contractor must engage a qualified testing agency to perform compatibility tests recommended by manufacturers or the Commissioner. These investigations, documentation, and testing will be at the Contractor’s sole expense.

## 1.6 PROCEDURES

A. Change Orders: A substitution is a Contractor-initiated change order request. Before a substitution can be implemented, it must pass through two approval processes: substitution approval per Article 1.7 below, and change order approval. If the substitution receives approval, as part of the change order process, the Contractor may request that the Commissioner consider granting advanced authorization.

B. Coordination during preparation of substitution: The Contractor, when developing a substitution, must address the designer's objectives, environmental permit requirements and regulations, commitments made to the public to mitigate the impact of construction, and other such concerns.

C. Coordination during execution of substitution: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

D. Conditions: The Contractor must not base any bid process on the anticipated approval of a substitution and should recognize that any substitution may be rejected. The following terms and conditions apply to a substitution:

1. A substitution will only be considered after the contract is awarded.

2. A substitution applies only to the contract for which it was submitted. One substitution must not be submitted for multiple contracts. Approval or disapproval of a substitution on one contract does not guarantee approval or disapproval on another contract.

3. The substitution request becomes the property of the City and will contain no restrictions imposed by the Contractor on its use or disclosure. The City will have the right to use, duplicate, and disclose in whole or in part any data necessary for the utilization of the substitution. The City retains the right to utilize any accepted or rejected substitution or part thereof on any other project without any obligation to the Contractor.

4. When the Commissioner is in the process of making design and specification revisions and a Contractor submits a substitution with similar revisions, the Commissioner will reject the substitution.

5. A substitution will be considered only if reasonable, cost-effective options are not provided in the Contract Documents.

6. The Commissioner will be the sole judge as to whether a substitution qualifies for consideration and evaluation. The Commissioner may reject any substitution that requires excessive time or costs for design review, evaluation, and/or investigations. The Commissioner will be the sole judge in determining if the proposed substitution will result in a sufficient amount of direct or indirect cost savings to offset the City's effort to review the substitution.

7. A substitution must be consistent with DDC's design policies and basic design criteria, provide the same service life or more, facilitate economy of operations, ease of maintenance, and achieve the desired appearance and safety.

8. The simple elimination of work does not necessarily constitute a substitution, however, a substitution which introduces a simple material substitution, or elimination of work, may be considered if it is accompanied by a design change or change in the construction method. A simple material substitution which introduces a new material to DDC may be also considered.

9. The substitution must not be experimental in nature but will have been proven to the Commissioner's satisfaction under similar or acceptable conditions on another City contract or at another location acceptable to the Commissioner.

10. If the Commissioner requires any additional information to evaluate the substitution, this information must be provided in a timely manner. Unless otherwise mutually agreed upon, failure to do so will result in the rejection of the substitution. An incomplete or a poor-quality substitution which hinders the Commissioner's review may also result in the rejection of the substitution.

11. The Contractor must allow submissions of substitution from an approved Subcontractor, provided that reimbursement is made by the City to the Contractor and that the terms of payment to the Subcontractor are satisfactorily negotiated and accepted before the substitution is submitted to the Commissioner. Subcontractors may not submit a substitution except through the Contractor.

12. A substitution approved by the Commissioner will be a revision to the Contract Documents and progress schedule. Consequently, if unsatisfactory results are being achieved or adjustments are necessary during implementation of a substitution, the rejection of work, removal of work, addition of work, or revision of work must be evaluated in accordance with the Contract requirements.

13. No work related to a substitution will be performed under allowance items. Agreed prices must be reached for the substitution before the substitution is approved. If the Contractor is deemed to have taken reasonable diligence in determining the work involved but if during the construction of substitution work a significant change in the character of work occurs, the Commissioner may consider new agreed prices.

14. The Contractor will receive written notification from the Commissioner when the substitution is approved. Material orders placed prior to substitution approval are placed at the Contractor's risk.

15. Once a substitution has been approved, the substitution will then be submitted as a change order and processed accordingly. The Contractor is responsible for submitting all appropriate information to the Commissioner in a timely manner.

## 1.7 SUBSTITUTIONS

A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 30 days prior to time required for preparation and review of related submittals.

1. Conditions: Commissioner will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Commissioner will return requests without action, except to record noncompliance with these requirements:

   a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
   b. Substitution request is fully documented and properly submitted.
   c. Requested substitution will not adversely affect Contractor's construction schedule.
   d. Requested substitution has received necessary approvals of authorities having jurisdiction.
   e. Requested substitution is compatible with other portions of the Work.
   f. Requested substitution has been coordinated with other portions of the Work.
   g. Requested substitution provides specified warranty.
   h. If requested substitution involves more than one Subcontractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all Subcontractors involved.

B. Substitutions for Convenience: Not allowed.

**PART II – PRODUCTS (Not Used)**

**PART III - EXECUTION (Not Used)**

**END OF SECTION 01 25 00**

# SECTION 01 29 00

# PAYMENT PROCEDURES

## PART I - GENERAL

### 1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract]

### 1.2 SUMMARY

A. Section includes administrative and procedural requirements necessary to prepare and process payment requisitions.

B. Related Requirements:

1. Sections 01 32 16.10, 01 32 16.20, or 01 32 16.30 PROJECT SCHEDULES (METHOD A/B/C) for administrative requirements governing the preparation and submittal of the Contractor's construction schedule.

### 1.3 DEFINITIONS

A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's payment requisitions. The Schedule of Values serves as the Bid Breakdown on Lump Sum per Article 41 of the Standard Construction Contract.

### 1.4 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's construction schedule per Sections 01 32 16.10, 01 32 16.20, or 01 32 16.30. If Section 01 32 16.30 is used and the Contractor’s Critical Path Method Schedule is cost loaded, it will serve as the Schedule of Values.

1. Coordinate line items in the Schedule of Values with items required to be indicated as separate activities in Contractor's construction schedule.
2. Submit the Schedule of Values to the Commissioner at earliest possible date and as required in Standard Construction Contract Article 41.1.

B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.

1. Arrange Schedule of Values consistent with format provided by the Commissioner.

2. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of payment request and progress reports. Provide multiple line items for principal subcontract amounts in excess of five percent of the Contract Sum.

3. Allowances and Unit Prices: Provide a separate line item in the Schedule of Values for each allowance and unit price item. Show line-item value of unit price items, as a product of the unit cost, multiplied by measured quantity.

4. Overhead Costs, Separate Line Items: Show cost of temporary facilities and other major cost items that are not direct cost of actual work-in-place, as separate line items.

5. Schedule of Values Revisions: Revise the Schedule of Values when Change Orders result in a change in the lump sum price. Include at least one separate line item for each Change Order.

## 1.5 PAYMENT REQUISITIONS

A. Each payment requisition following the initial mobilization payment requisition must be consistent with the previous requisitions and payments, as certified by the Commissioner. Each partial payment requisition must comply with the requirement of Article 42 of the Standard Construction Contract.

B. Payment Requisition Times: The Contractor must submit the payment requisition to the Commissioner by the end of the month following the payment period (“Due Date”). The period covered by each payment requisition is one month, ending on the last day of the month, unless a longer payment period is approved by the Commissioner.

1. The Contractor must submit a draft copy of the payment requisition seven days prior to Due Date for review by Commissioner.

C. Payment Requisition Forms: Use forms provided by the Commissioner as form for payment requisitions.

D. Payment Requisition Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Commissioner will return incomplete payment requisitions without action.

1. Entries shall match data on the Schedule of Values and Contractor's construction schedule. Use updated schedules if revisions were made.
2. Include amounts for work completed following previous payment requisition, whether or not payment has been received. Include only amounts for work completed at time of payment requisition.
3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by requisition.

E. PARTIAL PAYMENTS FOR MATERIALS IN ADVANCE OF THEIR INCORPORATION IN THE WORK PURSUANT TO ARTICLE 42 OF THE CONTRACT – In order to better ensure the availability of materials, fixtures and equipment when needed for the work, the Commissioner may authorize partial payment for certain materials, fixtures and equipment, prior to their incorporation in the work, but only in strict accordance with, and subject to, all the terms and conditions set forth in the Specifications, unless an alternate method of payment is elsewhere provided in the Specifications for specified materials, fixtures or equipment.

1. The Contractor must submit to the Commissioner a written request, in quadruplicate, for payment for materials purchased or to be purchased for which the Contractor needs to be paid prior to their actual

incorporation in the work. The request must be accompanied by a schedule of the types and quantities of materials, and must state whether such materials are to be stored on or off the site.

2. Where the materials are to be stored off the site, they must be stored at a place within the continental United States other than the Contractor's premises (except with the written consent of the Commissioner) and under the conditions prescribed or approved by the Commissioner. The Contractor must set apart and separately store at the place or places of storage all materials and must clearly mark same "PROPERTY OF THE CITY OF NEW YORK", and further, must not at any time move any of said materials to another off-site place of storage without the prior written consent of the Commissioner. Materials may be removed from their place of storage off the site for incorporation in the work upon approval of the Commissioner.

3. Where the materials are to be stored at the site, they must be stored at such locations as will be designated by the Commissioner and only in such quantities as, in the opinion of the Commissioner, will not interfere with the proper performance of the Work by the Contractor or by other Subcontractors then engaged in performing work on the site. Such materials must not be removed from their place of storage on the site except for incorporation in the Work, without the approval of the Commissioner.

4. INSURANCE

   a. STORAGE OFF-SITE – Where the materials are stored off the site and until such time as they are incorporated in the Work, the Contractor must fully insure such materials against any and all risks of destruction, damage or loss including but not limited to fire, theft, and any other casualty or happening. The policy of insurance must be payable to the City of New York. It must be in such terms and amounts as must be approved by the Commissioner and must be placed with a company duly licensed to do business in the State of New York. The Contractor must deliver the original and one (1) copy of such policy or policies marked "Fully Paid" to the Commissioner.

   b. STORAGE ON THE SITE – Where the materials are stored at the site, the Contractor must furnish satisfactory evidence to the Commissioner that they are properly insured against loss, by endorsements or otherwise, under the policy or policies of insurance obtained by the Contractor to cover losses to materials owned or installed by the Contractor. The policy of insurance must cover fire and extended coverage against windstorm, hail, explosion and riot attending a strike, civil commotion, aircraft, vehicles and smoke.

5. All costs, charges and expenses arising out of the storage of such materials, must be paid by the Contractor and the City hereby reserves the right to retain out of any partial or final payment made under the Contract an amount sufficient to cover such costs, charges and expenses with the understanding that the City will have and may exercise any and all other remedies at law for the recovery of such cost, charges and expenses. There will be no increase in the Contract price for such costs, charges and expenses and the Contractor must not make any claim or demand for compensation therefore.

6. The Contractor must pay any and all costs of handling and delivery of materials, to the place of storage and from the place of storage to the site of the Work; and the City will have the right to retain from any partial or final payment an amount sufficient to cover the cost of such handling and delivery.

7. In the event that the whole or any part of these materials are lost, damaged, or destroyed in advance of their satisfactory incorporation in the work, the Contractor, at the Contractor's own cost, must replace such lost, damaged or destroyed materials of the same character and quality. The City will

reimburse the Contractor for the cost of the replaced materials to the extent, and only to the extent, of the funds actually received by the City under the policies of insurance hereinbefore referred to. Until such time as the materials are replaced, the City will deduct from the value of the stored materials or from any other money due under the Contract, the amount paid to the Contractor for such lost, damaged or destroyed materials.

8. Should any of the materials paid for the City hereunder be subsequently rejected or incorporated in the work in a manner or by a method not in accordance with the Contract Documents, the Contractor must remove and replace, at Contractor's own cost, such defective or improperly incorporated material with materials complying with the Contract Documents. Until such materials are replaced, the City will deduct from the value of the stored materials or from any other money due to the Contractor, the amount paid by the City for such rejected or improperly incorporated materials.

9. Payments for the cost of materials made hereunder will not be deemed to be an acceptance of such materials as being in accordance with the Contract Documents, and the Contractor always retains and must comply with the Contractor's duty to deliver to the site and properly incorporate in the work only materials which comply with the Contract Documents.

10. The Contractor must retain any and all risks in connection with the damage, destruction, or loss of the materials paid for hereunder to the time of delivery of the same to the site of the Work and their proper incorporation in the work in accordance with the Contract Documents.

11. The Contractor must comply with all laws and the regulations of any governmental body or agency pertaining to the priority purchase, allocation, and use of the materials.

12. When requesting payment for such materials, the Contractor must submit with the partial estimate duly authenticated documents of title, such as bills of sale, invoices or warehouse receipts, all in quadruplicate. The executed bills of sale must transfer title to the materials from the Contractor to the City. (In the event that the invoices state that the material has been purchased by a Subcontractor, bills of sale in quadruplicate will also be required transferring title to the materials from Subcontractor to the Contractor).

13. Where the Contractor, with the approval of the Commissioner, has purchased unusually large quantities of materials in order to assure their availability for the work, the Commissioner, at the Commissioner's option, may waive the requirements of Paragraph 12 provided the Contractor furnishes evidence in the form of an affidavit from the Contractor in quadruplicate, and such other proof as the Commissioner may require, that the Contractor is the sole owner of such materials and has purchased them free and clear of all liens and other encumbrances. In such event, the Contractor will pay for such materials and submit proof thereof, in the same manner as provided in Paragraph 12 hereof, within seven (7) days after receipt of payment therefore from the Comptroller. Failure on the part of the Contractor to submit satisfactory evidence that all such materials have been paid for in full, will preclude the Contractor from payments under the Contract.

14. The Contractor must include in each succeeding partial estimate requisition a summary of materials stored which must set forth the quantity and value of materials in storage, on or off the site, at the end of each preceding estimate period; the amount removed for incorporation in the Work; the quantity and value of materials delivered during the current period and the total value of materials on hand for which payment thereof will be included in the current payment estimate.

15. Upon proof to the satisfaction of the Commissioner of the actual cost of such materials and upon submission of proper proof of title as required under Paragraph 12 or Paragraph 13 hereof, payment will be made therefore to the extent of 85%, provided however, that the cost so verified, established

and approved must not exceed the estimated cost of such materials included in the approved detailed breakdown estimate submitted in accordance with Article 41 of the Contract; if it does, the City will pay only 85% approved estimated cost.

16. Upon the incorporation in the Work of any such materials, which have been paid for in advance of such incorporation in accordance with the foregoing provisions, payment will be made for such materials incorporated in the Work pursuant to Article 42 of the Contract, less any sums paid pursuant to Paragraph 15 herein.

F. Transmittal: Submit one signed and notarized electronic PDF copy of each payment requisition to **Commissioner** by email or as directed.

1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.

G. MOBILIZATION PAYMENT – A line item for mobilization must be allowed on the Contractor's Detailed Bid Breakdown submitted in accordance with Article 41 of the Contract. The Mobilization Payments are intended to include the cost of required bonds, insurance coverage, and/or any other expenses required for the initiation of the Contract Work. All costs for mobilization will be deemed included in the total Contract Price. The Detailed Bid Breakdown must reflect, and the Mobilization Payment will be made, in accordance with the following schedule:

| Contract Bid Amount | Initial Mobilization Payment | Remaining Mobilization Payment | Total Mobilization Payment (Initial Mobilization Payment + Remaining Mobilization Payment) |
|---|---|---|---|
| $0 - $10,000,000 | 1% of contract bid amount | 7% of contract bid amount | 8% of contract amount |
| $10,000,001 - $50,000,000 | 1% of contract bid amount | 7% on the first $10,000,000 plus 3% of the contract bid amount greater than $10,000,000 | 8% on the first $10,000,000 plus 4% of contract amount greater than $10,000,000 |
| Over $50,000,000 | $500,000 | $1,900,000 | $2,400,000 |

1. Upon issuance of the Notice to Proceed, the Contractor may requisition for the Initial Mobilization Payment upon submission and approval of all required insurance certificates and bonds.

2. The Contractor may requisition for the Remaining Mobilization Payment upon satisfactory completion of the following items:

a. DDC approval of the Detailed Bid Breakdown per Article 41 of the Contract;

b. Selection and DDC approval of any required field office location(s);

c. Submission of all required insurance certificates and bond;

d. Approval of the Site Safety Plan per the Safety Requirements Section of the Information for Bidders;

e. Approval of the Progress Schedule;

f. Approval of the Schedule Submittal; and,

g. Submission of the Pre-Construction Photographs.

3. The Contractor will not be entitled to a Mobilization Payment that exceeds the Total Mobilization Payment specified in the chart above for the applicable Contract Bid Amount.

H. PAYMENT OF ALLOWANCES:

1. Unless otherwise called for in the Specifications, the following requirements apply to the payment and execution of Allowances established in the Contract:

a. Allowances are to be utilized when ordered and authorized in writing by the Commissioner.

b. The Contractor will be paid on a time and materials (T&M) basis under the Allowance, in accordance with the requirements of Standard Construction Contract Article 26.

I. Payment Requisition at Substantial Completion: Request for Substantial Completion Payment must be submitted in accordance with Article 44 of the Contract.

1. After Commissioner issues the Certificate of Substantial Completion, submit a payment requisition for Substantial Completion payment in compliance with Article 44 of the Contract.

2. Include documentation supporting that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.

a. Complete administrative actions, submittals, and Work for Substantial Completion, as described in Section 01 77 00 CLOSEOUT PROCEDURES.

3. This payment requisition must reflect any Occupation or Use Prior to Completion per Article 16 of the Standard Construction Contract.

J. Final Payment Application: After completing Project closeout requirements, submit a payment requisition for Final Acceptance payment in compliance with Article 45 of the Contract.

## 1.6 PAYMENTS TO M/WBE SUBCONTRACTORS

A. The Department of Design and Construction (“DDC”) is committed to supporting the growth and success of Minority and Women-owned Business Enterprises (“M/WBE”). In furtherance of this goal, DDC complies with NYC Administrative Code section 6-129, as amended. In order to support the growth and success of M/WBEs on all DDC projects, it is important that M/WBE vendors that are sub-contractors (any tiers) are treated fairly at all times and that their payment requisitions / invoices are handled in accordance with the City’s Standard Construction Contract. Pursuant to the Standard Construction Contract, prime contractors are required to pay Subcontractors within thirty (30) days of receipt of such funds from DDC. Failure to comply with the Standard Construction Contract and the goals established by DDC as it applies to M/WBEs, may result in financial sanctions and negative performance evaluations, which will be taken into consideration on future procurements.

**PART II - PRODUCTS (Not Used)**

**PART III - EXECUTION (Not Used)**

**END OF SECTION 01 29 00**

# SECTION 01 31 00
# PROJECT MANAGEMENT AND COORDINATION

## PART I – GENERAL

### 1.1 RELATED DOCUMENTS:

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

B. LEED: Refer to the Addendum to identify whether this Project is designed to comply with a Certification Level according to the U.S. Green Building Council's Leadership in Energy & Environmental Design (LEED) Rating System, as specified in Section 01 81 13.04 SUSTAINABLE DESIGN REQUIREMENTS FOR LEED v4 BUILDINGS.

C. COMMISSIONING: Refer to the Addendum to identify whether this Project will be commissioned by an independent third party under separate contract with the City of New York (City). Commissioning will be in accordance with ASHRAE and USGBC LEED-NC procedures, as described in Section 01 91 13, GENERAL COMMISSIONING REQUIREMENTS FOR MEP SYSTEMS, and/ or Section 01 91 15 GENERAL COMMISSIONING REQUIREMENTS FOR BUILDING ENCLOSURE COMMISSIONING. The Contractor must cooperate with the commissioning agent and provide whatever assistance is required.

### 1.2 SUMMARY:

A. This Section includes administrative provisions for coordinating construction operations on the Project, including:

1. Coordination Drawings
2. Administrative and supervisory personnel
3. Project meetings
4. Requests for Interpretation (RFIs)

B. This Section includes the following:

1. Definitions
2. Coordination
3. Submittals
4. Project Meetings
5. Requests for Interpretation (RFI’s)
6. Correspondence
7. Contractor’s Daily Reports

C. Related Sections:

1. Section 01 10 00 SUMMARY
2. Section 01 32 00 CONSTRUCTION PROGRESS DOCUMENTATION
3. Section 01 33 00 SUBMITTALS
4. Section 01 35 26 SAFETY REQUIREMENTS
5. Section 01 73 00 EXECUTION REQUIREMENTS
6. Section 01 74 19 CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL
7. Section 01 77 00 CLOSEOUT PROCEDURES

**1.3 DEFINITIONS:**

A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.

B. Design Consultant: “Design Consultant” must mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the “Design Consultant” may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.

**1.4 COORDINATION:**

A. Coordination: The Contractor must coordinate its construction operations, including those of its Subcontractors, with other entities to ensure the efficient and orderly installation of each part of the Work. The Contractor must coordinate the various operations required by different Sections of the Specifications that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence in order to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
2. Coordinate installation of different components to ensure maximum access for required maintenance, service, and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.
4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and access for required maintenance, service, and repair of all components, including mechanical and electrical.

B. The Contractor must prepare memoranda for distribution to its Subcontractors and other involved entities, outlining special procedures required for coordination. Such memoranda must include required notices, reports, and meeting minutes as applicable.

C. Administrative Procedures: The Contractor must coordinate scheduling and timing of required administrative procedures with other construction activities and activities of its Subcontractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include without limitation the following:

1. Preparation of Contractor's Construction Schedule.
2. Installation and removal of temporary facilities and controls.
3. Delivery and processing of submittals.
4. Progress meetings.
5. Pre-installation conferences.
6. Startup and adjustment of systems.
7. Project closeout activities.

D. Conservation: The Contractor must coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.

E. Salvaged Items, Material and/or Equipment: The Specifications may identify certain items, materials or equipment which must be salvaged by the Contractor and handled or disposed of as directed. The Contractor must comply with all directions in the Specifications regarding the salvaging and handling of identified items, material or equipment.

F. Software: The Contractor may be required by the Commissioner to utilize a designated cloud-based Construction Management Tool to streamline and manage activities, including but not limited to the following:
   1. Submittals;
   2. Drawings, Specifications, and Bulletins;
   3. RFI's;
   4. Progress Photographs;
   5. Letters and Correspondence;
   6. Punchlists and Closeout Management;
   7. Daily Logs;
   8. Meetings and Minutes; and/or,
   9. Change Order log memos.

**1.5 SUBMITTALS:**

A. Submit shop drawings, product data, samples etc., in compliance with Section 01 33 00 SUBMITTAL PROCEDURES.

B. Coordination Drawings: The Contractor must prepare applicable Coordination Drawings in compliance with the requirements for Coordination Drawings in Section 01 33 00 SUBMITTAL PROCEDURES.

C. Safety Plan in compliance with Section 01 35 26 SAFETY REQUIREMENTS PROCEDURES.

D. Waste Management Plan in compliance with Section 01 74 19 CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

E. Key Personnel Names: Within fifteen (15) Days after the Notice to Proceed (NTP), the Contractor must submit a list of key personnel assignments of the Contractor and its Subcontractors, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home and office telephone numbers. Provide names, addresses, and telephone numbers of individuals assigned as standbys in case of the absence of individuals assigned to Project.

   1. Post copies of the list in Project meeting room, in temporary field office, and by each temporary telephone. Keep the list current at all times.

   2. In addition to Project superintendent, provide other administrative and supervisory personnel as required for proper performance of the Work. Include special personnel required for coordinating all operations by its Subcontractors.

**1.6 PROJECT MEETINGS:**

A. General: The Commissioner will hold regularly scheduled construction progress meetings at the site, at which time the Contractor and appropriate Subcontractors must have their representatives present to discuss all details relative to the execution of the work. The Commissioner will preside over these meetings.

   1. Agenda: Prior to each meeting, the Commissioner 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 Commissioner 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 Commissioner, the Contractor must hold regularly scheduled meetings for the purpose of coordinating, expediting and scheduling the work in accordance with the master coordinated Job Progress Chart. The Contractor and its Subcontractors, material suppliers or vendors whose presence is necessary, are required

to attend. These meetings may, at the discretion of the Contractor, be held at the same place and immediately following the Project meetings held by the Commissioner. Minutes of these meetings must be recorded, typed and printed by the Contractor and distributed to all parties concerned.

B. Preconstruction Kick-Off Meeting:

1. The Commissioner will schedule a preconstruction kick-off meeting either at DDC's main office or at the Project site to review responsibilities and personnel assignments and clarify the role of each participant. Unless otherwise directed, the Design Consultant will record and distribute meeting minutes.
2. Attendees: Authorized representative of the Sponsor Agency; Design Consultant; the Contractor and its superintendents, Subcontractor(s) and their superintendent(s); LEED sub-consultant and Commissioning Authority /Agent (CxA) as applicable and other concerned parties. All participants at the meeting must be familiar with the Project and authorized to conclude matters relating to the Contract Work.
3. Agenda: Includes without limitation the following as applicable:
   a. Establishing construction schedule;
   b. Schedule for regular construction meetings;
   c. Phasing;
   d. Critical Work sequencing and long-lead items;
   e. Designation of key personnel and their duties;
   f. Reviewing application for payment and change order procedures;
   g. Procedures for RFIs;
   h. Review permits and approval requirements;
   i. Review all recent administrative code reporting requirements relating to the Project, (i.e. LL 77, LL86 etc.);
   j. Procedures for testing and inspecting;
   k. Reviewing special conditions at the Project site;
   l. Distribution of the Contract Documents;
   m. Submittal procedures;
   n. Safety procedures;
   o. LEED requirements;
   p. Commissioning requirements;
   q. Preparation of record documents;
   r. Historic Treatment requirements;
   s. Use of the premises;
   t. Work restrictions;
   u. Sponsor Agency occupancy requirements;
   v. Responsibility for temporary facilities, services, and controls;
   w. Construction Waste Management and Disposal;
   x. Indoor Air Quality Management Plan;
   y. Dust Mitigation Plan;
   z. Office, work, and storage areas;
   aa. Equipment deliveries and priorities;
   bb. Security;

cc. Progress cleaning; and,
dd. Working hours;

C. Construction Progress Meetings:
1. The Commissioner will schedule and conduct construction progress meetings at bi-weekly intervals or as otherwise determined. All participants at the meeting must be familiar with the Project and authorized to conclude matters relating to the Work. Unless otherwise directed, the Design Consultant will record and distribute meeting minutes.
2. Attendees:
a. Design Consultant and applicable sub-consultants;
b. Sponsor Agency Representative;
c. Representatives from the Contractor, sub-contractor(s), suppliers or other entities involved in the current progress, planning, coordination or future activities of the Work; and,
d. Other appropriate DDC personnel, DDC consultants and concerned parties.
3. Agenda: Includes without limitation the following:
a. Review the Construction Schedule and progress of the Work. Determine if the Work is on time, ahead of schedule or behind schedule. Determine actions to be taken to maintain or accelerate the schedule;
b. Review and approve prior meeting minutes and follow up open issues;
c. Coordinate work between each Subcontractor;
d. Sequence of Operations;
e. Status of submittals, deliveries, and off-site fabrication;
f. Status of inspections and approvals by governing agencies;
g. Temporary facilities and controls;
h. Review Site Safety;
i. Quality and work standards;
j. Field observations;
k. Status of correction of deficient items;
l. RFI’s;
m. Pending changes;
n. Status of outstanding payments and change orders;
o. LEED requirements including Construction Waste Management, Indoor Air Quality Plan, Dust Mitigation and Commissioning; and,
p. Status of Administrative Code reporting requirements related to the Project.

D. Preinstallation Conferences:
1. The Contractor will conduct a preinstallation conference at project site before each construction activity when required by other specification Sections and when required for coordination with other construction.
2. Attendees:
a. Contractor and its superintendents
b. Applicable Subcontractor(s)
c. Representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will

follow.

3. Advise the Commissioner of scheduled preinstallation conference meeting dates.
4. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
   a. Contract Documents
   b. Related RFI's
   c. Deliveries
   d. Submittals
   e. Review of mockups
   f. Possible conflicts
   g. Compatibility requirements
   h. Time schedules
   i. Weather limitations
   j. Manufacturer's written instructions
   k. Warranty requirements
   l. Compatibility of materials
   m. Acceptability of substrates
   n. Temporary facilities and controls
   o. Space and access limitations
   p. Testing and inspecting requirements
   q. Installation procedures
   r. Coordination with other work
   s. Required performance results
   t. Protection of adjacent work

**1.7 REQUESTS FOR INFORMATION (RFI):**

A. Procedure: Immediately on discovery of the need for information or interpretation of the Contract Documents, and if not possible to request interpretation at Project meeting, the Contractor must prepare and submit an RFI in the form specified by the Commissioner.

1. RFI must originate with the Contractor. RFIs submitted by entities other than Contractor will be returned with no response.
2. Coordinate and submit RFI in a prompt manner to the Commissioner so as to avoid delays in Contractor's Work or Work of its Subcontractors.
3. RFI Log: The Contractor must prepare, maintain, and submit a tabular log of RFIs organized by the RFI number monthly to the Commissioner, or more frequently if directed by the Commissioner.
4. On receipt of responses and action to the RFI, the Contractor must update the RFI log and immediately distribute the RFI response to affected parties. Review response(s) and notify the Commissioner immediately if the Contractor disagrees with response(s).

**1.8 CORRESPONDENCE:**

A. Copies of all correspondence to DDC must be sent directly to the Commissioner at the job site.

**1.9 CONTRACTOR'S DAILY REPORTS:**

A. The Contractor must prepare and submit Daily Construction Progress Reports as outlined in Section 01 32 00 CONSTRUCTION PROGRESS DOCUMENTATION.

**PART II – PRODUCTS (Not Used)**

**PART III – EXECUTION (Not Used)**

**END OF SECTION 01 31 00**

# SECTION 01 32 00
# CONSTRUCTION PROGRESS DOCUMENTATION

## PART I – GENERAL

### 1.1 RELATED DOCUMENTS:

A. The following documents apply to all required Work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

### 1.2 SUMMARY

A. This Section includes administrative and procedural requirements for establishing an effective base line schedule for the Project and documenting the progress of construction during performance of the Work by developing and revising as necessary, various documents including but not limited to the following:
   1. Submittals schedule
   2. Daily construction reports
   3. Material location reports
   4. Field condition reports
   5. Special reports

B. RELATED SECTIONS:

| | | |
|---|---|---|
| 1. | Section 01 10 00 | SUMMARY |
| 2. | Section 01 32 22 | PHOTOGRAPHIC DOCUMENTATION |
| 3. | Section 01 32 16.10 | PROJECT SCHEDULES (METHOD A) |
| 4. | Section 01 32 16.20 | PROJECT SCHEDULES (METHOD B) |
| 5. | Section 01 32 16.30 | PROJECT SCHEDULES (METHOD C) |
| 6. | Section 01 33 00 | SUBMITTAL PROCEDURES |
| 7. | Section 01 40 00 | QUALITY REQUIREMENTS |

### 1.3 DEFINITIONS:

A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.

B. Design Consultant: “Design Consultant” must mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the “Design Consultant” may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.

**PART II – PRODUCTS**

**2.1 SUBMITTALS SCHEDULE:**

A. Preparation: The Contractor must submit a schedule of submittals, arranged in chronological order by dates required by the construction schedule. Include time required for review, re-submittal, ordering, manufacturing, fabrication, and delivery when establishing dates. The Submittals Schedule must show all of the following types of submittals:

1. Shop and Coordination Drawings
2. Material Samples
3. Catalog Cuts
4. Test and Evaluation Reports
5. Field Test Reports
6. Sample Warranties
7. Certificates
8. Qualification Data
9. Closeout Submittals

B. Submittals: At the kick-off meeting, the Contractor must have a preliminary Submittals Schedule, and must review this Schedule with the Commissioner. Within ten (10) Days after the kick-off meeting, the Contractor must complete the Submittals Schedule, including all submission dates, required delivery dates, and fabrication times. The Contractor must include an updated Submittals Schedule with all Progress Payment applications.

C. Review: The Commissioner will review the Submittals Schedule submitted by the Contractor. Upon acceptance, the Commissioner will date and sign the schedule as approved and transmit it to the Design Consultant, Contractor, and others within DDC as the Commissioner deems appropriate. If so directed by the Commissioner, the Contractor must revise the Submittals Schedule to indicate a submission date for specified shop drawings and/or material samples within sixty (60) Days after the kick-off meeting. The Contractor must resubmit the Submittals Schedule as necessary to include all review comments.

**2.2 REPORTS:**

A. Daily Construction Reports: The Contractor must submit to the Commissioner written Daily Construction Reports at the end of each day that work was performed, recording basic information such as the date, day, weather conditions, and contract days passed, remaining contract duration/days and the following information concerning the Project.

Information: The reports must be prepared by the Contractor's Superintendent and must bear the Contractor's Superintendent's signature. Each report must contain the following information:

1. List name of Contractor, Subcontractors, their work force in each category, and details of activities performed;
2. The type of materials and/or major equipment being installed by the Contractor and/or by each Subcontractor;
3. The major construction equipment being used by the Contractor and/or Subcontractors;
4. Material and Equipment deliveries;
5. High and low temperatures and general weather conditions;
6. Accidents;
7. Meetings and significant decisions;
8. Unusual events;
9. Stoppages, delays, shortages, and losses;
10. Meter readings and similar recordings;
11. Emergency procedures;

12. Orders and/or requests of authorities having jurisdiction;
13. Approved Change Orders received and implemented;
14. Field Orders and Directives received and implemented;
15. Services connected and disconnected;
16. Equipment or system tests and startups;
17. Digital photographs (cell phone quality, 5 megapixel minimum) of the work being performed, and of any issues;
18. Partial Completion(s) and occupancies; and,
19. Substantial Completion(s) authorized;

NOTE: If there is NO ACTIVITY at site, a daily report indicating so and the reason for no activity at the site must be submitted.

B. Material Location Reports: The Contractor must submit a Material Location Report at weekly OR monthly intervals as determined and established by the Commissioner. Such report must include a comprehensive list of materials delivered to and stored at Project site. List must be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site.

C. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Submit a Request For Information (RFI) form with a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

**2.3 SPECIAL REPORTS:**

A. Accident report, incident report, special condition report for the conditions out of control of any party involved with the Project effecting Project progress, explaining impact on the Project schedule and cost if any.

**PART III – EXECUTION (Not Used)**

**END OF SECTION 01 32 00**

# SECTION 01 32 16.10
# PROJECT SCHEDULES (METHOD A)

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SECTION 01 32 16.10**

## PART I – GENERAL

### 1.1 RELATED DOCUMENTS:

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

### 1.2 SUMMARY:

A. This section includes the following:

1. Methods
2. Definitions
3. Preliminary, Baseline, and Project Schedule Preparation Timeline
4. Preliminary Project Schedule Development
5. Project Schedule
6. Activity and Calendar Coding Structure
7. Work Breakdown Structure (WBS)
8. Major Milestones
9. Short (Three-Week) Interval/Two-Week Look-Ahead
10. Submittals
11. Project Schedule Updating
12. Time Impact Analysis

### 1.3 METHODS:

A. The Contractor must comply with Project schedule development and updating requirements as specified herein.

1. The Contractor must employ or retain the services of a Construction Scheduler with verifiable construction scheduling experience, subject to review and acceptance by the City. Upon request, the Contractor must provide the City with details of qualifications and experience of the proposed scheduling staff member(s).

2. The Contractor must prepare, update, and maintain a detailed Project Schedule using a version of scheduling software that is compatible with the City's Oracle Primavera P6 Enterprise Project Portfolio Management (EPPM). All schedule submittals must be developed using Oracle's Primavera P6 EPPM software. Schedules must be developed using accepted CPM techniques using the precedence diagramming method (PDM). The Project Schedule must be developed following Defense Contract Management Agency (DCMA) and American Association of Cost Engineering International (AACE International) guidance. The Contractor will be required to use the Contractor's

own P6 license (whether single-user or Enterprise license), unless otherwise directed by the Commissioner. If directed by the Commissioner prior to the Notice to Proceed (NTP), the Contractor must use the Department's P6 Enterprise license and develop the Progress Schedule within the Department's Enterprise environment.

3. Once the Baseline Schedule is accepted by the City, progress updates to the Project Schedule must be submitted monthly, unless otherwise directed by the City, until Substantial Completion. The Data Date for the schedule updates must use the last Friday of the month, or as directed by the City.

4. The Contractor will be responsible for providing the monthly schedule updates once the Baseline Schedule is approved. Each monthly schedule update must be accompanied with a schedule narrative that explains the following:

    a. The progress of work during that particular period of performance,
    b. Any changes in schedule Logic,
    c. The physical conditions that were used to update every Activities Percent Complete,
    d. Any change in actual Start and Finish Dates,
    e. Any Duration changes,
    f. Any added and deleted Activities, and
    g. Any added Extra Work (e.g. change orders).

**1.4 DEFINITIONS:**

A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.

| **Term** | **Definition** |
|---|---|
| Activity | A representation of a discrete portion of the overall scope of Work or an event through Duration and description in a CPM schedule. |
| Baseline Schedule | The planned and detailed CPM schedule of Activities, including all Logic, Durations, Resource and Cost Loading, and showing the entire scope of Work. The Baseline Schedule must be accepted by the City. |
| Critical Path | The longest sequence of Activities in a network which establishes the minimum length of time for accomplishment of the end event of the Project. |
| Critical Path Method (CPM) | A management technique used to plan and control a Project which combines all relevant information into a single plan defining the sequence and Duration of operations and depicting the interrelationship of the Work elements required to complete the Project. |
| Current Schedule | The most recently updated schedule that captures progress to date and forecasts the dates for each Activity. |
| Data Date | The date used as a starting point for scheduling calculations. The Data Date is changed to the current end of period date when a schedule is updated for progress. |
| Duration | The amount of time, in workdays, an Activity will take to perform. |

| Term | Definition |
|---|---|
| Finish Date | The earliest estimated date an Activity is calculated to be complete, based on the estimated performance of all prior Activities to which the Activity is logically connected in a progressive relationship. |
| Free Float | The calculated amount of time that the estimated start or finish of an Activity can be delayed without impacting the start or finish of other downstream Activities logically connected in a progressive relationship. (See Finish Date and Late Finish). |
| Fragnet | Fragmentary network: a portion of a schedule detailing impacts of an event on specific Activities in the broader schedule. |
| Inclement Weather | Any weather condition, the duration of which varies in excess of the 3-year average published by the National Oceanic and Atmospheric Administration (NOAA) information for the local area. |
| Integrated Project Schedule | The Commissioner's overall schedule covering design, procurement and construction. The Commissioner will use the Contractor's Project Schedule to update the Integrated Project Schedule. |
| Late Finish | An estimate of the latest plausible date an Activity's completion can be postponed without rendering as unachievable the required completion of any downstream Milestones to which the Activity is Logically connected to in a progressive relationship. |
| Late Start | An estimate of the latest plausible date an Activity's start can be postponed without rendering as unachievable the required completion of any downstream Milestones to which the Activity is Logically connected to in a progressive relationship. |
| Logic | A direct progressive relationship between Activities where one Activity's performance restricts the performance of another Activity. |
| Milestone | A key or critical point in time for reference or measurement. |
| Network Diagram | A graphic diagram of a network schedule, showing Activities and Activity relationships. |
| Original Duration | The estimated amount of time, in Work Days, an Activity is expected to take to complete at the beginning of a Project as anticipated by the Contractor based on its planned means and methods at time of bid and documented in the Baseline Schedule. |
| Percent Complete | The percentage of the scope of Work represented by an Activity completed as of the Data Date calculated as physical percent complete for payment purposes. |
| Project Schedule | The Contractor's schedule used to manage the orderly and expeditious completion of the Work. The Project Schedule is initially the accepted Baseline Schedule, and is updated throughout the Project. |
| Remaining Duration | The amount of time, in Work Days, the remaining scope of Work represented by an Activity is expected to take to complete, measured from the current Data Date. |

| Term | Definition |
|---|---|
| Resource and Cost Loading | Values assigned for estimated dollars, manpower, equipment and/or materials necessary to complete the scope of Work represented by a specific Activity. |
| Recovery Schedule | A Recovery Schedule outlining and incorporating extraordinary efforts required to recover lost time with the aim of achieving completion of the Project within the stipulated contract Duration, plus authorized time extensions. In such case, special attention must be given to minimize delays as much as possible and must establish the nature of efforts; for instance, resources and equipment required, extended hours of work, weekend work, accelerated fabrication, required action(s) or effort(s) by the Contractor, its Subcontractors, consultants, clients, end users and/or other concerned parties to recover the schedule. |
| Revised and/or Updated Schedule | A Baseline Schedule, Progress Project Schedule, or Recovery Schedule for the Project that shows the actual Duration of all the completed Activities, including Duration of and the reasons for delays, if any has occurred, AND revisions to all remaining Activities of the Contractor and its Subcontractors, including changes, if any, to logical ties, interrelations and the sequence of each of the outlined Activities. Any such revisions should be shown on the row just below the approved schedule of the respective Activity so that revisions can be compared. The Revised and/or updated Schedule must be reviewed and approved by the City. |
| Start Date | The earliest estimated date an Activity is calculated to begin, based on the estimated performance of all prior Activities to which the Activity is logically connected in a progressive relationship. |
| Time Impact Analysis | A forward looking (prospective) schedule analysis used to forecast the impact to the Critical Path and to Milestone Finish Dates caused by a single event or series of events. Time Impact Analysis is not a retrospective (forensic) schedule analysis or a what-if schedule analysis of a potential event. |
| Total Float | The amount of time the start or finish of an Activity can be delayed without affecting the Project completion date. |
| Work Breakdown Structure (WBS) | WBS is a deliverable-oriented decomposition of a Project into smaller components. A WBS provides the necessary framework for detailed cost estimating and control along with providing guidance for schedule development and control. |
| Work Days (WD) | Work Days are every consecutive day in the calendar, excluding weekends (Saturday and Sunday) and holidays. |

**1.5 PRELIMINARY, BASELINE, AND PROJECT SCHEDULE PREPARATION TIMELINE:**

A. Upon receipt of the NTP, the Contractor must promptly prepare a preliminary Project Schedule and subsequently a Baseline Schedule and must submit for the City's acceptance as follows:

1. The preliminary Project Schedule must be submitted no later than fifteen (15) Days after NTP.
2. The initial submittal of the Baseline Schedule must be provided to the City for review no later than thirty (30) Days after NTP.

3. The Contractor must incorporate all corrections and revisions required by the City and provide an updated version of the Baseline Schedule for review and acceptance no later than sixty (60) Days after NTP to ensure that the Baseline Schedule is accepted. The sixty (60) Days must include fourteen (14) Days review times for each submittal of the Baseline Schedule.
4. Once accepted, the Baseline Schedule will be the basis of Project Schedule updates.

**1.6 PRELIMINARY PROJECT SCHEDULE DEVELOPMENT:**

A. The preliminary Project Schedule must be a detailed plan (division level per Construction Specifications Institute (CSI) MasterFormat) of all operations, including submittals, permitting, testing, and construction Activities, for either the first ninety (90) Days after NTP or to the point where the Contractor plans to mobilize on site (whichever is greater). This submittal will also depict a summary level (section level per CSI MasterFormat) schedule of the major Activities for the remainder of the Work.

1. All Activities for Contractor mobilization, procurement, and construction Activities within the first sixty (60) Days, including permits and submittals. All remaining work forecasted after the first sixty (60) Days must be summarized through the Contract's completion date.
2. All submittal and procurement Activities for long lead items.
3. The Project's Critical Path.
4. An electronic copy of the schedule in either MS Project (.MPP) or Primavera P6 Professional Format (.XER).

B. The preliminary Project Schedule will be reviewed by the City and returned with comments, as necessary, within fourteen (14) Days of submittal receipt. Information from the preliminary Project Schedule will be the general foundation for development of the Baseline Schedule.

**1.7 PROJECT SCHEDULE:**

A. The Baseline Schedule must show the sequence in which the Contractor proposes to perform the Work, and account for all major and intermediate Milestone Activities, phasing, restrictions of access, availability of work areas and the availability and use of labor, materials, and equipment.

B. After the Baseline Schedule is approved, the Project Schedule must be the Contractor's working schedule and must be used to plan, organize, execute, and track the Project. The Project Schedule is the primary vehicle used to report actual performance, progress, and convey the Contractor's execution plan to complete the Work.

C. The Project Schedule must show the sequence in which the Contractor proposes to perform the Work, and account for all major and intermediate Milestone Activities, phasing, restrictions of access, availability of work areas and the availability and use of labor, materials, and equipment.

D. The Project Schedule must be the Contractor's working schedule used to plan, organize, execute, and track the Project. The Project Schedule is the primary vehicle used to report actual performance, progress, and convey the Contractor's execution plan to complete all remaining Work.

E. All delay claims must be based on the current approved updates of the Project Schedule.

F. The Contractor must confirm in writing that all Subcontractors performing any portion of the Work are in agreement with the accepted Baseline Schedule and the monthly updates.

G. The amount of detail represented in the Baseline and Project Schedule and supporting documents submitted must, at a minimum, include the following items:

1. Contract Milestones must be identified and included in the Baseline and Project Schedule.
2. All submittal, owner review & approval, purchase, manufacture, and delivery Activities for all major materials and equipment.
3. Deliveries of owner-furnished equipment and/or materials.
4. Preparation, submittal, and approval of drawings, material samples, and safety plans.
5. Preparation, submittal, review, and approval of permits required by all regulatory agencies and other third parties.
6. Performance of tests, submission of test reports, and approval of test results.
7. Commissioning Activities for all commissioned systems and equipment is to be clearly delineated and scheduled such that they will be completed prior to Substantial Completion. Such Activities must include, at a minimum, Pre-Functional testing and check sheets; Testing, Adjusting, and Balancing (TAB) verification; Functional Testing, including testing of all controls; and Owner's demonstration and orientation.
8. Completion dates of all items required for phased completion (if applicable).
9. Completion dates of all items required for Substantial Completion.
10. Completion dates of all items required to obtain a Temporary Certificate of Occupancy (TCO) and Certificate of Occupancy (CO).
11. Completion dates for close-out of regulatory and punch list items prior to Final Acceptance and transfer of the Project.
12. Any additional detail requested by the Commissioner.

H. Activities identified in the Baseline and Project Schedule must have the Duration in units of whole Work Days. Construction Activity Durations must not exceed twenty (20) Work Days unless specifically approved by the City. This is to ensure that Activities are not generalized and that each Activity and sub-Activity are defined as narrowly as reasonable to facilitate schedule tracking. Durations for non-construction Activities such as procurement of materials, delivery of equipment, concrete curing, etc., may exceed twenty (20) Work Days without prior approval; however, these are still subject to review by the City. Durations must be based on the available resources required for performing each Activity and must be the result of definitive labor hours using established production rates, and with consideration of on-site working conditions. If requested by the City, the Contractor must justify the reasonableness of a planned Duration.

I. Activity descriptions must use plain language that clearly and uniquely defines each Activity. Each description must include a verb or work function (e.g. submit, form, pour, etc.), an object (e.g. slab, foundation, etc.) and, for any construction Activities, a specific location. The Work related to each Activity must be limited to one responsibility and one trade.

J. Activity relationships must be assigned to clearly establish predecessor and successor relationships to each Activity. Open-ended Activities are not permitted with the exception of the first and last Activity in the network, the first Activity being NTP and the last being Final Acceptance. The use of relationship lag times is discouraged and only permitted with prior approval by the City. The use of negative lag is never permitted.

K. Activity constraint dates are only to be used to reflect contractual constraints unless specifically authorized by the City.

L. Float or slack, in any schedule, must not be for the exclusive use or benefit of either the City or the Contractor, but must be available for use by both the City and the Contractor.

M. Each resubmittal after the Project Schedule is delivered for acceptance must comply with all requirements of this section. Review and response by the City will be given within fourteen (14) Days after resubmission. The Contractor's receipt of the comments within the time specified must not, in any way, affect the Contractor's responsibility to complete the Project within the time fixed in Schedule A.

N. Failure by the City to return comments or indicate acceptance status will in no way relieve the Contractor's obligation to submit monthly schedule updates.

O. At the request of the City, the Contractor must be required to make a presentation to explain or clarify the intended logical sequence of construction Activities depicted in the detailed Project Schedule. The Contractor and designated scheduler must discuss anticipated challenges and outline construction methodology and flow of work to show how and when major Milestones will be achieved. In addition, the Contractor may, at no cost to the City, be required to participate in additional Project meetings necessary to obtain acceptance of the above-noted submittals.

## 1.8 ACTIVITY AND CALENDAR CODING STRUCTURE:

A. The Baseline and Project Schedules must contain a sufficient number of Activities to represent adequate planning and execution of the Work so that it shows an accurate flow of work and demonstrates an understanding of the Project by the Contractor.

B. Activity ID and Calendar Coding

1. The Contractor's proposed Activity and calendar coding and must be submitted with the preliminary Project Schedule. A meeting may be requested by the City to discuss the scheme and other schedule information prior to the submittal of the Project Schedule. The accepted coding scheme and WBS Structure must be incorporated into the Project Schedule.

C. Activity ID Coding

1. All Activities/ Resources/ Calendars (Baseline and Project Schedules) must be coded inside the P6 Project Environment / Project Level (NOT the Global Environment/ Enterprise Level) to facilitate selection, sorting and preparation of reports.

2. Activity coding must consist of the Project ID followed by a dash, followed by Activity coding (PROJECT ID-ACTIVITY CODE). Activity codes must be created at the Project level and must utilize the coding scheme outlined in the table below:

| Activity Code | Meaning |
|---|---|
| RESP | Responsibility: Identify the party (e.g. Contractor, Subcontractor, City, etc.) responsible for the Activity. |
| PHAS | Phase: Breakdown of Activities in Milestones, pre-construction, procurement, construction and close-out Activities. |
| LOCN | Location: Breakdown by floor or elevation. |
| AREA | Area: Breakdown by room, area, block or wing. May be used as a subdivision of PHAS to include Milestones, permits, Subcontractor approvals, submittals, fabrication and delivery, and subdivision of the Site and buildings into Logical modules, such as by blocks, wings, etc. |
| TRAD | Trade: Breakdown by CSI Code or section number in the Specifications. |

a. Description of schedule Activities must include terminology that represents the scope of work associated with that particular Activity. Terminology used to describe similar actions must be consistent across all segments of work.

b. Naming convention for schedule Activities must be descriptive and indicate the associated work covered by the Activity. Activities must use a verb, noun, and location of the work in the Activity name.

3. Project Calendar Coding

   a. All calendars created and assigned to Activities must be Project-level calendars. The Calendar Name must consist of the Project ID number followed by a dash, followed by a descriptive Calendar Name (PROJECT ID-CALENDAR NAME).

**1.9 WORK BREAKDOWN STRUCTURE:**

A. Structure must be submitted with the preliminary Project Schedule. The levels (nodes) must include, but not be limited to:

   1. LEVEL 01 – The Project Level.

   2. LEVEL 02 – Contains a minimum of four (4) nodes: Pre-Construction, Procurement, Construction or Phase of Construction, and Closeout.

   3. LEVEL 03 – Decomposition of each of the four (4) nodes in Level 02 into its constituent parts. This level must target specific, tangible, deliverable scopes of Project Work.

B. The Contractor's proposed WBS must be submitted with the preliminary Project Schedule. The accepted WBS Structure must be incorporated into the Baseline and Project Schedule.

**1.10 MAJOR MILESTONES:**

A. The schedule must include both contractual and non-contractual Milestones that are provided by the City. These Milestones must be properly associated with the related Work and maintained to represent the progress of the Project and account for all required inspections and approvals to achieve project completion.

**1.11 SHORT (THREE-WEEK) INTERVAL / TWO-WEEK LOOK-AHEAD:**

A. On a bi-weekly basis, the Contractor must provide a three (3) week short interval schedule in a format satisfactory to the City. The purpose of this schedule is to report the actual progress of the past week against the previous short interval look-ahead Activities and add any additional Activities planned for the next two (2) weeks. Electronic files and hard copies must be provided to the City on the first day of each work week with the prior week's actual progress included.

B. Each task listed on the short interval schedule must be representative of the most current Project Schedule Update and include a reference to an Activity shown on the current update.

C. The short interval schedule must list all required DDC coordinated activities, including special inspections.

**1.12 SUBMITTALS:**

A. General

   1. Development of the Baseline Schedule and updating of the Project Schedule must follow the DCMA and AACE International guidelines.

   2. Each electronic submission of the Project Schedule must be assigned a unique file name consisting of the Project ID (as noted on the NTP followed by a dash followed by a unique file name clearly marked (i.e. ProjID- B000 = B/L rev0, ProjID-B001 = B/L rev01 etc.) to indicate

the specific submission. Similarly, update submittals must be named ProjID-Uxxx where xxx is a sequential number, starting with 001, indicating the revision or issue number.

3. The Contractor must provide all submittals in electronic format and two hard copies.

B. Preliminary Project Schedule

1. For acceptance of the preliminary Project Schedule, the Contractor must submit the following:

   a. Two (2) 11" x 17" hard copies of the proposed preliminary Project Schedule, as well as the native electronic schedule data file, in .XER file format, per the direction of the City.

   b. A Schedule Narrative Report detailing the Contractor's initial plan for executing the Contract work within the allotted Contract Duration, and include the following explanation of their provided preliminary schedule:

      i. The proposed WBS;
      ii. All proposed Project Calendars;
      iii. All proposed Activity Codes, clearly defined;
      iv. The proposed Activity ID format; and
      v. Schedule basis narrative, which must memorialize assumptions made in the development of the schedule.

C. Baseline Schedule

1. The City will normally return comments within ten (10) Work Days after receipt of the initial Project Schedule Submission. If any of the required submissions are returned to the Contractor for corrections or revisions, they must be resubmitted within five (5) Work Days from receipt of comments. Each resubmittal must comply with the requirements enumerated above. Review and response by the City will be given within ten (10) Work Days after resubmission.

2. At the request of the City, the Contractor will be required to participate in Project meetings necessary to obtain an acceptance of the above noted submittals.

3. Baseline schedule must include the actual schedule for the initiation, procurement, submittal, permit, construction activity, inspection, substantial and final completion, and closeout phases. Schedule performance during construction and closeout is measured against this baseline.

4. The project may be re-baselined only if the project experiences significant change in the scope, cost and / or schedule due to extenuating circumstances and reasons beyond the control of DDC. Commissioner approval is required to re-baseline a project.

5. Baseline Schedule submittal must contain a Narrative Report. It must include the following, or as directed by the City:

   a. A description of the Project scope and how the Work is represented in the schedule Activities;

   b. A description of the overall sequence of major components of Work;

   c. Planned work week for each definable feature of work;

   d. Description of the Critical Path and near Critical Paths;

   e. How weather will be accommodated in the schedule, including a description of the weather calendar and the Activities it is applied to, and the NOAA Inclement Weather data that defined the number of non-work days;

f. How regulatory, operational or third-party constraints are accommodated in the schedule;

g. Description of key Project coordination points or events;

h. Discussion of long lead items and basis of time frames for submittals; and

i. Potential opportunities and risks, including quantification of the schedule reduction or expansion.

D. Project Schedule Updates

1. Every schedule submittal must be provided with a corresponding narrative. These schedule submittals and narratives are to be submitted in hard copy, as well as in the native electronic format, as attachments to emails or other media accepted by the City. When opened, the electronic format must provide flawless restoration of the native files (P6 (.XER) for Primavera and MS Word and/or Adobe Acrobat for Narrative and supporting document submittals).

2. For each submittal of the updated Project Schedule, the following layouts, reports, and graphics are required in the specified formats, unless otherwise directed by the City:

a. The Contractor must furnish two (2) 11” x 17” color hard copies of the complete progress schedule with each initial schedule update and final update incorporating comments furnished by the City. Additionally, the Contractor must provide the native electronic schedule data file, in .XER file format with the initial and final schedule update submission.

b. An Activity bar chart Layout grouped by Activity Code and then sorted by Start Date, Finish Date, and then Total Float.

c. Each Activity line must display the Activity ID (Act ID), Description (Name), Original Duration (OD), Remaining Duration (RD), Start Date (ES), Finish Date (EF), and Total Float (TF), Baseline Original Duration (BL OD) Baseline Start (BL Start), Baseline Finish (BL Fin), Baseline Total Float (BL TF).

d. An Activities progress bar must show both current progress update ES and EF, and baseline ES and EF. The top line of the bar chart area must contain the updated ES and EF; the second line below must depict the accepted baseline ES and EF dates.

3. The City may request additional standard P6 reports from time to time at no additional cost.

4. The Monthly Update submittal must contain a Narrative Report. It must include the following, or as directed by the City:

a. Any changes to the schedule basis narrative;

b. Overall health of the Project;

c. Actual Activity Start Dates;

d. Actual Activity Finish Dates;

e. The physical conditions that were used to update Activities percent complete;

f. Percent of Work reported in place;

g. A description of the overall sequence of major components of Work;

h. Description of the Critical Path and near Critical Paths;

i. Description of key Project coordination points or events;

j. Discussion of long lead items and basis of time frames for submittals;

k. Potential opportunities and risks, including quantification of the schedule reduction or expansion;

l. Assumptions/exclusions made in the schedule;

m. Contract and Milestone completion date status:

i. Number of Days ahead or behind schedule and; and

ii. Days lost/gained compared with the previous update.

n. Lookahead report listing each Activity in the CPM schedule that is scheduled to be performed during the next reporting period;

o. Changes in Activity description, Logic, or Duration must be submitted as a separate Proposed Schedule and approved by the City prior to being submitted as an official update. Once allowed, said changes must be grouped and organized in the report in a manner that communicates in detail the rationale associated with each change and the impact upon construction sequence, relationships and the Critical Path. A standard Digger Report is not sufficient to meet this requirement;

p. Added/deleted Activities and the rationale associated with each action;

q. Pending issues and status of other items;

r. Permits, FDNY sign-off, TCO and CO approval to ensure regulatory acceptance and conditions for occupancy, in a tabular format, showing the status and change in status of all permits;

s. Contract modifications; and

t. Extra Work, including change orders.

**1.13 PROJECT SCHEDULE UPDATING:**

A. The initial updating must take place immediately after the City accepts the Contractor's Baseline Schedule. The Data Date for the first update must not exceed seven (7) Days from the date of receipt of the accepted Baseline Schedule, or as directed by the City.

B. Subsequent updates of the Project Schedule must be submitted monthly until Substantial Completion. The schedule Data Date must be the last Work Day of the period unless otherwise directed by the City. Updates must be provided to the City no later than seven (7) Days after the 'schedule Data Date'.

C. Updates must reflect actual or reasonably anticipated progress as of the last Work Day of the period.

D. The City may request meetings with the Contractor to review the Project Schedule and narrative and jointly verify Project health and information.

E. In addition, the City may request meetings with the Contractor's scheduling representative to:

1. Resolve out-of-sequence Logic.

2. Should out-of-sequence progress occur where Activities have reported progress without predecessor Activities being completed, the Contractor must obtain the City's approval in a Proposed Schedule before revising the Logic ties to reflect the way the Work is actually being performed. Use of progress override by default mechanisms that may be included in CPM scheduling software systems will not be allowed except on a case-by-case basis with the approval of the City. A written explanation for each instance must be included in the monthly submittal narrative.

3. Assess the impact, if any, of any pending change orders.

4. Incorporate accepted time extensions.

5. Review revised Logic (as-built and projected) and changes in Activity Duration, cost, and labor hours assigned.

F. Contractor's failure to provide required scheduling information within the required timeframe or to adhere to the currently accepted schedule may result in rejection of all or a portion of the progress payment until such time as the required schedule information is submitted and accepted by the City.

G. Delays to the Critical Path – Whenever it becomes apparent from the monthly CPM schedule update that delays to the Critical Path have occurred due to action or inaction of the Contractor, and as a result the date for Substantial Completion will not be met, the Contractor must promptly take some or all of the following actions at no additional cost to the City, unless otherwise directed by the City:

1. Increase construction manpower in such quantities and crafts as will substantially eliminate the backlog of Work.

2. Increase the number of working hours per shift, shifts per day, or Work Days per week; the amount of construction equipment; the forms for concrete work; etc., or any combination of the foregoing to substantially eliminate the backlog of Work.

3. Reschedule Activities to achieve maximum practical concurrence of accomplishment of Activities and comply with the revised schedule.

4. Submit to the City for review a written statement of the steps the Contractor intends to take to remove or arrest the delay to the schedule.

5. Add to its equipment and materials or construction forces, as well as increase the working hours, if operations for critical, less critical or non-critical Activities fall behind the Contractor's Baseline Schedule at any time during the construction period.

H. The City may, at any time during the Project and at no additional cost to the City, require the Contractor to develop a more detailed schedule/ Fragnet than depicted in the Baseline Schedule to provide a clearer understanding of the effort needed to complete an Activity or group of Activities.

I. If the City determines that either the Critical Path is in the negative by four (4) weeks, or that the Project's date for completion may be affected, the Contractor may be required, at no additional cost to the City, to prepare a Recovery Schedule. Such Recovery Schedule is subject to review and acceptance by the City. The Recovery Schedule must propose alternative methods, overtime, and other means available to the Contractor to recover the delays incurred to date.

J. The Contractor must submit an "As-Built Schedule", as the last schedule update showing all Activities, with the exception of punch list and closeout tasks, at Substantial Completion. This schedule must reflect the exact manner in which the Project was actually constructed.

**1.14 TIME IMPACT ANALYSIS:**

A. In addition to the requirements of the Standard Construction Contract Article 11, the Contractor must submit a Time Impact Analysis to the Commissioner with all requests for time extension.

B. The Time Impact Analysis must include a written narrative and supporting impact schedule Fragnet detailing the Project delays resulting from the alleged delay. The impact schedule Fragnet, separate and distinct from the Progress Schedule update, must demonstrate that the changes or anticipated delays affect Activities of the current accepted Progress Schedule. The impact schedule will be incorporated into the Progress Schedule only after it is accepted by the Commissioner and a time extension is approved. The Fragnet submitted as part of the Time Impact Analysis must illustrate the impact of these changes or delays on the date for Substantial Completion.

**PART II – PRODUCTS (Not Used)**

**PART III – EXECUTION (Not Used)**

**END OF SECTION 01 32 16.10**

# SECTION 01 32 16.20
# PROJECT SCHEDULES (METHOD B)

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SECTION 01 32 16.20**

## PART I – GENERAL

### 1.1 RELATED DOCUMENTS:

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

### 1.2 SUMMARY:

A. This section includes the following:
1. Methods
2. Definitions
3. Preliminary, Baseline, and Project Schedule Preparation Timeline
4. Preliminary Project Schedule Development
5. Project Schedule
6. Activity and Calendar Coding Structure
7. Work Breakdown Structure (WBS)
8. Major Milestones
9. Short (Three-Week) Interval/Two-Week Look-Ahead
10. Submittals
11. Project Schedule Updating
12. Time Impact Analysis

### 1.3 METHODS:

A. The Contractor must comply with Project schedule development and updating requirements as specified herein.

1. The Contractor must employ or retain the services of a Construction Scheduler with verifiable construction scheduling experience, subject to review and acceptance by the City. Upon request, the Contractor must provide the City with qualifications and experience of the proposed scheduling staff member(s).

2. The Contractor must prepare, update, and maintain a detailed Project Schedule using a version of scheduling software that is compatible with the City's Oracle Primavera P6 Enterprise Project Portfolio Management (EPPM). All schedule submittals must be developed using Oracle's Primavera P6 EPPM software. Schedules must be developed using accepted CPM techniques using the Precedence Diagramming Method (PDM). The Project Schedule must be developed following Defense Contract Management Agency (DCMA) and American Association of Cost Engineering International (AACE International) guidance. The Contractor will be required to use

the Contractor's own P6 license (whether single-user or Enterprise license), unless otherwise directed by the Commissioner. If directed by the Commissioner prior to the Notice to Proceed (NTP), the Contractor must use the Department's P6 Enterprise license and develop the Progress Schedule within the Department's Enterprise environment.

3. Once the Baseline Schedule is accepted by the City, progress updates to the Project Schedule must be submitted monthly, unless otherwise directed by the City, until Substantial Completion. The Data Date for the schedule updates must use the last Friday of the month, or as directed by the City.

4. The Contractor will be responsible for providing the monthly schedule updates once the Baseline Schedule is approved. Each monthly schedule update must be accompanied with a schedule narrative that explains the following:

   a) The progress of work during that particular period of performance;
   b) Any changes in schedule Logic;
   c) The physical conditions that were used to update every Activities Percent Complete;
   d) Any change in actual Start and Finish Dates;
   e) Any Duration changes;
   f) Any added and deleted Activities; and,
   g) Any added Extra Work (e.g., change orders).

**1.4 DEFINITIONS:**

A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.

| **Term** | **Definition** |
|---|---|
| Activity | A representation of a discrete portion of the overall scope of Work or an event through Duration and description in a CPM schedule. |
| Baseline Schedule | The planned and detailed CPM schedule of Activities, including all Logic, Durations, Resource and Cost Loading, and showing the entire scope of Work. The Baseline Schedule must be accepted by the City. |
| Critical Path | The longest sequence of Activities in a network which establishes the minimum length of time for accomplishment of the end event of the Project. |
| Critical Path Method (CPM) | A management technique used to plan and control a Project which combines all relevant information into a single plan defining the sequence and Duration of operations and depicting the interrelationship of the Work elements required to complete the Project. |
| Current Schedule | The most recently updated schedule that captures progress to date and forecasts the dates for each Activity. |
| Data Date | The date used as a starting point for scheduling calculations. The Data Date is changed to the current end of period date when a schedule is updated for progress. |
| Duration | The amount of time, in workdays, an Activity will take to perform. |

| Term | Definition |
|---|---|
| Finish Date | The earliest estimated date an Activity is calculated to be complete, based on the estimated performance of all prior Activities to which the Activity is logically connected in a progressive relationship. |
| Free Float | The calculated amount of time that the estimated start or finish of an Activity can be delayed without impacting the start or finish of other downstream Activities logically connected in a progressive relationship. (See Finish Date and Late Finish). |
| Fragnet | Fragmentary network: a portion of a schedule detailing impacts of an event on specific Activities in the broader schedule. |
| Inclement Weather | Any weather condition, the duration of which varies in excess of the 3-year average published by the National Oceanic and Atmospheric Administration (NOAA) information for the local area. |
| Integrated Project Schedule | The Commissioner's overall schedule covering design, procurement, and construction. The Commissioner will use the Contractor's Project Schedule to update the Integrated Project Schedule. |
| Late Finish | An estimate of the latest plausible date an Activity's completion can be postponed without rendering as unachievable the required completion of any downstream Milestones to which the Activity is Logically connected to in a progressive relationship. |
| Late Start | An estimate of the latest plausible date an Activity's start can be postponed without rendering as unachievable the required completion of any downstream Milestones to which the Activity is Logically connected to in a progressive relationship. |
| Logic | A direct progressive relationship between Activities where one Activity's performance restricts the performance of another Activity. |
| Milestone | A key or critical point in time for reference or measurement. |
| Network Diagram | A graphic diagram of a network schedule, showing Activities and Activity relationships. |
| Original Duration | The estimated amount of time, in Work Days, an Activity is expected to take to complete at the beginning of a Project as anticipated by the Contractor based on its planned means and methods at time of bid and documented in the Baseline Schedule. |
| Percent Complete | The percentage of the scope of Work represented by an Activity completed as of the Data Date calculated as physical percent complete for payment purposes. |
| Project Schedule | The Contractor's schedule used to manage the orderly and expeditious completion of the Work. The Project Schedule is initially the accepted Baseline Schedule, and is updated throughout the Project. |

| Term | Definition |
|---|---|
| Remaining Duration | The amount of time, in Work Days, the remaining scope of Work represented by an Activity is expected to take to complete, measured from the current Data Date. |
| Resource and Cost Loading | Values assigned for estimated dollars, manpower, equipment and/or materials necessary to complete the scope of Work represented by a specific Activity. |
| Recovery Schedule | A Recovery Schedule outlining and incorporating extraordinary efforts required to recover lost time with the aim of achieving completion of the Project within the stipulated contract Duration, plus authorized time extensions. In such case, special attention must be given to minimize delays as much as possible and must establish the nature of efforts; for instance, resources and equipment required, extended hours of work, weekend work, accelerated fabrication, required action(s) or effort(s) by the Contractor, its subcontractors, consultants, clients, end users and/or other concerned parties to recover the schedule. |
| Revised and/or Updated Schedule | A Baseline Schedule, Project Schedule, or Recovery Schedule for the Project that shows the actual Duration of all the completed Activities, including Duration of and the reasons for delays, if any have occurred, AND revisions to all remaining Activities of the Contractor and its subcontractors, including changes, if any, to logical ties, interrelations and the sequence of each of the outlined Activities. Any such revisions should be shown on the row just below the approved schedule of the respective Activity so that revisions can be compared. The Revised and/or updated Schedule must be reviewed and approved by the City. |
| Start Date | The earliest estimated date an Activity is calculated to begin, based on the estimated performance of all prior Activities to which the Activity is logically connected in a progressive relationship. |
| Time Impact Analysis | A forward looking (prospective) schedule analysis used to forecast the impact to the Critical Path and to Milestone Finish Dates caused by a single event or series of events. Time Impact Analysis is not a retrospective (forensic) schedule analysis or a what-if schedule analysis of a potential event. |
| Total Float | The amount of time the start or finish of an Activity can be delayed without affecting the Project completion date. |
| Work Breakdown Structure (WBS) | WBS is a deliverable-oriented decomposition of a Project into smaller components. A WBS provides the necessary framework for detailed cost estimating and control along with providing guidance for schedule development and control. |
| Work Days (WD) | Work Days are every consecutive day on the calendar, excluding weekends (Saturday and Sunday) and holidays. |

**1.5 PRELIMINARY, BASELINE, AND PROJECT SCHEDULE PREPARATION TIMELINE:**

A. Upon receipt of the NTP, the Contractor must promptly prepare a preliminary Project Schedule and subsequently a Baseline Schedule and must submit for the City's acceptance as follows:

1. Submit the Contractor's CPM Scheduler's qualifications to the City for approval within seven (7) Days after NTP. The City will respond to the submittal within seven (7) Days of the submittal receipt.
2. The preliminary Project Schedule must be submitted no later than twenty-one (21) Days after NTP.
3. The initial submittal of the Baseline Schedule must be provided to the City for review no later than forty-five (45) Days after NTP.
4. The Contractor must incorporate all corrections and revisions required by the City and provide an updated version of the Baseline Schedule for review and acceptance no later than seventy-five (75) Days after NTP to ensure that the Baseline Schedule is accepted no later than ninety (90) Days after the NTP. The ninety (90) Days must include fourteen (14) Days review time by the City for each submittal of the Baseline Schedule.
5. Once accepted, the Baseline Schedule will be the basis of Project Schedule updates.

B. Remedies

1. Preliminary Project Schedule: The City will take a credit of three thousand dollars ($3,000) if the preliminary Project Schedule is not submitted within twenty-one (21) Days of the NTP.
2. Acceptable Baseline Schedule: The City will take a credit of five thousand dollars ($5,000) if an acceptable Baseline Schedule is not submitted within ninety (90) Days of the NTP.
3. Monthly Progress Schedule updates: The City will take a credit of two thousand dollars ($2,000) for each schedule update not submitted within the period it was due.
4. Scheduling Firm Services: If an acceptable Baseline Schedule is not provided by the Contractor within ninety (90) Days of the NTP or three (3) updates are not provided by the Contractor during the period they are due, the City may engage the services of a scheduling firm to develop a Project schedule or update an existing schedule. The total cost of such services will be deducted from the monies due to the Contractor.
    a. Any schedules and updates developed by such scheduling firm are for the City's sole use and do not, in any way, represent an acceptance of responsibility by the City to schedule the Work or relieve the Contractor of the obligation to complete the Work within the Durations specified by the Contract.
5. The City will only accept the submitted information after all corrections have been made and all issues have been resolved. The City may find the Contractor in default if items required by this Section are incomplete.

## 1.6 PRELIMINARY PROJECT SCHEDULE DEVELOPMENT:

A. The preliminary Project Schedule must be a detailed plan (division level per Construction Specifications Institute (CSI) MasterFormat) of all operations, including submittals, permitting, testing, and construction Activities, for either the first ninety (90) Days after NTP or to the point where the Contractor plans to mobilize on site (whichever is greater). This submittal will also depict a summary level (section level per CSI MasterFormat) schedule of the major Activities for the remainder of the Work.

B. The preliminary Project Schedule will be reviewed by the City and returned with comments, as necessary, within fourteen (14) Days of submittal receipt. Information from the preliminary Project Schedule will be the general foundation for development of the Baseline Schedule.

**1.7 PROJECT SCHEDULE:**

A. The Baseline Schedule must show the sequence in which the Contractor proposes to perform the Work, and account for all major and intermediate Milestone Activities, phasing, restrictions of access, availability of work areas and the availability and use of labor, materials, and equipment.

B. After the Baseline Schedule is approved, the Project Schedule must be the Contractor's working schedule and must be used to plan, organize, execute, and track the Project. The Project Schedule is the primary vehicle used to report actual performance, progress, and convey the Contractor's execution plan to complete all of the Work.

C. The Project Schedule must show the sequence in which the Contractor proposes to perform the Work, and account for all major and intermediate Milestone Activities, phasing, restrictions of access, availability of work areas and the availability and use of labor, materials, and equipment.

D. The Project Schedule must be the Contractor's working schedule used to plan, organize, execute, and track the Project. The Project Schedule is the primary vehicle used to report actual performance, progress, and convey the Contractor's execution plan to complete all remaining Work.

E. All delay claims must be based on the current approved updates of the Project Schedule.

F. The Contractor must confirm in writing that all subcontractors performing any portion of the Work are in agreement with the accepted Baseline Schedule and the monthly updates.

G. The amount of detail represented in the Baseline and Project Schedule and supporting documents submitted must, at a minimum, include the following items :

1. Contract Milestones must be identified and included in the Baseline and Project Schedule.
2. All submittal, owner review & approval, purchase, manufacture, and delivery Activities for all major materials and equipment.
3. Deliveries of owner-furnished equipment and/or materials.
4. Preparation, submittal, and approval of drawings, material samples, and safety plans.
5. Preparation, submittal, review, and approval of permits required by all regulatory agencies and other third parties.
6. Performance of tests, submission of test reports, and approval of test results.
7. Commissioning Activities for all commissioned systems and equipment is to be clearly delineated and scheduled such that they will be completed prior to Substantial Completion. Such Activities must include, at a minimum, Pre-Functional testing and check sheets; Testing, Adjusting, and Balancing (TAB) verification; Functional Testing, including testing of all controls; and Owner's demonstration and orientation.
8. Completion dates of all items required for phased completion (if applicable).
9. Completion dates of all items required for Substantial Completion.
10. Completion dates of all items required to obtain a Temporary Certificate of Occupancy (TCO) and Certificate of Occupancy (CO).
11. Completion dates for close-out of regulatory and punch list items prior to Final Acceptance and transfer of the Project.
12. Any additional detail requested by the Commissioner.

H. Activities identified in the Baseline and Project Schedule must have the Duration in units of whole Work Days. Construction Activity Durations must not exceed twenty (20) work days unless specifically approved by the City. This is to ensure that Activities are not generalized and that each Activity and sub-Activity are defined as narrowly as reasonable to facilitate schedule tracking. Durations for non-construction Activities such as procurement of materials, delivery of equipment, concrete curing, etc., may exceed twenty (20) work days without prior approval; however, these are still subject to review by the City. Durations must be based on the available resources required for performing each Activity and must be the result of definitive labor hours using established production rates, and with consideration of on-site working conditions. If requested by the City, the Contractor must justify the reasonableness of a planned Duration.

I. Activity descriptions must use plain language that clearly and uniquely define each Activity. Each description must include a verb or work function (e.g. submit, form, pour etc.) an object (e.g. slab, foundation, etc.) and, for any construction Activities, a specific location. The Work related to each Activity must be limited to one responsibility and one trade.

J. Activity relationships must be assigned to clearly establish predecessor and successor relationships to each Activity. Open-ended Activities are not permitted with the exception of the first and last Activities in the network, the first Activity being NTP and the last being Final Acceptance. The use of relationship lag times is discouraged and only permitted with prior approval by the City. The use of negative lag is never permitted.

K. Activity constraint dates are only to be used to reflect contractual constraints unless specifically authorized by the City.

L. Float or slack in any schedule must not be for the exclusive use or benefit of either the City or the Contractor, but must be available for use by both the City and the Contractor.

M. Each resubmittal after the Project Schedule is delivered for acceptance must comply with all requirements of this section. Review and response by the City will be given within fourteen (14) Days after resubmission. The Contractor's receipt of the comments within the time specified must not in any way affect the Contractor's responsibility to complete the Project within the time fixed in Schedule A.

N. Failure by the City to return comments or indicate acceptance status will in no way relieve the Contractor's obligation to submit monthly schedule updates.

O. At the request of the City, the Contractor must be required to make a presentation to explain or clarify the intended logical sequence of construction Activities depicted in the detailed Project Schedule. The Contractor and designated scheduler must discuss anticipated challenges and outline construction methodology and flow of work to show how and when major Milestones will be achieved. In addition, the Contractor may, at no cost to the City, be required to participate in additional Project meetings necessary to obtain acceptance of the above noted submittals.

## 1.8 ACTIVITY AND CALENDAR CODING STRUCTURE:

A. The Baseline and Project Schedules must contain a sufficient number of Activities to represent adequate planning and execution of the Work so that it shows an accurate flow of work and demonstrates an understanding of the Project by the Contractor.

B. Activity ID and Calendar Coding

1. The Contractor's proposed Activity and calendar coding and must be submitted with the preliminary Project Schedule. A meeting may be requested by the City to discuss the scheme and other schedule information prior to the submittal of the Project Schedule. The accepted coding scheme and WBS Structure must be incorporated into the Project Schedule.

C. Activity ID Coding

1. All Activities/Resources/Calendars (Baseline and Project Schedules) must be coded inside the P6 Project Environment / Project Level (NOT the Global Environment/Enterprise Level) to facilitate selection, sorting and preparation of reports.

2. Activity coding must consist of the Project ID followed by a dash, followed by Activity coding (PROJECT ID-ACTIVITY CODE). Activity codes must be created at the Project level and must utilize the coding scheme outlined in the table below:

| Activity Code | Meaning |
|---|---|
| RESP | Responsibility: Identify the party (e.g. Contractor, subcontractor, City, etc.) responsible for the Activity. |
| PHAS | Phase: Breakdown of Activities in Milestones, pre-construction, procurement, construction and close-out Activities. |
| LOCN | Location: Breakdown by floor or elevation. |
| AREA | Area: Breakdown by room, area, block or wing. May be used as a subdivision of PHAS to include Milestones, permits, subcontractor approvals, submittals, fabrication and delivery, and subdivision of the Site and buildings into Logical modules, such as by blocks, wings, etc. |
| TRAD | Trade: Breakdown by CSI Code or section number in the Specifications. |

a. Description of schedule Activities must include terminology that represents the scope of work associated with that particular Activity. Terminology used to describe similar actions must be consistent across all segments of work.

b. Naming convention for schedule Activities must be descriptive and indicate the associated work covered by the Activity. Activities must use a verb, noun, and location of the work in the Activity name.

3. Project Calendar Coding

a. All calendars created and assigned to Activities must be Project-level calendars. The Calendar Name must consist of the Project ID number followed by a dash, followed by a descriptive Calendar Name (PROJECT ID-CALENDAR NAME).

## 1.9 WORK BREAKDOWN STRUCTURE:

A. A multi-level hierarchal WBS must be incorporated in all P6 schedules. An initial, proposed WBS must be submitted with the preliminary Project Schedule. The levels (nodes) must include, but not be limited to:

1. LEVEL 01 – The Project Level.
2. LEVEL 02 – Contains a minimum of four (4) nodes; Pre-Construction, Procurement, Construction or Phase of Construction, and Closeout.
3. LEVEL 03 – Decomposition of each of the four (4) nodes in Level 02 into its constituent parts. This level must target specific, tangible, deliverable scopes of the Project Work.

B. The Contractor's proposed WBS must be submitted with the preliminary Project Schedule. The accepted WBS must be incorporated into the Baseline and Project Schedule.

**1.10 MAJOR MILESTONES:**

A. The schedule must include both contractual and non-contractual Milestones that are provided by the City. These Milestones must be properly associated with the related Work packages and maintained to represent the progress of the Project and account for all required inspections and approvals to achieve project completion.

**1.11 SHORT (THREE-WEEK) INTERVAL / TWO-WEEK LOOK-AHEAD:**

A. On a bi-weekly basis, the Contractor must provide a three (3) week short interval schedule in a format satisfactory to the City. The purpose of this schedule is to report the actual progress of the past week against the previous short interval look-ahead Activities and add any additional Activities planned for the next two (2) weeks. Electronic files and hard copies must be provided to the City on the first day of each work week with the prior week's actual progress included.

B. Each Task listed on the short interval schedule must be representative of the most current Project Schedule Update and include a reference to an Activity shown on the current update.

C. The short interval schedule must list all required DDC coordinated activities, including special inspections.

**1.12 SUBMITTALS:**

A. General

1. Development of the Baseline Schedule and updating of the Project Schedule must follow the DCMA and AACE International guidelines.

2. Each electronic submission of the Project Schedule must be assigned a unique file name consisting of the Project ID (as noted on the NTP followed by a dash followed by a unique file name clearly marked (i.e. ProjID- B000 = B/L rev0, ProjID-B001 = B/L rev01 etc.) to indicate the specific submission. Similarly, update submittals must be named ProjID-Uxxx where xxx is a sequential number, starting with 001, indicating the revision or issue number.

3. The Contractor must provide all submittals in electronic format and two hard copies.

B. Preliminary Project Schedule

1. For acceptance of the preliminary Project Schedule the Contractor must submit the following:

a. Two (2) 11" x 17" hard copies of the proposed preliminary Project schedule, as well as the native electronic schedule data file, in .XER file format, per the direction of the City.

b. A Schedule Narrative Report detailing the Contractor's initial plan for executing the Contract work within the allotted Contract Duration, and include the following explanation of their provided preliminary schedule:

i. The proposed WBS;
ii. All proposed Project Calendars;
iii. All proposed Activity Codes, clearly defined;
iv. The proposed Activity ID format; and
v. Schedule basis narrative, which must memorialize assumptions made in the development of the schedule.

C. Baseline Schedule

1. The City will return comments within ten (10) Work Days after receipt of the initial Project Schedule Submission. If any of the required submissions are returned to the Contractor for corrections or revisions, they must be resubmitted within five (5) Work Days from receipt of comments. Each resubmittal must comply with the requirements enumerated above. Review and response by the City will be given within ten (10) Work Days after resubmission.
2. At the request of the City, the Contractor will be required to participate in Project meetings necessary to obtain an acceptance of the above noted submittals.
3. Baseline schedule must include the actual schedule for the initiation, procurement, submittal, permit, construction activity, inspection, substantial and final completion, and closeout phases. Schedule performance during construction and closeout is measured against this baseline.
4. The project may be re-baselined only if the project experiences significant change in the scope, cost and / or schedule due to extenuating circumstances and reasons beyond the control of DDC. Commissioner approval is required to re-baseline a project.
5. Baseline Schedule submittal must contain a Narrative Report. It must include the following, or as directed by the City:
    a. A description of the Project scope and how the Work is represented in the schedule Activities;
    b. A description of the overall sequence of major components of Work;
    c. Planned work week for each definable feature of work;
    d. Description of the Critical Path and near Critical Paths;
    e. Basis of Durations, described in terms of quantity and production rate;
    f. How weather will be accommodated in the schedule, including a description of the weather calendar and the Activities it is applied to, and the NOAA Inclement Weather data that defined the number of non-Work Days;
    g. How regulatory, operational or third-party constraints are accommodated in the schedule;
    h. Description of key Project coordination points or events;
    i. Discussion of long lead items and basis of time frames for submittals;
    j. Description of anticipated means and methods for large quantity production Activities; and,
    k. Potential opportunities and risks, including quantification of the schedule reduction or expansion.
    l. Description of required permits, FDNY Sign-off, TCO & CO approval to ensure regulatory acceptance and conditions for occupancy.

D. Project Schedule Updates

1. Every schedule submittal must be provided with a corresponding narrative. These schedule submittals and narratives are to be submitted in hard copy, as well as in the native electronic format, as attachments to emails or other media accepted by the City. When opened, the electronic format must provide flawless restoration of the native files (P6 (.XER) for Primavera schedule files and MS Word and/or Adobe Acrobat for Narrative and supporting document submittals).

2. For each submittal of the updated Project Schedule, the following layouts, reports, and graphics are required in the specified formats, unless otherwise directed by the City:

   a. The Contractor must furnish two (2) 11” x 17” hard copies of the complete progress schedule with each initial schedule update and final update incorporating comments furnished by the City. Additionally, the Contractor must provide the native electronic schedule data file, in .XER file format, with the initial and final schedule update submission.

   b. An Activity bar chart layout grouped by Activity Code and then sorted by Start Date, Finish Date, and then Total Float.

   c. Each Activity line must display the Activity ID (Act ID), Description (Name), Original Duration (OD), Remaining Duration (RD), Start Date (ES), Finish Date (EF), and Total Float (TF), Baseline Original Duration (BL OD) Baseline Start (BL Start), Baseline Finish (BL Fin), Baseline Total Float (BL TF).

   d. An Activities progress bar must show both current progress update ES and EF, and baseline ES and EF. The top line of the bar chart area must contain the updated ES and EF; the second line below must depict the accepted baseline ES and EF dates.

3. The City may request additional standard P6 reports from time to time at no additional cost.

4. The Monthly Update submittal must contain a Narrative Report. It must include the following, or as directed by the City:

   a. Any changes to the schedule basis narrative
   b. A discussion of progress through the update period and status of the Project with respect to completion of the schedule. The progress reporting must detail work Activities that relate to the Project’s Critical Path and if these Activities are progressing as planned.
   c. A discussion of changes, delays or other circumstances affecting Progress including identified risks and opportunities and the Contractor’s strategy.
   d. A listing and brief explanation of modifications to the previously submitted network including Logic changes and Activity additions, deletions or modifications.
   e. An update on the status of long lead items and whether the item is on the Critical Path.
   f. The Contractor must report on all out of sequence Activities, the cause of this deviation to plan, and the proposed resolution of this issue.
   g. The Contractor must include an explanation of assumptions and exclusions made in developing the schedule update and narrative.
   h. A table of permits, showing status and any changes in status.

5. The Contractor must provide a copy of the computer file(s) in electronic format or other media accepted by the City. When opened, the electronic format must provide flawless restoration of the native files and an electronic copy of the Narrative Report.

**1.13 PROJECT SCHEDULE UPDATING:**

A. The initial updating must take place immediately after the City accepts the Contractor's Baseline Schedule. The Data Date for the first update must not exceed seven (7) Days from the date of receipt of the accepted Baseline Schedule, or as directed by the City.

B. Subsequent updates of the Project Schedule must be submitted monthly until Substantial Completion. The schedule data date must be the last Work Day of the period unless otherwise directed by the City. Updates must be provided to the City no later than seven (7) Days after the ‘schedule Data Date’.

C. Updates must reflect actual or reasonably anticipated progress as of the last Work Day of the period.

D. The City may request meetings with the Contractor to review the Project Schedule and Narrative and jointly verify Project health and information.

E. In addition, the City may request meetings with the Contractor's scheduling representative to:

1. Resolve out-of-sequence Logic;

2. Should out-of-sequence progress occur where Activities have reported progress without predecessor Activities being completed, the Contractor must obtain the City's approval in a Proposed Schedule before revising the Logic ties to reflect the way the Work is actually being performed. Use of progress override by default mechanisms that may be included in CPM scheduling software systems will not be allowed except on a case-by-case basis with the approval of the City. A written explanation for each instance must be included in the monthly submittal narrative.

3. Assess the impact, if any, of any pending change orders.

4. Incorporate accepted time extensions.

5. Review revised Logic (as-built and projected) and changes in Activity Duration, cost, and labor hours assigned.

F. Contractor's failure to provide required scheduling information within the required timeframe or to adhere to the currently accepted schedule may result in rejection of all or a portion of the progress payment until such time as the required schedule information is submitted and accepted by the City.

G. Delays to the Critical Path – Whenever it becomes apparent from the monthly CPM schedule update that delays to the Critical Path have occurred due to action or inaction of the Contractor and, as a result, the date for Substantial Completion will not be met, the Contractor must promptly take some or all of the following actions at no additional cost to the City, unless otherwise directed by the City:

1. Increase construction manpower in such quantities and crafts as will substantially eliminate the backlog of Work.

2. Increase the number of working hours per shift, shifts per day, or Work Days per week; the amount of construction equipment; the forms for concrete work; etc., or any combination of the foregoing to substantially eliminate the backlog of Work.

3. Reschedule Activities to achieve maximum practical concurrence of accomplishment of Activities and comply with the revised schedule.

4. Submit to the City for review a written statement of the steps the Contractor intends to take to remove or arrest the delay to the schedule.

5. Add to its equipment and materials or construction forces, as well as increase the working hours, if operations for critical, less critical or non-critical Activities fall behind the Contractor's Baseline Schedule at any time during the construction period.

H. The City may, at any time during the Project and at no additional cost to the City, require the Contractor to develop a more detailed schedule/ Fragnet than depicted in the Baseline Schedule to provide a clearer understanding of the effort needed to complete an Activity or group of Activities.

I. If the City determines that either the Critical Path is in the negative by four (4) weeks, or that the Project's date for completion may be affected, the Contractor may be required, at no additional cost to the City, to prepare a Recovery Schedule. Such Recovery Schedule is subject to review and acceptance by the City.

1. The recovery schedule must propose alternative methods, overtime, and other means available to the Contractor to recover the delays incurred to date.

2. The Recovery Schedule must be resource-loaded with manpower and equipment required to bring the date for Substantial Completion back into compliance.

J. The Contractor must submit an "As-Built Schedule", as the last schedule update showing all Activities, with the exception of punch list and closeout tasks, at Substantial Completion. This schedule must reflect the exact manner in which the Project was actually constructed.

**1.14 TIME IMPACT ANALYSIS:**

A. In addition to the requirements of the Standard Construction Contract Article 11, the Contractor must submit a Time Impact Analysis to the Commissioner with all requests for time extension.

B. The Time Impact Analysis must include a written narrative and supporting impact schedule Fragnet detailing the Project delays resulting from the alleged delay. The impact schedule Fragnet, separate and distinct from the Progress Schedule update, must demonstrate that the changes or anticipated delays affect Activities of the current accepted Progress Schedule. The impact schedule will be incorporated into the Progress Schedule only after it is accepted by the Commissioner and a time extension is approved. The Fragnet submitted as part of the Time Impact Analysis must illustrate the impact of these changes or delays on the date for Substantial Completion.

**PART II – PRODUCTS (Not Used)**

**PART III – EXECUTION (Not Used)**

**END OF SECTION 01 32 16.20**

# SECTION 01 32 16.30
# PROJECT SCHEDULES (METHOD C)

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SECTION 01 32 16.30**

## PART I – GENERAL

### 1.1 RELATED DOCUMENTS:

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

### 1.2 SUMMARY:

A. This section includes the following:

1. Methods
2. Definitions
3. Preliminary, Baseline, and Project Schedule Preparation Timeline
4. Preliminary Project Schedule Development
5. Project Schedule
6. Activity and Calendar Coding Structure
7. Work Breakdown Structure (WBS)
8. Major Milestones
9. Short (Three-Week) Interval/Two-Week Look-Ahead
10. Submittals
11. Project Schedule Updating
12. Time Impact Analysis

### 1.3 METHODS:

A. The Contractor must comply with Project schedule development and updating requirements as specified herein.

1. The Contractor must employ or retain the services of a Construction Scheduler with verifiable construction scheduling experience, subject to review and acceptance by the City. Upon request, the Contractor must provide the City with qualifications and experience of the proposed scheduling staff member(s).

2. The Contractor must prepare, update, and maintain a detailed Project Schedule using a version of scheduling software that is compatible with the City's Oracle Primavera P6 Enterprise Project Portfolio Management (EPPM). All schedule submittals must be developed using Oracle's Primavera P6 EPPM software. Schedules must be developed using accepted CPM techniques using the Precedence Diagramming Method (PDM). The Project Schedule must be developed following Defense Contract Management Agency (DCMA), and American Association of Cost Engineering International (AACE International) guidance. The Contractor will be required to use the Contractor's own P6 license (whether single-user or Enterprise

license), unless otherwise directed by the Commissioner. If directed by the Commissioner prior to the Notice to Proceed (NTP), the Contractor must use the Department's P6 Enterprise license and develop the Progress Schedule within the Department's Enterprise environment.

3. Once the Baseline Schedule is accepted by the City, progress updates to the Project Schedule must be submitted monthly, unless otherwise directed by the City, until Substantial Completion. The Data Date for the schedule updates must use the last Friday of the month, or as directed by the City.

4. The Contractor must be responsible for providing the monthly schedule updates once the Baseline Schedule is approved. Each monthly schedule update must be accompanied with a schedule narrative that explains the following:

   a) The progress of work during that particular period of performance;
   b) Any changes in schedule Logic;
   c) The physical conditions that were used to update every Activities Percent Complete;
   d) Any change in actual Start and Finish Dates;
   e) Any Duration changes;
   f) Any added and deleted Activities; and
   g) Any added Extra Work (e.g., change orders).

**1.4 DEFINITIONS:**

A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.

| **Term** | **Definition** |
|---|---|
| Activity | A representation of a discrete portion of the overall scope of Work or an event through Duration and description in a CPM schedule. |
| Baseline Schedule | The planned and detailed CPM schedule of Activities, including all Logic, Durations, Resource and Cost Loading, and showing the entire scope of Work. The Baseline Schedule must be accepted by the City. |
| Critical Path | The longest sequence of Activities in a network which establishes the minimum length of time for accomplishment of the end event of the Project. |
| Critical Path Method (CPM) | A management technique used to plan and control a project which combines all relevant information into a single plan defining the sequence and Duration of operations and depicting the interrelationship of the Work elements required to complete the Project. |
| Current Schedule | The most recently updated schedule that captures progress to date and forecasts the dates for each Activity. |
| Data Date | The date used as a starting point for scheduling calculations. The Data Date is changed to the current end of period date when a schedule is updated for progress. |

| Term | Definition |
|---|---|
| Duration | The amount of time, in workdays, an Activity will take to perform. |
| Finish Date | The earliest estimated date an Activity is calculated to be complete, based on the estimated performance of all prior Activities to which the Activity is logically connected in a progressive relationship. |
| Free Float | The calculated amount of time that the estimated start or finish of an Activity can be delayed without impacting the start or finish of other downstream Activities logically connected in a progressive relationship. (See Finish Date and Late Finish). |
| Fragnet | Fragmentary network: a portion of a schedule detailing impacts of an event on specific Activities in the broader schedule. |
| Inclement Weather | Any weather condition, the duration of which varies in excess of the 3-year average published by the National Oceanic and Atmospheric Administration (NOAA) information for the local area. |
| Integrated Project Schedule | The Commissioner's overall schedule covering design, procurement, and construction. The Commissioner will use the Contractor's Project Schedule to update the Integrated Project Schedule. |
| Late Finish | An estimate of the latest plausible date an Activity's completion can be postponed without rendering as unachievable the required completion of any downstream Milestones to which the Activity is Logically connected to in a progressive relationship. |
| Late Start | An estimate of the latest plausible date an Activity's start can be postponed without rendering as unachievable the required completion of any downstream Milestones to which the Activity is Logically connected to in a progressive relationship. |
| Logic | A direct progressive relationship between Activities where one Activity's performance restricts the performance of another Activity. |
| Milestone | A key or critical point in time for reference or measurement. |
| Network Diagram | A graphic diagram of a network schedule, showing Activities and Activity relationships. |
| Original Duration | The estimated amount of time, in Work Days, an Activity is expected to take to complete at the beginning of a project as anticipated by the Contractor based on its planned means and methods at time of bid and documented in the Baseline Schedule. |
| Percent Complete | The percentage of the scope of Work represented by an Activity completed as of the Data Date calculated as physical percent complete for payment purposes. |

| **Term** | **Definition** |
|---|---|
| Project Schedule | The Contractor's schedule used to manage the orderly and expeditious completion of the Work. The Project Schedule is initially the accepted Baseline Schedule, and is updated throughout the Project. |
| Remaining Duration | The amount of time, in Work Days, the remaining scope of Work represented by an Activity is expected to take to complete, measured from the current Data Date. |
| Resource and Cost Loading | Values assigned for estimated dollars, manpower, equipment and/or materials necessary to complete the scope of Work represented by a specific Activity. |
| Recovery Schedule | A Recovery Schedule outlining and incorporating extraordinary efforts required to recover lost time with the aim of achieving completion of the Project within the stipulated contract Duration, plus authorized time extensions. In such case, special attention must be given to minimize delays and must establish the nature of efforts; for instance, resources and equipment required, extended hours of work, weekend work, accelerated fabrication, required action(s) or effort(s) by the Contractor, its Subcontractors, consultants, clients, end users and/or other concerned parties to recover the schedule. |
| Revised and/or Updated Schedule | A Baseline Schedule, or Progress Project Schedule, or Recovery Schedule for the Project that shows the actual Duration of all the completed Activities, including Duration of and the reasons for delays, if any have occurred, AND revisions to all remaining Activities of the Contractor and its Subcontractors, including changes, if any, to logical ties, interrelations and the sequence of each of the outlined Activities. Any such revisions should be shown on the row just below the approved schedule of the respective Activity so that revisions can be compared. The Revised and/or updated Schedule must be reviewed and approved by the City. |
| Start Date | The earliest estimated date an Activity is calculated to begin, based on the estimated performance of all prior Activities to which the Activity is logically connected in a progressive relationship. |
| Time Impact Analysis | A forward looking (prospective) schedule analysis used to forecast the impact to the Critical Path and to Milestone Finish Dates caused by a single event or series of events. Time Impact Analysis is not a retrospective (forensic) schedule analysis or a what-if schedule analysis of a potential event. |
| Total Float | The amount of time the start or finish of an Activity can be delayed without affecting the Project completion date. |

| Term | Definition |
|---|---|
| Work Breakdown Structure (WBS) | WBS is a deliverable-oriented decomposition of a Project into smaller components. A WBS provides the necessary framework for detailed cost estimating and control along with providing guidance for schedule development and control. |
| Work Days (WD) | Work Days are every consecutive day on the calendar, excluding weekends (Saturday and Sunday) and holidays. |

**1.5 PRELIMINARY, BASELINE, AND PROJECT SCHEDULE PREPARATION TIMELINE:**

A. Upon receipt of the NTP, the Contractor must promptly prepare a preliminary Project Schedule and subsequently a Baseline Schedule and must submit for the City's acceptance as follows:

1. Submit the Contractor's CPM Scheduler's qualifications to the City for approval within seven (7) Days after NTP. The City will respond to the submittal within seven (7) Days of the submittal receipt.
2. The preliminary Project Schedule must be submitted no later than twenty-one (21) Days after NTP.
3. The initial submittal of the Baseline Schedule must be provided to the City for review no later than forty-five (45) Days after NTP.
4. The Contractor must incorporate all corrections and revisions required by the City and provide an updated version of the Baseline Schedule for review and acceptance no later than seventy-five (75) Days after NTP to ensure that the Baseline Schedule is accepted no later than ninety (90) Days after the NTP. The ninety (90) Days must include fourteen (14) Days review time by the City for each submittal of the Baseline Schedule.
5. Once accepted, the Baseline Schedule will be the basis of Project Schedule updates.

B. Remedies

1. Preliminary Project Schedule: The City will take a credit of three thousand dollars ($3,000) if the preliminary Project Schedule is not submitted within twenty-one (21) Days of the NTP.
2. Acceptable Baseline Schedule: The City will take a credit of five thousand dollars ($5,000) if an acceptable Baseline Schedule is not submitted within ninety (90) Days of the NTP.
3. Monthly Progress Schedule updates: The City will take a credit of two thousand dollars ($2,000) for each schedule update not submitted within the period it was due.
4. Scheduling Firm Services: If an acceptable Baseline Schedule is not provided by the Contractor within ninety (90) Days of the NTP or three (3) updates are not provided by the Contractor during the period they are due, the City may engage the services of a scheduling firm to develop a Project schedule or update an existing schedule. The total costs of such services will be deducted from the monies due to the Contractor.
5. Any schedules and updates developed by such scheduling firm are for the City's sole use and do not, in any way, represent an acceptance of responsibility by the City to schedule the Work or relieve the Contractor of the obligation to complete the Work within the Durations specified by the Contract.

6. The City will only accept the submitted information after all corrections have been made and all issues have been resolved. The City may find the Contractor in default if items required by this Section are incomplete.

**1.6 PRELIMINARY PROJECT SCHEDULE DEVELOPMENT:**

A. The preliminary Project Schedule must be a detailed plan (division level per Construction Specifications Institute (CIS) MasterFormat) of all operations, including submittals, permitting, testing, and construction Activities, for either the first ninety (90) Days after NTP or to the point where the Contractor plans to mobilize on site (whichever is greater). This submittal will also depict a summary level (section level per CSI MasterFormat) schedule of the major Activities for the remainder of the Work.

B. The preliminary Project Schedule will be reviewed by the City and returned with comments, as necessary, within fourteen (14) Days of submittal receipt. Information from the preliminary Project Schedule will be the general foundation for development of the Baseline Schedule.

**1.7 PROJECT SCHEDULE:**

A. The Baseline Schedule must show the sequence in which the Contractor proposes to perform the Work, and account for all major and intermediate Milestone Activities, phasing, restrictions of access, availability of work areas and the availability and use of labor, materials, and equipment.

B. After the Baseline Schedule is approved, the Project Schedule must be the Contractor's working schedule and must be used to plan, organize, execute and track the Project. The Project Schedule is the primary vehicle used to report actual performance, progress, and convey the Contractor’s execution plan to complete the Work.

C. The Project Schedule must show the sequence in which the Contractor proposes to perform the Work, and account for all major and intermediate Milestone Activities, phasing, restrictions of access, availability of work areas and the availability and use of labor, materials, and equipment.

D. The Project Schedule must be the Contractor's working schedule used to plan, organize, execute, and track the Project. The Project Schedule is the primary vehicle used to report actual performance, progress, and convey the Contractor's execution plan to complete all remaining Work.

E. All delay claims must be based on the current approved updates of the Project Schedule.

F. The Contractor must confirm in writing that all Subcontractors performing any portion of the Work are in agreement with the accepted Baseline Schedule and the monthly updates.

G. The amount of detail represented in the Baseline and Project Schedule and supporting documents submitted must, at a minimum, include the following, items:

1. Contract Milestones must be identified and included in the Baseline and Project Schedule.
2. All submittal, owner review & approval, purchase, manufacture, and delivery Activities for all major materials and equipment.
3. Deliveries of owner-furnished equipment and/or materials.
4. Preparation, submittal, and approval of drawings, material samples, and safety plans.
5. Preparation, submittal, review, and approval of permits required by all regulatory agencies and other third parties.
6. Performance of tests, submission of test reports, and approval of test results.

7. Commissioning Activities for all commissioned systems and equipment is to be clearly delineated and scheduled such that they will be completed prior to Substantial Completion. Such Activities must include, at a minimum, Pre-Functional testing and check sheets; Testing, Adjusting, and Balancing (TAB) verification; Functional Testing, including testing of all controls; and Owner's demonstration and orientation.
8. Completion dates of all items required for phased completion (if applicable).
9. Completion dates of all items required for Substantial Completion.
10. Completion dates of all items required to obtain a Temporary Certificate of Occupancy (TCO) and Certificate of Occupancy (CO).
11. Completion dates for close-out of regulatory and punch list items prior to Final Acceptance and transfer of the Project.
12. Any additional detail requested by the Commissioner.

H. Activities identified in the Baseline and Project Schedule must have the Duration in units of whole Work Days. Construction Activity Durations must not exceed twenty (20) Work Days unless specifically approved by the City. This is to ensure that Activities are not generalized and that each Activity and sub-Activity are defined as narrowly as reasonable to facilitate schedule tracking. Durations for non-construction Activities such as procurement of materials, delivery of equipment, concrete curing, etc. may exceed twenty (20) Work Days without prior approval; however, these are still subject to review by the City. Durations must be based on the available resources required for performing each Activity and must be the result of definitive labor hours using established production rates, and with consideration of on-site working conditions. If requested by the City, the Contractor must justify the reasonableness of a planned Duration.

I. Activity descriptions must use plain language that clearly and uniquely defines each Activity. Each description must include a verb or work function (e.g. submit, form, pour etc.), an object (e.g. slab, foundation, etc.) and, for any construction Activities, a specific location. The Work related to each Activity must be limited to one responsibility and one trade.

J. Activity relationships must be assigned to clearly establish predecessor and successor relationships to each Activity. Open-ended Activities are not permitted with the exception of the first and last Activities in the network, the first Activity being NTP and the last being Final Acceptance. The use of relationship lag times is discouraged and only permitted with prior approval by the City. The use of negative lag is never permitted.

K. Activity constraint dates are only to be used to reflect contractual constraints unless specifically authorized by the City.

L. Float or slack, in any schedule, must not be for the exclusive use or benefit of either the City or the Contractor, but must be available for use by both the City and the Contractor.

M. Each resubmittal after the Project Schedule is delivered for acceptance must comply with all requirements of this section. Review and response by the City will be given within fourteen (14) Days after resubmission. The Contractor's receipt of the comments within the time specified must not, in any way, affect the Contractor's responsibility to complete the Project within the time fixed in Schedule A.

N. Failure by the City to return comments or indicate acceptance status will in no way relieve the Contractor's obligation to submit monthly schedule updates.

O. At the request of the City, the Contractor must be required to make a presentation to explain or clarify the intended logical sequence of construction Activities depicted in the detailed Project Schedule. The Contractor and designated scheduler must discuss anticipated challenges and outline construction methodology and flow of work to show how and when major Milestones will be achieved. In addition,

the Contractor may, at no cost to the City, be required to participate in additional Project meetings necessary to obtain acceptance of the above-noted submittals.

P. The Contractor must provide a Cost Flow Projection (CFP) summary covering from NTP to Final Acceptance. The CFP summary must match the expected billings for each period of performance.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 1.7.Q**

Q. Schedule Cost and Resource Loading

1. At the direction of the City, and at no additional cost to the City, a Project Schedule must be cost loaded within thirty (30) Days after acceptance of the Baseline Schedule.
2. The Contractor must accurately load all Project Activities with direct field labor associated with the craft or trades required to complete that Activity. All labor must be noted in manhours required to complete the tasking. The Contractor must include in all Activities the hours required of for major pieces of equipment.
3. All Resource ID's must have a unique identifier assigned by the Contractor, and approved by the City, so the Project-specific data can be separated from other data in the system.
4. Cost loading must be accomplished by adding a single summary level cost loaded Activity in the Project Schedule. This Activity will allow initial generation and monthly updates of the planned value that is time-phased into monthly periods.
5. The intent of the cost loading is to facilitate cost forecasting, tracking, and reporting of monthly cost projection. Every month, the cost loaded summary Activity must be updated with earned value for prior months and revised monthly forecast for future periods. If there is a significant difference between the actual cumulative monthly invoice and the cumulative planned value from the cost loaded Project Schedule for any reporting month, the Contractor must provide the City with the reason for variance in the schedule narrative.

## 1.8 ACTIVITY AND CALENDAR CODING STRUCTURE:

A. The Baseline and Project Schedules must contain a sufficient number of Activities to represent adequate planning and execution of the Work so that it shows an accurate flow of work and demonstrates an understanding of the Project by the Contractor.

B. Activity ID and Calendar Coding

1. The Contractor's proposed Activity and calendar coding and must be submitted with the preliminary Project Schedule. A meeting may be requested by the City to discuss the scheme and other schedule information prior to the submittal of the Project Schedule. The accepted coding scheme and WBS Structure must be incorporated into the Project Schedule.

C. Activity ID Coding

1. All Activities/Resources/Calendars (Baseline and Project Schedules) must be coded inside the P6 Project Environment / Project Level (NOT the Global Environment/Enterprise Level) to facilitate selection, sorting and preparation of reports.
2. Activity coding must consist of the Project ID followed by a dash, followed by Activity coding (PROJECT ID-ACTIVITY CODE). Activity codes must be created at the Project level and must utilize the coding scheme outlined in the table below:

| Activity Code | Meaning |
|---|---|
| RESP | Responsibility: Identify the party (e.g. Contractor, Subcontractor, City, etc.) responsible for the Activity. |
| PHAS | Phase: Breakdown of Activities in Milestones, pre-construction, procurement, construction and close-out Activities. |
| LOCN | Location: Breakdown by floor or elevation. |
| AREA | Area: Breakdown by room, area, block or wing. May be used as a subdivision of PHAS to include Milestones, permits, Subcontractor approvals, submittals, fabrication and delivery, and subdivision of the Site and buildings into Logical modules, such as by blocks, wings, etc. |
| TRAD | Trade: Breakdown by CSI Code or section number in the Specifications. |

a. Description of schedule Activities must include terminology that represents the scope of work associated with that particular Activity. Terminology used to describe similar actions must be consistent across all segments of work.

b. Naming convention for schedule Activities must be descriptive and indicate the associated work covered by the Activity. Activities must use a verb, noun, and location of the work in the Activity name.

3. Project Calendar Coding

a. All calendars created and assigned to Activities must be Project-level calendars. The Calendar Name must consist of the Project ID number followed by a dash, followed by a descriptive Calendar Name (PROJECT ID-CALENDAR NAME).

**1.9 WORK BREAKDOWN STRUCTURE:**

A. A multi-level hierarchal WBS must be incorporated in all P6 schedules. An initial, proposed WBS must be submitted with the preliminary Project Schedule. The levels (nodes) must include, but not be limited to:

1. LEVEL 01 – The Project Level.
2. LEVEL 02 – Contains a minimum of four (4) nodes: Pre-Construction, Procurement, Construction or Phase of Construction, and Closeout.
3. LEVEL 03 – Decomposition of each of the four (4) nodes in Level 02 into its constituent parts. This Level must target specific, tangible, scopes of the Project Work.
4. LEVEL 04 – Decomposition of Level 03 Activities providing work package details that provide an understanding of the process to be used to execute the Project Work.

B. The Contractor's proposed WBS must be submitted with the preliminary Project Schedule. The accepted WBS must be incorporated into the Baseline and Project Schedule.

**1.10 MAJOR MILESTONES:**

A. The schedule must include both contractual and non-contractual Milestones that are provided by the City. These Milestones must be properly associated with the related Work and maintained to represent the progress of the Project and account for all required inspections and approvals to achieve project completion.

**1.11 SHORT (THREE-WEEK) INTERVAL / TWO-WEEK LOOK-AHEAD:**

A. On a weekly basis, the Contractor must provide a three (3) week short interval schedule in a format satisfactory to the City. The purpose of this schedule is to report the actual progress of the past week against the previous short interval look-ahead Activities and add any additional Activities planned for the next two (2) weeks. Electronic and hard copies must be provided to the City on the first day of each work week with the prior week's actual progress included.

B. Each task listed on the short interval schedule must be representative of the most current Project Schedule Update and include a reference to an Activity shown on the current update.

C. The short interval schedule must list all required DDC coordinated activities, including special inspections.

**1.12 SUBMITTALS:**

A. General

1. Development of the Baseline Schedule and updating of the Project Schedule must follow the DCMA and AACE International guidelines.

2. Each electronic submission of the Project Schedule must be assigned a unique file name consisting of the Project ID (as noted on the NTP), followed by a dash followed by a unique file name clearly marked (i.e. ProjID- B000 = B/L rev0, ProjID-B001 = B/L rev01 etc.) to indicate the specific submission. Similarly, update submittals must be named ProjID-Uxxx where xxx is a sequential number, starting with 001, indicating the revision or issue number.

3. The Contractor must provide all submittals in electronic format and two hard copies.

B. Preliminary Project Schedule

1. For acceptance of the preliminary Project Schedule, the Contractor must submit the following:

a. Two (2) 11" x 17" hard copies of the proposed preliminary Project Schedule, as well as the native electronic schedule data file, in .XER file format, per the direction of the City.

b. A Schedule Narrative Report detailing the Contractor's initial plan for executing the Contract work within the allotted Contract Duration, and include the following explanation of their provided preliminary schedule:

i. The proposed (WBS);
ii. All proposed Project Calendars;
iii. All proposed Activity Codes, clearly defined;
iv. The proposed Activity ID format; and
v. Schedule basis narrative, which must memorialize the assumptions made in the development of the schedule.

C. Baseline Schedule

1. The City will return comments within ten (10) Work Days after receipt of the initial Project Schedule Submission. If any of the required submissions are returned to the Contractor for corrections or revisions, they must be resubmitted within five (5) Work Days from receipt of comments. Each resubmittal must comply with the requirements enumerated above. Review and response by the City will be given within ten (10) Work Days after resubmission.

2. At the request of the City, the Contractor will be required to participate in Project meetings necessary to obtain an acceptance of the above noted submittals.

3. Baseline schedule must include the actual schedule for the initiation, procurement, submittal, permit, construction activity, inspection, substantial and final completion, and closeout phases. Schedule performance during construction and closeout is measured against this baseline.

4. The project may be re-baseline only if the project experiences significant change in the scope, cost and / or schedule due to extenuating circumstances and reasons beyond the control of MC. Commissioner approval is required to re-baseline a project.

5. Baseline Schedule submittal must contain a Narrative Report. It must include the following, or as directed by the City:

   a. A description of the Project scope and how the Work is represented in the schedule Activities;

   b. A description of the overall sequence of major components of Work;

   c. Planned work week for each definable feature of work.

   d. Description of the Critical Path and near Critical Paths;

   e. Basis of Durations, described in terms of quantity and production rate;

   f. How weather will be accommodated in the schedule, including a description of the weather calendar and the Activities it is applied to, and the NOAA Inclement Weather data that defined the number of non-work days;

   g. How regulatory, operational or third-party constraints are accommodated in the schedule;

   h. Description of key Project coordination points or events;

   i. Discussion of long lead items and basis of time frames for submittals;

   j. Description of anticipated means and methods for large quantity production Activities;

   k. Potential opportunities and risks, including quantification of the schedule reduction or expansion; and

   l. Assumptions/exclusions made in the schedule.

   m. Permits, and if required, FDNY Sign-off, TCO & CO approval to ensure regulatory acceptance and conditions for occupancy.

D. Project Schedule Updates

1. Every schedule submittal must be provided with a corresponding narrative. These schedule submittals and narratives must be submitted in hard copy and the native electronic format as attachments to emails or other media accepted by the City. When opened, the electronic format must provide flawless restoration of the native files (P6 (.XER) for Primavera schedule files and MS Word and/or Adobe Acrobat for narrative and supporting document submittals).

2. For each submittal of the updated Project Schedule, the following layouts, reports, and graphics are required in the specified formats, unless otherwise directed by the City:

   a. The Contractor must furnish two (2) 11” x 17” hard copies of the complete progress schedule with each initial schedule update and final update incorporating comments furnished by the City. Additionally, the Contractor must provide the native electronic schedule data file, in .XER file format with the initial and final schedule update submission.

b. An Activity bar chart Layout grouped by Activity Code and then sorted by Start Date, Finish Date, and Total Float.

c. Each Activity line must display the Activity ID (Act ID), Description (Name), Original Duration (OD), Remaining Duration (RD), Start Date (ES), Finish Date (EF), and Total Float (TF), Baseline Original Duration (BL OD), Baseline Start (BL Start), Baseline Finish (BL Fin), Baseline Total Float (BL TF).

d. An Activities progress bar must show both current progress update ES and EF, and baseline ES and EF. The top line of the bar chart area must contain the updated ES and EF; the second line below must depict the accepted baseline ES and EF dates.

3. The City may request additional standard P6 reports from time to time at no additional cost.

4. The Monthly Update submittal must contain a Narrative Report. It must include the following, or as directed by the City:

a. Any changes to the schedule basis narrative;

b. Overall health of the Project;

c. Actual Activity Start Dates;

d. Actual Activity Finish Dates;

e. The physical conditions that were used to update Activities percent complete

f. Percent of Work reported in place;

g. Contract and Milestone completion date status:

i. Number of Days ahead or behind schedule; and
ii. Days lost/gained compared with the previous update.

h. Schedule change report organized by Milestone and area comparing the number of Activities that were planned to start and finish to the number that actually started and finished for the reporting period;

i. Lookahead report listing each Activity in the CPM schedule that is scheduled to be performed during the next reporting period;

j. Plans for executing scheduled Activities during the next reporting period;

k. Analysis, organized by Milestone and area, of the Critical Path and near Critical Path(s) describing:

i. The nature of the Critical Path/near Critical Path;
ii. Impact on other Activities, Milestones and Finish dates; and
iii. Identify, or update, risks and opportunities that may impact the Critical Path/near Critical Paths.

l. List of current and anticipated delays by Milestone:

i. Cause of the delay;
ii. Corrective actions and schedule adjustments to correct the delay;
iii. Impact of the delay on other Activities, Milestones and completion dates; and
iv. Weather delays, when applicable. The Contractor must describe how the impacts of weather conditions and constraints were absorbed and accounted for in the schedule.

m. Changes in Activity description, Logic, or Duration must be submitted as a separate Proposed Schedule and approved by the City prior to being submitted as an official

update. Once allowed, said changes must be grouped and organized in the report in a manner that communicates in detail the rationale associated with each change and the impact upon construction sequence, relationships and the Critical Path. A standard Digger Report is not sufficient to meet this requirement;

n. Added/deleted Activities and the rationale associated with each action;

o. Pending issues and status of other items;

p. Permits, in a tabular format, showing the status and change in status of all permits;

q. Contract modifications;

r. Current and potential extra Work, including change orders;

s. Status of long lead procurement items and whether the item is on the Critical Path;

t. Status of Project submittals;

u. Out of sequence report describing the necessity of each Activity relationship shown therein, as described within this Section;

v. Illogical progress/restraint reports (if any);

w. Other Project or scheduling concerns;

x. Electronic copy of the latest CPM schedule update file in Primavera (.XER) format; and

y. Primavera scheduling error report.

**1.13 PROJECT SCHEDULE UPDATING:**

A. The initial updating must take place immediately after the City accepts the Contractor's Baseline Schedule. The Data Date for the first update must not exceed seven (7) Days from the date of receipt of the accepted Baseline Schedule, or as directed by the City.

B. Subsequent updates to the Project Schedule must be submitted monthly until Substantial Completion is achieved. The schedule Data Date must be set to the last Work Day of the period unless otherwise directed by the City. Updates must be provided to the City no later than seven (7) Days after the 'schedule Data Date'.

C. Updates must reflect actual or reasonably anticipated progress as of the last Work Day of the period.

D. The City may request meetings with the Contractor to review the Project Schedule and narrative and jointly verify Project health and information.

E. In addition, the City may request meetings with the Contractor's scheduling representative to:

1. Resolve out-of-sequence Logic.

2. Should out-of-sequence progress occur where Activities have reported progress without predecessor Activities being completed, the Contractor must obtain the City's approval in a Proposed Schedule before revising the Logic ties to reflect the way the Work is actually being performed. Use of progress override by default mechanisms that may be included in CPM scheduling software systems will not be allowed except on a case-by-case basis with the approval of the City. A written explanation for each instance must be included in the monthly submittal narrative.

3. Assess the impact, if any, of any pending change orders.

4. Incorporate accepted time extensions.

5. Review revised Logic (as-built and projected) and changes in Duration, cost, and labor hours assigned.

F. Contractor's failure to provide required scheduling information within the required timeframe or to adhere to the currently accepted schedule may result in rejection of all or a portion of the progress payment until such time as the required schedule information is submitted and accepted by the City.

G. Delays to the Critical Path – Whenever it becomes apparent from the monthly CPM schedule update that delays to the Critical Path have occurred due to action or inaction of the Contractor, and as a result the date for Substantial Completion will not be met, the Contractor must promptly take some or all of the following actions at no additional cost to the City, unless otherwise directed by the City:

1. Increase construction manpower in such quantities and crafts as will substantially eliminate the backlog of Work.

2. Increase the number of working hours per shift, shifts per day, or Work Days per week; the amount of construction equipment; the forms for concrete work; etc., or any combination of the foregoing to substantially eliminate the backlog of Work.

3. Reschedule Activities to achieve maximum resource utilization across the Project and comply with the revised schedule.

4. Submit to the City a written statement of the steps the Contractor intends to take to remove or arrest the delay to the schedule. The Contractor must promptly provide the necessary level of effort to bring the Work back on schedule.

5. Add to its equipment and materials or construction forces, as well as increase the working hours, if operations for critical, less critical, or non-critical Activities fall behind the Contractor's Baseline Schedule at any time during the construction period.

H. The City may, at any time during the Project and at no additional cost to the City, require the Contractor to develop a more detailed schedule/Fragnet than depicted in the Baseline Schedule to provide a clearer understanding of the effort needed to complete an Activity or group of Activities.

I. If the City determines that either the Critical Path is in the negative by four (4) weeks, or that the Project's date for completion may be affected, the Contractor may be required, at no additional cost to the City, to prepare a Recovery Schedule. Such Recovery Schedule is subject to review and acceptance by the City. The Recovery Schedule must propose alternative methods, overtime, and other means available to the Contractor to recover the delays incurred to date.

J. The Contractor must submit an "As-Built Schedule", as the last schedule update showing all Activities, with the exception of punch list and closeout tasks, at Substantial Completion. This schedule must reflect the exact manner in which the Project was actually constructed.

**1.14 TIME IMPACT ANALYSIS:**

A. In addition to the requirements of the Standard Construction Contract Article 11, the Contractor must submit a Time Impact Analysis to the Commissioner with all requests for time extension.

B. The Time Impact Analysis must include a written narrative and supporting impact schedule Fragnet detailing the Project delays resulting from the alleged delay. The impact schedule Fragnet, separate and distinct from the Progress Schedule update, must demonstrate that the changes or anticipated delays affect Activities of the current accepted Progress Schedule. The impact schedule will be incorporated into the Progress Schedule only after it is accepted by the Commissioner and a time extension is approved. The Fragnet submitted as part of the Time Impact Analysis must illustrate the impact of these changes or delays on the date for Substantial Completion.

**PART II – PRODUCTS (Not Used)**

**PART III – EXECUTION (Not Used)**

**END OF SECTION 01 32 16.30**

# SECTION 01 32 33
# PHOTOGRAPHIC DOCUMENTATION

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SECTION 01 32 33**

## PART I – GENERAL

### 1.1 RELATED DOCUMENTS:

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

### 1.2 SUMMARY:

A. This Section includes the following:
   1. Photographic Media
   2. Construction Photographs
   3. Pre-construction Photographs
   4. Periodic Construction Progress Photographs
   5. Special Photographs
   6. DVD Recordings
   7. Final Completion Construction Photographs

B. RELATED SECTIONS: include without limitation the following:
   1. Section 01 10 00 SUMMARY
   2. Section 01 33 00 SUBMITTAL PROCEDURES
   3. Section 01 35 91 HISTORIC TREATMENT PROCEDURES
   4. Section 01 78 39 CONTRACT RECORD DOCUMENTS
   5. Section 01 81 19 INDOOR AIR QUALITY REQUIREMENTS FOR LEED BUILDINGS

C. PHOTOGRAPHER - The Contractor must employ and pay for the services of a professional photographer who will take photographs showing the progress of the Work.

### 1.3 DEFINITIONS:

A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.

B. Design Consultant: “Design Consultant” must mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the “Design Consultant” may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.

### 1.4 SUBMITTALS:

A. Qualification Data: For photographer.

B. Key Plan: With each Progress Photograph Submittal include a key plan of Project site and building with notation of vantage points marked for location and direction of each image. Indicate location, elevation or story of construction. Include same label information as corresponding set of photographs.

C. Construction Progress Photograph Prints: Take Progress Photographs bi-weekly and submit four (4) color prints of each photographic view for each trade to the Commissioner. Such Progress Photographs must be included in each monthly progress report or as otherwise directed by the Commissioner.

D. Digital Files: Submit digital files in the format required.

**1.5 QUALITY ASSURANCE:**

A. Photographer Qualifications: An individual who has been regularly engaged as a professional photographer of construction projects for not less than three (3) years.

**1.6 COORDINATION:**

A. The Contractor and its Subcontractor(s) must cooperate with the photographer and provide auxiliary services requested, including access to Project site and use of temporary facilities, such as temporary lighting required to produce clear and well-lit photographs without obscuring shadows.

**1.7 COPYRIGHT:**

A. The Contractor must include the provisions of this Subsection 1.7 in the agreement between the Contractor and the Photographer who will provide the construction photographs described in this Section. The Contractor must submit to the Commissioner a copy of its agreement with the Photographer.

B. Any photographs, images and/or other materials produced pursuant to this Agreement, and any and all drafts and/or other preliminary materials in any format related to such items produced pursuant to this Agreement, will, upon their creation, become the exclusive property of the City.

C. Any photographs, images and/or other materials provided pursuant to this Agreement ("Copyrightable Materials") will be considered "work-made-for-hire" within the meaning and purview of Section 101 of the United States Copyright Act, 17 U.S.C. § 101, and the City will be the copyright owner thereof and of all aspects, elements and components thereof in which copyright protection might exist. To the extent that the Copyrightable Materials do not qualify as "work-made-for-hire," the Photographer hereby irrevocably transfers, assigns and conveys exclusive copyright ownership in and to the Copyrightable Materials to the City, free and clear of any liens, claims, or other encumbrances. The Photographer will retain no copyright or intellectual property interest in the Copyrightable Materials. The Copyrightable Materials must be used by the Photographer for no purpose other than in the performance of this Agreement without the prior written permission of the City. The Department may grant the Photographer a license to use the Copyrightable Materials on such terms as determined by the Department and set forth in the license.

D. The Photographer acknowledges that the City may, in its sole discretion, register copyright in the Copyrightable Materials with the United States Copyright Office or any other government agency authorized to grant copyright registrations. The Photographer must fully cooperate in this effort and agrees to provide any and all documentation necessary to accomplish this.

E. The Photographer represents and warrants that the Copyrightable Materials: (i) are wholly original material not published elsewhere (except for material that is in the public domain); (ii) do not violate any copyright Law; (iii) do not constitute defamation or invasion of the right of privacy or publicity; and (iv) are not an infringement, of any kind, of the rights of any third party. To the extent that the Copyrightable Materials incorporate any non-original material, the Photographer has obtained all necessary permissions and clearances, in writing, for the use of such non-original material under this Agreement, copies of which must be provided to the City.

## PART II – PRODUCTS

### 2.1 PHOTOGRAPHIC MEDIA:

A. Digital Images: Digital files must be captured as 7.2 megapixel files or greater, with a minimum pixel array of 2,400 pixels by 3,000 pixels. The camera used to capture the digital files must be a Digital SLR (Single Lens Reflex) camera or approved equal; "point and shoot" cameras or camera phones are not acceptable. Digital cameras must produce images using true optical resolution; "digital zoom" is not acceptable. Images must not be resized or interpolated. The file format for digital files must be Joint Photographic Experts Group format ("JPG"). The digital files must not be modified or processed in any way to alter the JPG file's metadata, including the photograph's original capture date.

B. Digital Files: Digital files must be submitted on Digital Versatile Disk ("DVD") or as specified by the Commissioner. DVDs must be inserted in standard weight Archival Quality clear poly sheet protectors and submitted in a hard cover three (3) ring binder. The information imprinted on each print must be provided on an Excel file included on the DVD. The DVD must be labeled with the Project ID and the Project description. Labeling using adhesive labels is not acceptable.

C. Prints:
   1. Format: 8-by-10-inch (203-by-254-mm) smooth-surface matte color prints on single-weight commercial-grade stock paper, with 1-inch wide margins and punched for standard 3-ring binder.
   2. Identification: On the front of each photograph affix a label in the margin with Project name and date photograph was taken. On the back of each print, provide an applied label or rubber-stamped impression with the following information:
      a. Project Contract I.D. Number.
      b. Project Contract Name.
      c. Name of Contractor. (and Subcontractor Trade Represented)
      d. Subject of Image Taken.
      e. Date and time photograph was taken if not date stamped by camera.
      f. Description of vantage point, indicating location, direction and other pertinent information.
      g. Unique sequential identifier.
      h. Name and address of photographer.

## PART III – EXECUTION

### 3.1 CONSTRUCTION PHOTOGRAPHS:

A. General: Take photographs that provide the largest possible depth-of-field while still in focus, to clearly show the Work. Photographs with blurry or out-of-focus areas will not be accepted.
   1. Maintain key plan with each set of construction photographs that identifies each photographic location and direction of view.

B. Digital Images: Submit digital images exactly as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.
   1. Date and Time: Include date and time in filename for each image.
   2. Field Office Images: Maintain one set of images on USB drive, or other electronic media requested by the Commissioner, in the field office at the Project site so that it is available at all times for reference. Ensure that the images are the same as for those submitted to Commissioner.

### 3.2 PRE-CONSTRUCTION & PRE-DEMOLITION PHOTOGRAPHS:

A. Before commencement of Contract Work at the Project site, take color photographs of Project site and surrounding properties, including existing structures or items to remain during construction, from different vantage points, as directed by the Commissioner.
   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 Commissioner to record settlement or cracking of adjacent structures, pavements, and improvements.

B. Demolition Operations: Take photographs as directed by the Commissioner of minimum of eight (8) views each before commencement of demolition operations, at mid-point of operations and at completion of operations.

C. Pre-Demolition Photographs: Take archival quality color photographs, to include all exterior building facades, of all structures at the Project site designated to be fully demolished or removed in compliance with New York City Building Code requirements. Submit four (4) complete sets of pre-demolition photographs, in the format specified herein, to the Commissioner for submission to the New York City Department of Buildings.

**3.3 PERIODIC CONSTRUCTION PROGRESS PHOTOGRAPHS:**

A. Take photographs of minimum eight (8) views bi-weekly as directed by the Commissioner of construction progress for each contract trade. Select vantage points to show status of construction and progress since last photographs were taken.

**3.4 SPECIAL PHOTOGRAPHS:**

A. The photographer must take special photographs of subject matter or events as specified in other sections of the Project Specifications from vantage points specified or as otherwise directed by the Commissioner.

B. Historical Elements: As required in Section 01 35 91 HISTORIC TREATMENT PROCEDURES, for Contract Work at designated landmark structures or sites, the photographer, as specified and required by individual sections of the Contract documents or at the direction of the Commissioner, must take images of existing elements scheduled to be removed for replacement, repair or replication in quantities as directed, including post-construction photographs of completed Work as directed by the Commissioner.

1. Take Presentation Quality Photographs of designated landmark structures as directed by the Commissioner for submission to the New York City Landmarks Preservation Commission. Provide a minimum of four (4) color photographic prints of each view as directed.

**3.5 VIDEO RECORDING:**

A. When Video Recording of Demonstration and Orientation sessions is required, the Contractor must provide the services of a Videographer as indicated in Section 01 79 00 DEMONSTRATION AND OWNER'S PRE-ACCEPTANCE ORIENTATION.

**3.6 FINAL COMPLETION CONSTRUCTION PHOTOGRAPHS:**

A. For submission as Project Record Documents, take color photographs of minimum eight (8) unobstructed views of the completed Project and/or Project site, as directed by the Commissioner and after all scaffolding, hoists, shanties, field offices or other temporary work has been removed and final cleaning has been done after date of Substantial Completion. Submit four (4) sets of each view of Presentation Quality photographic prints, including negatives and/or digital images electronic file.

**END OF SECTION 01 32 33**

# SECTION 01 33 00
# SUBMITTAL PROCEDURES

## PART I – GENERAL:

### 1.1 RELATED DOCUMENTS:

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

### 1.2 SUMMARY:

A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Coordination Drawings, Catalogue Cuts, Material Samples, and other Submittals required by the Contract Documents.
B. Review of Submittals does not relieve the Contractor of responsibility for any Contractor's errors or omissions in such Submittals, nor from responsibility for complying with the requirements of the Contract.
C. Responsibility of the Contractor: The approval of Shop Drawings will be general and will not relieve the Contractor of the following responsibilities:
   1. Accuracy of such Shop Drawings;
   2. Proper fitting and construction of the Work
   3. Furnishing of materials or Work required by the Contract that may not be indicated on the Shop Drawings.
D. Approval of Shop Drawings must not be construed as approving departures from the Contract Drawings, Supplementary Drawings, or Specifications.
E. This Section includes the following:
   1. Definitions
   2. Submission Procedures
   3. Coordination Drawings
   4. LEED Submittals
   5. Ultra Low Sulfur Diesel Fuel Reporting
   6. Construction Photographs and Recordings
   7. As-Built Documents

### 1.3 RELATED SECTIONS: Include without limitation the following:

A. Section 01 10 00 SUMMARY
B. Section 01 31 00 PROJECT MANAGEMENT AND COORDINATION
C. Section 01 32 00 CONSTRUCTION PROGRESS DOCUMENTATION
D. Section 01 32 33 PHOTOGRAPHIC DOCUMENTATION
E. Section 01 40 00 QUALITY REQUIREMENTS
F. Section 01 77 00 CLOSEOUT PROCEDURES
G. Section 01 78 39 CONTRACT RECORD DOCUMENTS
H. Section 01 81 13.04 SUSTAINABLE DESIGN REQUIREMENTS FOR LEED v4 BUILDINGS
I. Section 01 81 13.10 ENVIRONMENTALLY PREFERABLE PURCHASING (EPP) COMPLIANCE

**1.4 DEFINITIONS:**

A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.

B. Design Consultant: “Design Consultant” must mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and Specifications) and providing services in connection with such documents during construction. The entity serving as the “Design Consultant” may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.

C. Action Submittals: Written and graphic information, or physical samples that require responsive actions and include, 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 and graphic information that does not require responsive action. Informational Submittals may be rejected for non-compliance with the Contract.

E. Shop Drawings: Drawings, diagrams, illustrations, schedules, performance charts, brochures, and other data, except for coordination drawings, specifically prepared for the Project by the Contractor or any Subcontractor, manufacturer, supplier or distributor, which illustrates how specific portions of the Work must be fabricated and/or installed.

F. Coordination Drawings: As required in Section 01 31 00 PROJECT MANAGEMENT AND COORDINATION.

G. Product Data and Quality Assurance Submittals: Includes manufacturer’s standard catalogs, pamphlets, and other printed materials including without limitation the following:

1. Catalogue and Product specifications
2. Installation instructions
3. Color charts
4. Catalog cuts
5. Rough-in diagrams and templates
6. Wiring diagrams
7. Performance curves
8. Operational range diagrams
9. Mill reports
10. Design data and calculations
11. Certification of compliance or conformance
12. Manufacturer’s instructions and field reports

**1.5 COORDINATION DRAWINGS:**

A. Coordination Drawings, General: When coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity, or where limited space availability necessitates coordination, prepare Coordination Drawings according to requirements in individual Sections as a prerequisite to submittal of Shop Drawings.

1. Content: Project-specific information, shown accurately to a scale large enough to indicate and

resolve conflicts. Do not base Coordination Drawings on standard printed data. Include the following information, as applicable for the Project:

a. Use applicable background views as a basis for preparation of coordination layouts. Prepare sections, elevations, and details as needed to describe relationship of various systems and components.
b. Coordinate the addition of trade-specific information by multiple contractors in a sequence that best presents the information and resolution of conflicts between installed components, before submitting for review.
c. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, plumbing, fire protection, and electrical systems.
d. Indicate space requirements for routine maintenance and for anticipated replacement of components during the life of the installation.
e. Show location and size of access doors required for access to concealed dampers, valves, and other controls.
f. Indicate required installation sequences.
g. Indicate dimensions shown on Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Commissioner indicating proposed resolution of such conflicts.

B. Coordination Drawing Organization: Organize Coordination Drawings as follows:

1. Floor Plans and Reflected Ceiling Plans: Show architectural and structural elements, and mechanical, plumbing, fire-protection, fire-alarm, and electrical Work. Show locations of visible ceiling-mounted devices relative to acoustical ceiling grid. Supplement plan drawings with section drawings where required to adequately represent the Work.
2. Plenum Space: Indicate subframing for support of ceiling raised access floor and wall systems, mechanical and electrical equipment, and related Work. Locate components within plenums to accommodate layout of light fixtures and other components indicated on Drawings. Indicate areas of conflict between light fixtures and other components.
3. Mechanical Rooms: Provide Coordination Drawings for mechanical rooms showing plans and elevations of mechanical, plumbing, fire-protection, fire-alarm, and electrical equipment.
4. Structural Penetrations: Indicate penetrations and openings required for all disciplines.
5. Slab Edge and Embedded Items: Indicate slab edge locations and sizes and locations of embedded items for metal fabrications, sleeves, anchor bolts, bearing plates, angles, door floor closers, slab depressions for floor finishes, curbs and housekeeping pads, and similar items.
6. Mechanical and Plumbing Work: Show the following:

    a. Sizes and bottom elevations of ductwork, piping, and conduit runs, including insulation, bracing, flanges, and support systems.
    b. Dimensions of major components, such as dampers, valves, diffusers, access doors, cleanouts and electrical distribution equipment.
    c. Fire-rated enclosures around ductwork.
    d. HVAC equipment

7. Electrical Work: Show the following:

    a. Runs of vertical and horizontal conduit 1-1/4 inches (32 mm) in diameter and larger.
    b. Light fixture, exit light, emergency battery pack, smoke detector, and other fire-alarm locations.
    c. Panel board, switch board, switchgear, transformer, busway, generator, and motor-control center locations.
    d. Location of pull boxes and junction boxes, dimensioned from column center lines.
    e. Indicate runs and locations of Audio Visual and Information Technology, and

security devices.

8. Fire-Protection System: Show the following:

   a. Locations of standpipes, mains piping, branch lines, pipe drops, and sprinkler heads.

C. The Contractor must issue the completed Coordination Drawing(s) to the Design Consultant for his/her review. The Design Consultant may call as many meetings as necessary with the Contractor, including attendance by applicable Subcontractors, and may call on the services of the applicable sub consultant(s) where necessary, to resolve any conflicts that become apparent.

D. Upon resolution of any conflicts, the Contractor must provide a final Coordination Drawing(s) which will become the Master Coordination Drawing(s). The Master Coordination Drawing(s) must be signed and dated by the Contractor to indicate acceptance of the arrangement of the Work.

E. A reproducible copy of the Master Coordination Drawing(s) must be provided by the Contractor to each of the appropriate Subcontractor(s), the Resident Engineer and the Design Consultant for information.

F. Shop Drawings must not be submitted prior to acceptance of the final coordinated drawings and must be prepared in accordance with the Master Coordination Drawing(s). No work will be permitted without accepted Shop Drawings. It is therefore essential that this procedure be instituted as quickly as possible.

G. Coordination Drawing Digital Data Files: Prepare coordination digital data files according to the following requirements:

1. File Preparation Format: Same digital data software program, version, and operating system as original Design Drawings.
2. File Submittal Format: Submit or post coordination drawing files using PDF format.
3. BIM File Incorporation: Submit or post coordination drawing files using PDF format, unless otherwise directed by Commissioner.
4. Commissioner will furnish Contractor one set of digital data files of Drawings for use in preparing coordination digital data files.

   a. Contractor must execute Digital Data File Release and indemnification form provided by Commissioner.
   b. Commissioner makes no representations as to the accuracy or completeness of digital data files as they relate to coordination drawings.

## 1.6 SUBMITTAL PROCEDURES:

A. Refer to Section 01 35 03 GENERAL MECHANICAL REQUIREMENTS and Section 01 35 06 GENERAL ELECTRICAL REQUIREMENTS for additional Submittal requirements involving electrical and mechanical work or equipment of any nature called for in the Project.

B. Coordination: Coordinate preparation and processing of Submittals with performance of construction activities.

1. Coordinate each Submittal with fabrication, purchasing, testing, delivery, other Submittals, and related activities that require sequential activities, with the Submittal Schedule specified in Section 01 32 00 CONSTRUCTION PROGRESS DOCUMENTATION.
2. Coordinate transmittal of different types of Submittals for related parts of the Work so processing will not be delayed because of need to review Submittals concurrently for coordination.
3. The Commissioner reserves the right to withhold action on a Submittal requiring coordination with other Submittals until related Submittals are received.

C. 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

D. PDF Submittals:

1. Prepare submittals as PDF package, incorporating complete information into each PDF file. Name PDF file with submittal number. Bind transmittal form with each submittal file package. Transmittal form must be the first page in the PDF file constituting the submittal.

2. Submittal files received from sources other than the Contractor will be rejected without review. Re-submission of the same drawings or product data must bear the original number of the prior submission and the original titles.

E. Web-Based Project Software Submittals: Prepare submittals as PDF files, or other format indicated by Project software website.

F. Transmittal Form: Provide locations on form for the following information:

1. Project name, DDC Project number and Contract Number
2. Date
3. Destination (To:)
4. Source (From:)
5. Names of Contractor, Subcontractor, manufacturer, and supplier
6. Category and type of Submittal
7. Submittal purpose and description
8. Specification Section number and title
9. Drawing number and detail references, as appropriate
10. Transmittal number, numbered consecutively
11. Submittal and transmittal distribution record
12. Remarks
13. Signature of transmitter

G. Shop Drawings:

1. Procedures for Preparing, Forwarding, Checking, and Returning all Shop Drawings must be, generally, as follows:

   a. The Contractor must make available to its Subcontractors the necessary Contract Documents and must instruct such Subcontractor to determine dimensions and conditions in the field, particularly in reference to coordination between the trade Subcontractors. The Contractor must direct its Subcontractors to prepare Shop Drawings for submission to the Design Consultant in accordance with the requirements of these General Conditions. The Contractor

must also direct its Subcontractors to "Ring Up" corrections made on all re-submissions for approval, so as to be readily seen, and that the appropriate symbol per item 2 below (e.g., "GC") be used to identify the source of the correction or information that has been added.

The Contractor must:

1. Review and be responsible for information shown on its Subcontractor's Shop and Installation Drawings and manufacturers' data, and conformity to Contract Documents.
2. "Ring Up" corrections made on all submissions for approval, so as to be readily seen, and that the symbol "GC", "PL", "HVAC", or "EL" be used to indicate that the correction and/or information added was made by the Contractor and/or its Subcontractor(s).
3. Clearly designate which entity is to perform the Work when the term, "work by others" or other similar phrases are indicated on the Contract Drawings before submission to the Design Consultant.
4. Stamp submissions "Recommended for Acceptance", date and forward to the Design Consultant.

2. The Contractor must promptly prepare and submit project specific layout detail and Shop Drawings of such parts of the Work as are indicated in the Specifications, or as required. These Shop Drawings must be made in accordance with the Contract Drawings, Specifications and Supplementary Drawings, if any. The Shop Drawings must be accurate and distinct and give all the dimensions required for the fabrication, erection, and installation of the Work.

3. Size of Drawings: The Shop Drawings, unless otherwise directed, must be on sheets of the same size as the Contract Drawings, drawn accurately and of sufficient scale to be legible, with a one half (1/2) inch marginal space on each side and a two (2) inch marginal space for binding on the left side.

4. Scope of Drawings: Shop Drawings must be numbered consecutively and must accurately and distinctly represent all aspects of the Work, including without limitation the following:

   a. All working and erection dimensions
   b. Arrangements and sectional views
   c. Necessary details, including performance characteristics and complete information for making necessary connections with other Work
   d. Kinds of materials including thickness and finishes
   e. Identification of products
   f. Fabrication and installation drawings
   g. Roughing-in and setting diagrams
   h. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring
   i. Shop work manufacturing instructions
   j. Templates and patterns
   k. Schedules
   l. Design calculations
   m. Compliance with specified standards
   n. Notation of coordination requirements
   o. Notation of dimensions established by field measurement
   p. Relationship to adjoining construction clearly indicated
   q. Seal and signature of professional engineer if specified
   r. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring
   s. All other information necessary for the Work and/or required by the Commissioner

5. Titles and Reference: Shop Drawings must be dated and contain:
   a. Name of the Project, DDC Project Number, and Contract Number
   b. The descriptive names of equipment or materials covered by the Contract Drawings and the classified item number or numbers.
   c. The locations or points and sequence at which materials, or equipment, are to be installed in the Work

d. Cross references to the section number, detail number, and paragraph number of the Contract Specifications
e. Cross references to the sheet number, detail number, etc., of the Contract Drawings

6. Field Measurements: In addition to the above requirements, the Shop Drawings must be signed by the Contractor and, if applicable, the Subcontractor responsible for preparation of the Shop Drawings. Each Shop Drawing must be stamped with the following wording:

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

7. Contractor's Statement with Submittal: Any Submittal by the Contractor for acceptance, including without limitation, all dimensional drawings of equipment, blueprints, catalogues, models, samples and other data relative to the equipment, the materials, the Work or any part thereof, must be accompanied by a statement that the Submittal has been examined by the Contractor and that everything shown in the Submittal is in accordance with the requirements of the Contract Drawings and Specifications. If there is any discrepancy between what is shown in the Submittal and the requirements of the Contract Drawings and Specifications, the Contractor must, in its statement, list and clearly describe each discrepancy.

8. 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.

9. Submission of Shop Drawings:

   a. Initial Submission: The Contractor must submit seven (7) copies, or as requested by the Resident Engineer, of each Shop Drawing to the Design Consultant for his/her review and acceptance. If PDF drawings are requested by the Resident Engineer, they must be provided in an original "printed from digital" format, and not scanned. The Design Consultant will transmit Shop Drawings to appropriate sub-consultants for review and acceptance, including Commissioning Authority/Agent as applicable. A satisfactory Shop Drawing will be digitally stamped "No Exceptions Taken", be dated and transmitted by the Design Consultant as follows:

      1) Addressed to the Contractor, with a cc to the following:

         a) Design Consultant's sub consultant(s) as appropriate
         b) DDC

      2) Should the Shop Drawing(s) be "Rejected" or noted "Revise and Resubmit" by the Design Consultant, the Design Consultant will transmit 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 transmit each shop drawing to the Design Consultant. The Contractor must revise and resubmit the Shop Drawing as required by the Design Consultant until the Shop Drawings are stamped "No

Exceptions Taken". However, Shop Drawings which have been stamped "Make Corrections Noted" will be considered an "Acceptable" Shop Drawing and NEED NOT be resubmitted.

c. Commencement of Work: No Work or fabrication called for by the Shop Drawings must be done until the acceptance of the said drawings by the Design Consultant is given. In addition to the foregoing Shop Drawing transmissions, a copy of any Shop Drawing prepared by any of the Contractor's Subcontractors which Shop Drawing indicated Work related to, adjacent to, impinging upon, or affecting Work to be done by other Subcontractors must be transmitted to the Subcontractors so affected. [These accepted Shop Drawings must be distributed to the affected Subcontractors when required with a copy of the transmittal to the Resident Engineer.]

d. Variations: If the Shop Drawings show variations from the Contract requirements because of standard shop practice or other reasons, the Contractor must make specific mention of such variations in its letter of Submittal. Acceptance of the Shop Drawings must constitute acceptance of the subject matter thereof only and not of any structural apparatus shown or indicated.

H. Product Data:

1. General: Except as otherwise prescribed herein, the submission, review, and acceptance of Product Data and Catalogue cuts must conform to the procedures specified in subsection 1.6 G, Shop Drawings.

2. If information must be specially prepared for the Submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.

3. Mark each copy of the Submittal to show which products and options are applicable.

4. Include the following information, as applicable:

a. Manufacturer's written recommendations.
b. Manufacturer's product specifications.
c. Manufacturer's installation instructions.
d. Standard color charts.
e. Manufacturer's catalog cuts.
f. Wiring diagrams showing factory-installed wiring.
g. Printed performance curves.
h. Operational range diagrams.
i. Mill reports.
j. Standard product operation and maintenance manuals.
k. Compliance with specified referenced standards.
l. Testing by recognized testing agency.
m. Application of testing agency labels and seals.
n. Notation of coordination requirements.

5. Submit Product Data before or concurrent with Samples.

6. Submission of Product Data:

a. Initial Submission: The Contractor must submit seven (7) sets of Product Data to the Design Consultant for his/her review and acceptance. The Design Consultant will transmit Product Data to appropriate sub-consultants for review and acceptance, including Commissioning Authority/Agent as applicable. A satisfactory catalogue cut will be digitally stamped "No Exception Taken", be dated and transmitted as follows:

1) Addressed to the Contractor, with a cc to the following:

a) Design Consultant's sub consultant(s) as appropriate
b) DDC

2) Should the Product Data be “Rejected” or noted “Revise and Resubmit” by the Design Consultant, the Design Consultant will return one (1) set of such Product Data to the Contractor with the necessary corrections and changes to be made indicated and one (1) set to DDC.

7. Revisions: The Contractor must make such corrections and changes and again submit seven (7) copies of each Product Data for the review of the Design Consultant. The Contractor must revise and resubmit the Product Data as required by the Design Consultant until the submission is stamped “No Exceptions Taken” by the Design Consultant. However, Product Data which has been stamped "Make Corrections Noted" must be considered an "Accepted" Product Data and NEED NOT be resubmitted.

I. Samples of Materials:

1. For samples of materials involving electrical Work of any nature, refer to Section 01 35 06 GENERAL ELECTRICAL REQUIREMENTS.

2. Samples must be in triplicate or as directed by the Resident Engineer, and of sufficient size to show the quality, type, range of color, finish and texture of the material.

3. Each of the samples must be labeled as follows:

   a. Name of the Project, DDC Project Number and Contract Number
   b. Name and quality of the material
   c. Date
   d. Name of Contractor, subcontractor, manufacturer and supplier
   e. Related Specification or Contract Drawing reference to the samples submitted

4. A letter of transmittal, in triplicate, from the Contractor requesting acceptance must accompany all such samples.

5. Transportation charges to the Design Consultant’s office must be prepaid on all samples forwarded.

6. Samples for testing purposes must be as required in the Specifications.

7. Samples on Display: When samples are specified to be equal to approved product, they must be carefully examined by the Contractor and by those whom the Contractor expects to employ for the furnishing of such materials.

8. Timely Submissions Log/Schedule: Samples must be submitted in accordance with approved Shop Drawing log so as to permit proper consideration without delaying any operation under the Project. Materials should not be ordered until acceptance is received, in writing, from the Design Consultant. All materials must be furnished equal in every respect to the accepted samples.

9. The acceptance of any samples will be given as promptly as possible, and will be only for the characteristic color, texture, strength, or other feature of the material named in such acceptance, and no other. When this acceptance is issued by the Design Consultant, it is done with the distinct understanding that the materials to be furnished will fully and completely comply with the Specifications, the determination of which may be made at some later date by a laboratory test or by other procedure. Use of materials will be permitted only so long as the quality remains equal to the approved samples and complies in every respect with the Specifications, and the colors and textures of the samples on file in the office of the Design Consultant, for the Project.

10. Acceptability of test Data: The Commissioner will be the final judge as to acceptability of laboratory test data and performance in service of materials submitted.

11. Valuable Samples: Valuable samples, such as hardware, plumbing and electrical fixtures, etc., not destroyed by inspection or test, will be returned to the Contractor and may be incorporated into the

Work after all questions of acceptability have been settled, providing suitable permanent records are made as to the location of the samples, their properties, etc.

J. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:

1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
2. Manufacturer and product name, and model number if applicable.
3. Number and name of room or space.
4. Location within room or space.

K. Supplementary Qualification Data: Prepare written information that demonstrates capabilities and experience of entity. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.

L. Design Data: Prepare and submit written and graphic information indicating compliance with indicated performance and design criteria in individual Specification Sections. Include list of assumptions and summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Number each page of submittal.

M. Certificates:

1. Certificates and Certifications Submittals: Submit a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity. Provide a notarized signature where indicated.

2. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

3. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

4. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

5. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

6. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS formats. Include names of firms and personnel certified.

N. Test and Research Reports:

1. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
2. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
3. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements

in the Contract Documents.

4. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
5. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
6. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:

    a. Name of evaluation organization.
    b. Date of evaluation.
    c. Time period when report is in effect.
    d. Product and manufacturers' names.
    e. Description of product.
    f. Test procedures and results.
    g. Limitations of use.

O. 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.

P. The submission of any material, article and/or equipment as the equal of any material, article and/or equipment set forth in the Drawings and/or Specifications as a standard must be accompanied by any and all information essential for determining whether such proposed material, article and/or equipment is equivalent to that which is specified. Such information must include, without limitation, illustrations, drawings, descriptions, catalogues, records of tests, samples, as well as information regarding the finish, durability and satisfactory use of such proposed material, article and/or equipment under similar operating conditions.

Q. Engineering Services Submittals:

1. Performance and Design Criteria: Refer to Section 01 40 00 QUALITY REQUIREMENTS, Article 1.5.
2. Engineering Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF file and three paper copies of certificate, signed and sealed by the responsible professional engineer, for each product and system specifically required of the Contractor to be designed or certified by a professional engineer.

    a. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

3. BIM Incorporation: Incorporate engineering services drawing and data files into BIM established for Project.

    a. Prepare engineering services documents in the required formats, including BIM incorporation.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 1.7**

**1.7 LEED SUBMITTALS:**

A. Comply with Submittal requirements specified in the following sections:

1. Section 01 74 19 CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL;
2. Section 01 81 13.04 SUSTAINABLE DESIGN REQUIREMENTS FOR LEED v4 BUILDINGS
3. Section 01 81 19 INDOOR AIR QUALITY REQUIREMENTS FOR LEED BUILDINGS;
4. Section 01 91 13 GENERAL COMMISSIONING REQUIREMENTS FOR MEP SYSTEMS; and/or,
5. Section 01 91 15 BUILDING ENCLOSURE COMMISSIONING REQUIREMENTS.

B. LEED Building Submittal information must be assembled into one package per each applicable Specification Section, separate from all other non-LEED Submittals. Each Submittal package must have a separate transmittal and identification as described in Subsection 1.5 herein.

C. Number of Copies: Submit four (4) copies of LEED Submittals, in accordance with procedure described in Article 1.5 herein, unless otherwise indicated.

D. Material Safety Data Sheets (MSDSs) for LEED Certification: Submit information necessary to show compliance with LEED certification requirements, which will be the limit of the Design Consultant's review for LEED compliance.

1. Designated LEED Submittals that include non-LEED MSDS data will not be reviewed. The entire Submittal will be returned for re-submission.

E. Product Cut Sheets and/or Shop Drawings for LEED Certification: Provide product cut sheets and/or shop drawings with the Contractor's or sub-contractor's stamp, confirming that the submitted products are the products installed in the Project. For detailed requirements refer to Subsection 1.6 of Section 01 81 13.04 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, if applicable.

**1.8 ULTRA LOW SULFUR DIESEL FUEL AND BEST AVAILABLE TECHNOLOGY REPORTING:**

A. In accordance with Section 01 10 00 SUMMARY, Subsection 1.10 E**,** the Contractor must submit reports to the Commissioner regarding the use of Ultra Low Sulfur Diesel Fuel and Best Available Technology (BAT) in Non road Vehicles. Submission of such reports must be in accordance with the schedule, format, directions and procedures established by the Commissioner.

**1.9 CONSTRUCTION PHOTOGRAPHS AND VIDEO RECORDINGS:**

A. Submit construction progress photographs and Video recordings in accordance with requirements of Section 01 32 33 PHOTOGRAPHIC DOCUMENTATION.

**1.10 AS-BUILT DOCUMENTS:**

A. Submit all as-built documents in accordance with Section 01 78 39 CONTRACT RECORD DOCUMENTS.

**PART II – PRODUCTS (Not Used)**

**PART III – EXECUTION (Not Used)**

**END OF SECTION 01 33 00**

**SECTION 01 35 03**

**GENERAL MECHANICAL REQUIREMENTS**

**REFER TO THE ADDENDUM FOR APPLICABILITY OF THIS SECTION 01 35 03**

## PART I – GENERAL

### 1.1 RELATED DOCUMENTS:

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

### 1.2 SUMMARY:

A. The General Mechanical Requirements contained herein must be followed by the Contractor, as well as its Subcontractor for HVAC work. This Section sets forth the General Requirements applicable to mechanical work for the Project. Such requirements are intended to be read in conjunction with the Specifications and Contract Drawings for the Project. In the event of any conflict between the requirements set forth in this Section and the requirements of the Specifications and/or the Contract Drawings, whichever requirement is the most expensive must take precedence, in accordance with Article 1.2 of the Standard Construction Contract.

### 1.3 RELATED SECTIONS: Include without limitation the following:

A. Section 01 10 00 SUMMARY
B. Section 01 33 00 SUBMITTAL PROCEDURES
C. Section 01 35 06 GENERAL ELECTRICAL REQUIREMENTS
D. Section 01 42 00 REFERENCES
E. Section 01 77 00 CLOSEOUT PROCEDURES
F. Section 01 78 39 CONTRACT RECORD DOCUMENTS

### 1.4 DEFINITIONS:

A. CONCEALED PIPING AND DUCTS: piping and ducts hidden from sight in masonry or other construction, in floor fill, trenches, partitions, hung ceilings, furred spaces, pipe shafts and in service tunnels not used for passage. Where piping and ducts run in areas that have hung ceilings, such piping and ducts must be installed in the hung ceilings. For Work on existing piping, any insulation on such existing piping is to be tested for asbestos and abated if found to be positive by a certified asbestos contractor. Such testing and abatement must occur prior to the performance of any Work on these pipes.

### 1.5 SUBMITTALS:

A. INTENT OF MECHANICAL CONTRACT DRAWINGS – Mechanical Contract Drawings are, in part, diagrammatic and show the general arrangement of the equipment, ducts, and piping included in the Contract and the approximate size and location of the equipment.

B. The Contractor must follow these Contract Drawings in laying out the Work and verify the spaces in which it will be installed. The Contractor must submit, as directed, Mechanical Shop Drawings, roughing drawings,

manufacturer's Shop Drawings, field drawings, cuts, bulletins, etc., of all materials, equipment and methods of installation shown or specified in accordance with Section 01 33 00 SUBMITTAL PROCEDURES.

1. Submit sheet metal shop standards. Submit manufacturer's product data including gauges, materials, types of joints, scaling materials and installations for metal ductwork materials and products.
2. Submit scaled layout drawing (3/8"=1') of metal ductwork and fittings including, but not limited to, duct sizes, locations, elevations, slopes of horizontal runs, wall and floor penetrations and connections. Show modifications of indicated requirements made to conform to local shop practice and how those modifications ensure that free area, materials and rigidity are not reduced. Layouts should include all the room plans, mechanical equipment rooms and penthouses. Method of attachment of duct hangers to building construction all with the support details. Coordinate Shop Drawings with related trades prior to submission.
3. Indicate duct fittings, particulars such as gauges, sizes, welds and configuration prior to start of work for low-pressure systems.
4. Submit maintenance data and parts lists for metal ductwork materials and products. Include this data, product data and shop drawings in maintenance manual.

**1.6 ACCESS:**

A. All Work must be installed by the Contractor to readily provide access for inspection, operation, maintenance and repair. Minor deviations from the arrangement indicated on the Contract Drawings may be made to accomplish this, but they must not be made without prior written approval by the Commissioner.

**1.7 CHANGES IN PIPING, DUCTS, AND EQUIPMENT**:

A. Wherever field conditions are such that for proper execution of the Work, reasonable changes in location of piping, ducts, and equipment are necessary and required, the Contractor must make such changes as directed and approved, without extra cost to the City.

**1.8 CLEANING OF PIPING, DUCTS, AND EQUIPMENT:**

A. Piping, ducts, and equipment must be thoroughly cleaned by the Contractor of all dirt, cuttings, and other foreign substances. Should any pipe, duct, or other part of the several systems be obstructed by any foreign matter, the Contractor will be required to pay for disconnecting, cleaning, and reconnecting wherever necessary for the purpose of locating and removing obstructions. The Contractor must pay for repairs to other work damaged in the course of removing obstructions. For work on existing piping, ducts, and equipment, the Contractor must pay special attention during this task so as not to disturb the insulation on such piping, ducts, or equipment.

**1.9 STANDARDIZATION OF SIMILAR EQUIPMENT:**

A. Unless otherwise particularly specified, all equipment of the same kind, type, or classification, used for identical purposes, must be the product of one (1) manufacturer.

**1.10 SUPPORTING STRUCTURES DESIGNED BY THE CONTRACTOR:**

A. Unless otherwise specified, supporting structures for equipment to be furnished by the Contractor must be designed by a Professional Engineer licensed in the State of New York retained by the Contractor. Supporting structures must be built by the Contractor of sufficient strength to safely withstand all stresses to which they

may be subjected, within permissible deflections, and must meet the following standards:

1. Structural Steel - ASTM Standard Specifications, AISC and New York City Construction Codes.
2. Concrete for supports for equipment must conform to the Specifications for concrete herein, but in no case must be less than the requirements of the New York City Construction Codes for average concrete.
3. Steel reinforcement for concrete must be of intermediate grade and must meet the requirements of the Standard Specifications for Billet Steel-Concrete Reinforcement Bars, ASTM.
4. Drawings and calculations must be submitted for review and acceptance in accordance with Section 01 33 00 SUBMITTAL PROCEDURES.

**1.11 ELIMINATION OF NOISE:**

A. All systems and/or equipment provided under the Contract must operate without objectionable noise or vibration.

B. Should operation of any one or more of the several systems produce noise or vibration which is, in the opinion of the Commissioner, objectionable, the Contractor must, at its own expense, make changes in piping, equipment, etc., and do all work necessary to eliminate objectionable noise or vibration.

C. Should noise or vibration that is found objectionable by the Commissioner be transmitted by any pipe or portions of the structure from systems and/or equipment installed under the Contract, the Contractor must, at its own expense, install such insulators and make such changes in or additions to the installations as may be necessary to prevent transmission of this noise or vibration.

**1.12 PRELIMINARY FIELD TEST:**

A. As soon as conditions permit, the Contractor must furnish all necessary labor and materials for, and must make preliminary field tests of the equipment to ascertain compliance with the requirements of the Contract. If the preliminary field tests disclose equipment that does not comply with the Contract, the Contractor must, prior to the acceptance test, make all changes, adjustments, and replacements as required.

**1.13 INSTRUCTIONS ON OPERATION:**

A. At the time the equipment is placed in permanent operation by the City, the Contractor must make all adjustments and tests required by the Commissioner to prove that such equipment is in proper and satisfactory operating condition. The Contractor must instruct the City's operating personnel on the proper maintenance and operation of the equipment for the period of time called for in the Specifications.

**1.14 CERTIFICATES:**

A. On completion of the Work, the Contractor must obtain certificates of inspection, approval, and acceptance, and be in compliance with all laws from all agencies and/or entities having jurisdiction over the Work and must deliver these certificates to the Commissioner in accordance with Section 01 77 00 CLOSEOUT PROCEDURES. The Work will not be deemed substantially complete until the certificates have been delivered.

**PART II – PRODUCTS (Not Used)**

**PART III – EXECUTION (Not Used)**

**END OF SECTION 01 35 03**

# SECTION 01 35 06
# GENERAL ELECTRICAL REQUIREMENTS

## PART I – GENERAL

### 1.1 RELATED DOCUMENTS:

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

### 1.2 SUMMARY:

A. This Section sets forth the General Requirements applicable to electrical work for the Project. Such requirements are intended to be read in conjunction with the Specifications and Contract Drawings for the Project. In the event of any conflict between the requirements set forth in this Section and the requirements of the Project Specifications and/or the Contract Drawings, whichever requirement is the most expensive must take precedence, in accordance with Article 1.2 of the Standard Construction Contract.

B. This Section includes the following:
   1. Related Sections
   2. Definitions
   3. Procedure for Electrical Approval
   4. Submittals
   5. Electrical Installation Procedures
   6. Electrical Conduit System Including Boxes (Pull, Junction and Outlet)
   7. Electrical Wiring Devices
   8. Electrical Conductors and Terminations
   9. Circuit Protective Devices
   10. Distribution Centers
   11. Motors
   12. Motor Control Equipment

### 1.3 RELATED SECTIONS: Include without limitation the following:

A. Section 01 10 00 SUMMARY
B. Section 01 33 00 SUBMITTAL PROCEDURES
C. Section 01 35 03 GENERAL MECHANICAL REQUIREMENTS
D. Section 01 42 00 REFERENCES
E. Section 01 77 00 CLOSEOUT PROCEDURES
F. Section 01 78 39 CONTRACT RECORD DOCUMENTS

### 1.4 DEFINITIONS:

A. WIRING: contains wire and raceway (rigid steel, heavy wall conduit unless specifically indicated otherwise).

B. POWER WIRING: wiring from a panel board or other specified source to a starter (if required), then to a disconnect (if required), then to the final point of usage such as a motor, unit, or device.

C. CONTROL and/or INTERLOCK WIRING: wiring that signals the device to operate or shut down in response to a signal from a remote control device such as a temperature, smoke, pressure, float, etc. device (starters and disconnect switches are not included in this definition) regardless of the voltage required for the controlling device.

D. RIGID STEEL CONDUIT: rigid steel heavy wall conduit that is hot-dip galvanized inside and outside. The conduit must meet the requirements of the latest edition, as amended, of the "Standard for Rigid Steel Conduit" of the Underwriters' Laboratories, Inc. Unless otherwise specified in the Specifications or indicated on the Contract Drawings, rigid steel conduit must be used for all exposed work, all underground conduits in contact with earth, and fire alarms systems, as required by the New York City Construction Codes.

E. ELECTRICAL METALLIC TUBING (EMT): industry standard thin wall conduit of galvanized steel. All elbows, bends, couplings and similar fittings which are installed as a part of the conduit system must be compatible for use with electric metallic tubing. Couplings and terminating fittings must be of the pressure type as approved by the Commissioner. Set screw fittings will not be acceptable. EMT must meet the requirements of the latest edition, as amended, of the "Standard for Electrical Metallic Tubing" of the Underwriters Laboratories Inc. EMT may only be used where specifically indicated. In no case will EMT be permitted in spaces other than hung ceilings and dry wall partitions.

F. FLEXIBLE METALLIC CONDUIT (FMC): a conduit made through the coiling of a self-interlocking ribbed strip of aluminum or steel, forming a hollow tube through which wires can be pulled. For final connections to motors and motorized equipment, not more than a 4' - 0" length of flexible conduit may be used. For watertight installations, this conduit must be of a watertight type, attached with watertight glands or fittings for final connections from outlet box to recessed lighting fixtures and in locations only where specifically permitted by the Specifications or Contract Drawings.

## 1.5 PROCEDURE FOR ELECTRICAL APPROVAL:

This Section sets forth General Electrical information, as well as required approvals for all electrical work required for the Project, including ancillary electrical work which may be included in the work of other trade Subcontractors.

A. ELECTRIC SERVICE: The electric service supply is subject to commercial and operating variation of the utility company. Proper provision must be made to have all apparatus operate normally under these conditions.

B. ACCEPTANCE: Acceptance and approval of the Work will be contingent upon the inspection and test of the installation by the City regulatory agency.

C. TESTS: The Contractor must notify the Commissioner when the Contractor has completed the work and is ready to have it inspected and tested. Upon completion of the Work, tests must be made as required by the Commissioner of all electrical materials, electrical and associated mechanical equipment, and of appliances installed hereunder. The Contractor must furnish all labor and material for such tests. Should the tests show that any of the material, appliances or workmanship is not first class or not in compliance with the Contract, on written notice the Contractor must remove and promptly replace the materials to be in conformity with the Contract.

D. CERTIFICATE OF THE BUREAU OF ELECTRICAL CONTROL, OF THE DEPARTMENT OF BUILDINGS (B.E.C.): Prior to requesting a substantial completion inspection, the Contractor must file a Certificate of Inspection issued by B.E.C. On completion of the Work, the Contractor must obtain certificates of inspection, approval, acceptance and compliance from all agencies and/or entities having jurisdiction over the work and must deliver these certificates to the Commissioner in accordance with Section 01 77 00 CLOSEOUT PROCEDURES.

E. RESPONSIBILITY FOR CARE AND PROTECTION OF EQUIPMENT:

1. The Contractor furnishing any equipment must be responsible for the equipment until it has been inspected, tested and accepted, in accordance with the requirements of the Contract.

2. After delivery, before and after installation, the Contractor must protect all equipment against theft, injury or damage from all causes. The Contractor must carefully store all equipment received for work which is not immediately installed. If any equipment has been subject to possible injury by water, it must be thoroughly dried out and put through a special dielectric test as directed by the Commissioner, at the expense of the Contractor or replaced by the Contractor without additional cost to the city.

F. UNIFORMITY OF EQUIPMENT: Any two (2) or more pieces of equipment, apparatus or materials of the same kind, type, or classification, which are intended to be used for identical types of service, must be made by the same manufacturer.

**1.6 SUBMITTALS**:

A. CONTRACTOR'S ELECTRICAL DRAWINGS AND SAMPLES FOR APPROVAL:

1. The Contractor must submit to the Commissioner for approval, in accordance with Section 01 33 00 SUBMITTAL PROCEDURES, complete dimensional drawings of all equipment, wiring diagrams, motor test data, details of control, installation layouts showing all details and locations and including all schedules, and descriptions and supplementary data to comprise complete working drawings and instructions for the performance of the Work. A description of the operation of the equipment and controls must be included. A letter, in triplicate, must accompany each submittal.

2. The Contractor must submit in accordance with Section 01 33 00 SUBMITTAL PROCEDURES, duplicate samples of such materials and appliances as may be requested by the Commissioner for approval. These samples must be properly tagged for identification and submitted for examination and test. After the samples are approved, one (1) sample will be returned to the Contractor and the other sample will be filed in the office of the Commissioner's representative for inspection use. After the Contract is completed, the second set of samples will be returned to the Contractor.

B. TIMELINESS: All material must be submitted in accordance with the Submittal Schedule in sufficient time for the progress of construction. Failure to promptly submit acceptable samples and dimensional drawings of equipment will not be accepted as grounds for an extension of time. The Commissioner may decline to consider submittals unless all related items are submitted at the same time.

C. CONTRACTOR'S STATEMENT WITH SUBMITTALS: Contractor must submit a statement in accordance with Section 01 33 00, SUBMITTAL PROCEDURES.

D. BULLETINS AND INSTRUCTIONS: The Contractor must furnish and deliver to the Commissioner in accordance with Section 01 78 39 CONTRACT RECORD DOCUMENTS and Section 01 77 00 CLOSEOUT PROCEDURES, after acceptance of the work, four (4) complete sets of instructions, technical bulletins and any other printed matter (diagrams, prints, or drawings) required to provide complete information for the proper operation, maintenance and repair of the equipment and the ordering of spare parts.

**PART II – PRODUCTS (Not Used)**

**PART III – EXECUTION**

**3.1 ELECTRICAL INSTALLATION PROCEDURES:**

This Sub-Section sets forth the General Installation Procedure that must apply to all electrical work and electrical equipment appearing in the Contract.

(Refer to Sub-Section 1.4 DEFINITIONS for terms used in this section)

A. INTENT OF CONTRACT DOCUMENTS: The Drawings and Specifications are to be interpreted as a means of conveying the scope and intent of the work without giving every minor electrical detail. It is intended, nevertheless, that the Contractor must provide whatever labor and materials are found necessary, within the scope of the Contract, for the successful operation of the installation. Specific details of individual installations are to be finally decided upon when the Contractor submits Working or Shop Drawings for approval to DDC. Whenever there are two (2) or more methods to complete Project work within the Contract scope, the Commissioner reserves the right to choose that method which, in the Commissioner's opinion, will afford the most satisfactory performance, lasting qualities, and access for repairs, even if this selection is the costliest.

B. SCHEMATIC PLANS – APPROXIMATE LOCATIONS: Conduits and wiring are shown on the plans for diagrammatic purposes only. Therefore, conduit layouts may not necessarily give the actual physical route of the conduits. The Contractor who installs a conduit system will also be required, as part of the work, to furnish and install all hangers and pull-boxes, including any special pull-boxes found necessary to overcome interferences, and to facilitate the pulling of electrical cables. Similarly, the locations of equipment, appliances, outlets and other items shown on Contract Drawings are only approximate and are to be definitively established when equipment Shop Drawings are submitted and approved by DDC during construction.

C. SLEEVES: required for conduits passing through walls or floors; must be furnished and set by the Contractor installing the conduits. Sleeves in waterproofed floors must be provided with flashing extending twelve (12) inches in all directions from sleeve and secured to waterproofing. Flashing must be turned down into space between pipe and sleeve and caulked watertight. Flashing must be twenty (20) ounces cold rolled copper. Sleeves must be supplied with welded flanges similar to those supplied by the Subcontractor for Plumbing Work and must extend one (1) inch above finished floor.

D. COORDINATION: The Contractor must keep in close touch with the construction progress and promptly obtain the necessary information for the accurate placement of its work well before Project construction operations obstruct its work. The Contractor is to consult all other Contract Drawings, as well as approved equipment Shop Drawings on file in the Resident Engineer's Field Office. This will aid in avoiding interferences, omissions, and errors in the electrical installation.

E. RESTORATION: If drilling or cutting is done on finished surfaces of equipment or the structure, any marring of the surface must be repaired or replaced by the Contractor. The Contractor must be held responsible for corrective restoration due to its cutting or drilling, and for any damage to the Project or its contents caused by the Contractor or the Contractor's workers. If any piercing of waterproofing occurs because of the installation of the work, the Contractor must restore the waterproofing, at its own expense, to the satisfaction of the Commissioner.

F. ELECTRICAL WORK AT SITE: The Contractor furnishing equipment consisting of a number of related electrical devices or appliances, mounted in a single enclosure, or on a common base, must furnish this

unit, ready for connection and operation, complete with internal wiring, connections, terminal boxes with copper connectors and/or lugs and ample electrical leads. The cost of any wiring, re-wiring, or other work required to be done on this unit in the field, must be borne by the Contractor, without additional cost to the city.

G. COOPERATION AMONG SUBCONTRACTORS: Whenever an electrically operated unit or system involves the combined work of several Subcontractors for its installation and successful operation, the Contractor must require each Subcontractor to exercise the utmost diligence in cooperating with others to produce a complete, harmonious installation.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.2**

**3.2 ELECTRICAL CONDUIT SYSTEM INCLUDING BOXES (PULL, JUNCTION AND OUTLET):**

This Sub-Section sets forth the requirements applying to the installation of electrical conduits, boxes or fittings. Rigid steel conduit must be used throughout, unless otherwise directed by the Commissioner. Where the word 'conduit' is used without a modifier such as, rigid steel, EMT, etc., must be interpreted to mean rigid steel, heavy wall, threaded conduit.

(Refer to Sub-Section 1.4 DEFINITIONS for terms used in this section)

A. INSTALLATIONS AND APPLICATIONS:

1. Unless otherwise specified or indicated on the Contract Drawings, conduit runs must be installed concealed in finished spaces.

2. CONDUIT SIZES: The sizes of conduits must be as indicated on the Contract Drawings. Wherever conduit sizes are not indicated, the conduit must meet the requirements of the New York City Electrical Code to accommodate the conductors to be installed therein.

3. Conduits must be reamed smooth after cutting. No running threads will be permitted. Universal type couplings must be used where required. Conduit joints must be screwed up to butt. Empty conduits after installation must have all open ends temporarily plugged to prevent the entrance of water or other foreign matter.

4. Conduits installed in concrete or masonry must be securely held in place during pouring and construction operations. A group of conduits terminating together must be held in place by a template.

5. UNDERGROUND STEEL CONDUITS: Unless otherwise specified, all underground steel conduits in contact with earth must be encased by the Contractor who installs them, in a covering of not less than two (2) inches of an approved concrete mixture. Concrete mix must be one (1) part cement to four and one-half (4 ½) parts of fine and coarse aggregate.

6. EXCAVATION RESTORATION PERMITS: When installing underground conduits, duct banks or manholes, the Contractor must perform the work of cutting pavement, excavation shoring, keeping trenches or holes pumped dry, backfilling, restoration of surfaces to original condition and removal of excess earth and rubbish from premises. During the work, the Contractor must provide adequate crossovers, protective barriers, lamps, flags, etc., to safeguard traffic and the public. When the work is in a public highway or street, the Contractor must secure and pay for all necessary permits, inspection fees, and the cost of repaving.

7. EXPOSED CONDUIT SUPPORTS: Exposed conduits must be supported by Galvanized hangers with necessary inserts, beam clamps of approved design, or attached to walls or ceilings by expansion bolts. Exposed conduits must be supported or fastened at intervals not more than five (5) feet.

8. Exposed conduits must be installed parallel or at right angles to ceilings, walls and partitions. Where direction changes of exposed conduit cannot be made with neat bends, as may be required around beams or columns, conduit-type fittings must be used.

9. Conduit must be installed with an expansion joint approved by the Commissioner in the following conditions:

    a. Wherever the conduit crosses a building expansion joint, the Contractor will be held responsible for determining where the building expansion joints are located.

    b. Every 200 feet, when in straight runs of 200 feet or longer.

10. Conduits may only enter and leave a floating slab in a vertical direction, and only in an approved manner. Horizontal entries into floating slabs are not permitted.

11. Conduits installed in pipe shafts must be properly supported to carry the total weight of the raceway system complete with cable. In addition, at least one (1) horizontal brace per 10 ft. section must be provided to assure stability of the raceway system.

12. BUSHINGS AND LOCKNUTS: Approved bushings and locknuts must be used wherever conduits enter outlet boxes, switch boxes, pull boxes, panel board cabinets, etc.

13. CONDUIT BENDS: must be made without kinking conduit or appreciably reducing the internal diameter. All bends in conduits of two (2) inch in diameter or larger must be made with a hydraulic or power pipe bender. The radius of the inner edge of any bend must not be less than six (6) times the internal diameter of the conduit where rubber covered conductors are to be installed, and not less than ten (10) times the internal diameter of the conduit where lead covered conductors are to be used. Long gradual sweeps will be required, rather than sharp bends, when changes of direction are necessary.

14. EMPTY CONDUITS

    a. TESTS: All conduits and ducts required to be installed and left empty must be tested for clear bore and correct installation by the Contractor using a ball mandrel and a brush and snake before the installation will be accepted. The ball must be turned to approximately 85% of the internal diameter of the raceway to be tested. Two (2) short wire brushes must be included in the mandrel assembly. Snaking of conduits, ducts, etc., must be performed by the Contractor in the presence of the Resident Engineer. Any conduits or ducts which reject the mandrel must be cleared at once with the Contractor bearing all costs, such as chopping concrete, to replace the defective conduit and restore the surface to its original condition.

    b. TAGS: Numbers or letters must be assigned to the various conduit runs, and as they test clear they must be identified by a fiber tag not less than 1-¼ inch width, attached by means of a nylon cord. All conduit terminations in panel, splice or pull boxes, as well as those out of the floor or ceiling, must be tagged.

    c. TEST RECORDS: As the conduit runs clear, a record must be kept under the heading of "Empty Conduit Tested, Left Clear, Tagged and Capped" showing conduit designation, diameter, location, date tested and by whom. When complete, this record must be signed by the Resident Engineer and submitted in triplicate for approval. This record must be entered on the Contract Record Drawings under Section 01 78 39 CONTRACT RECORD DOCUMENTS.

    d. CAPPING: After test, all empty conduit and duct openings, must be capped or plugged by the Contractor as directed.

    e. DRAG LINES: A drag line must be left in all empty conduit.

B. BOXES:

1. The Contractor must furnish and erect all pull boxes indicated on the plans or where required. Sides, top and bottom of pull boxes must be Galvanized coated and must be built of No. 12 USSG steel reinforced at corners by substantial angle irons and riveted or welded to plates. Bottom or side of pull boxes must be removable and held in place by corrosion resistant machine screws. Pull boxes in damp locations must have threaded hubs and gaskets and be NEMA 4X. All pull boxes must be suspended from ceiling or walls in the most substantial manner.

2. In centering outlets, the Contractor is cautioned to allow for overhead pipes, ducts and other obstructions, and for variations in arrangement and thickness of fireproofing, soundproofing and plastering. Precaution should be exercised regarding the location of window and door trims, paneling, etc. Mistakes resulting from failure to exercise precaution must be corrected by the Contractor at no additional cost to the City. Outlets in hung ceilings must be supported from the black iron or structure.

3. The exact location of all outlets in finished rooms must be as directed by the Commissioner. When the interior finish has been applied, the Contractor must make any necessary adjustment of its work to properly center the outlets. All outlet boxes for local switches near doors must be located at the strike side of doors as finally hung, whether so indicated on the drawings or not.

4. Exposed wall outlet boxes must be securely anchored, erected neatly and tight against the walls.

5. All wall outlets of each type must be set accurately at the same level on each floor, except where otherwise specified or directed by the Commissioner. Where special conditions occur, outlets must be located as directed.

6. MOUNTING HEIGHTS: The following heights are standard heights and are subject to correction due to coordination with Contract Drawings. All such changes must be approved by the Resident Engineer. Heights given are from finished floor to center line of outlet or device on wall or partition, unless otherwise indicated.

| | | |
|---|---|---|
| a. | General Convenience Outlets (mount vertical) | 1'-6" |
| b. | Clock Outlets | 8'-6"or 1'-6" below ceiling |
| c. | Wall Lighting Switches | 4'-0" |
| d. | Motor Controllers | 5'-0" |
| e. | Motor Push-button | 4'-2" |
| f. | Telephone Outlets | As Directed by the Commissioner |
| g. | Fire Alarm Bells | 8'-6"or 1'-6" below ceiling |
| h. | Fire Alarm Stations | 4'-0" |
| i. | Intercom Outlet | 1'-6" |
| j. | Cooking and Refrigerator Unit | As Directed |

7. Outlet boxes must be of a design and construction approved by the Commissioner. The type of box, including its form and dimensions, must be appropriate for: its specific location; the kind of fixture to be used; and, the conduits (both quantity and type) that will connect to it. All ferrous outlet boxes must meet the requirements for zinc coating as specified under Electrical Conduit Systems.

8. Knockouts will only be opened to insert conduit. Any outlet boxes with more openings than are necessary for conduit insertion must be sealed by the Contractor without additional charge.

9. All outlet boxes and junction boxes for exposed work must be galvanized cast iron or cast aluminum with threaded openings. Outlet boxes for exposed inside work in damp locations must be galvanized cast iron or cast aluminum with threaded hubs and neoprene gaskets.

10. Junction boxes must not be less than 4 11/16" square and must be equipped with zinc coated plates. Where plates are exposed, they must be finished to match the room decor.

11. FIXTURE SUPPORTS: Outlet boxes supporting lighting fixtures must be equipped with fixture studs held by approved galvanized stove bolts or integral with the box. Cast iron or malleable boxes must have four (4) tapped holes for mounting required cover or fixtures.

12. Outlet boxes exposed to the weather or indicated W.P. must be cast iron or cast aluminum with the covers made watertight with neoprene gaskets. The boxes must have external lugs for mounting. Drilling of the body of the fitting for mounting will not be permitted. The cover screws must be appropriate in size, non-corrodible and not less than four (4) in number for each box opening.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.3**

**3.3 ELECTRICAL WIRING DEVICES**:

A. WALL SWITCHES: must be of the best specification grade, quiet type, and must have a rating of 20 Amperes at 277 volts, as manufactured by Bryant, Hubbell or approved equal. The mechanism must be equipped with arc snuffers. They must be of the tumbler type, single pole. Switches of the 3-way type must have a similar rating.

B. RECEPTACLES:

1. CONVENIENCE OUTLETS: must be of the best specification grade, duplex, two-pole, 3-wire, 20 Amperes at 125 volts. It must have a grounding pole that must be grounded to the conduit system. Receptacles must be capable of both back and side wiring and must have only one (1) grounding screw. Receptacles must be Hubbell Catalog #5262 or approved equal.

2. HEAVY DUTY RECEPTACLE OUTLETS: must have the Ampere rating and the number of poles specified on the Contract Drawings and must be Hubbell, Russell-Stoll, Bryant, AH & H or approved equal. Each outlet must have a grounding pole, which must be grounded to the conduit system.

3. FLOOR RECEPTACLES: must be Russell & Stoll #3040 or approved equal, to fit into floor box previously specified.

4. NAMEPLATES: are required for all receptacles other than 120V.

C. CLOCK HANGERS: Clock outlets for surface type clocks must be equipped with a supporting hook and recessed faceplate to conceal the electrical cord.

D. WATERTIGHT DEVICES: For installations exposed to weather or in damp locations, the devices must be in a gasketed, cast iron enclosure.

E. PLATES:

1. Every convenience outlet and switch outlet must be covered by means of a stainless steel No. 302 - 0.4" antimagnetic plate with an approved finish, unless provided otherwise in the detailed Specifications.

2. Where two (2) or three (3) switches are grouped together, a single faceplate must be used. Where more than three (3) switches are located at one (1) point, the faceplates may be made up in multiple units.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.4**

**3.4 ELECTRICAL CONDUCTORS AND TERMINATIONS**:

A. CONDUCTORS FOR LIGHT AND POWER: All wire and cable must be of annealed copper of 98% conductivity. Aluminum wire or cable will not be permitted. The insulation must be flame retardant, moisture and heat resistant, thermoplastic, type THW or THWN rated for 600 volts at 75 degrees Celsius (C.) for both wet and dry locations. Wires No. 8 or larger must be stranded. Wires and cables must also

be subject to the requirements of the NYCEC. Cables for incoming service, or wire in conduits contiguous with the earth, in concrete, or other damp or wet locations, must be synthetic rubber insulated with neoprene jacket, heat and moisture resistant and must be equal to UL Type USE and rated for 600 volts at 75 degrees C. for both wet and dry locations.

B. FIXTURE WIRE: Lighting fixtures must be wired with No. 14 gauge wire designated as AWM and rated at 105 degrees C.

C. OTHER TYPES: Cables and wires for interior communication systems are described in applicable detailed Specifications.

D. MINIMUM SIZE: Conductors smaller than No. 12 AWG must not be used for light or power.

E. COLOR CODE: Wires must have a phase color code, and multiple conductor cables must be color coded.

F. CABLE DATA: The Contractor must submit for approval the following information for each size and type of cable to be furnished:

1. Manufacture of Cable - Location of Plant.
2. Minimum insulation resistance at standard test temperature.
3. Days required for delivery to site of work after order to proceed with manufacture.

G. ORIGINAL REELS: Cable and wire must be delivered to the site of the work on original sealed factory reels.

H. WIRE INSTALLATION:

1. INSTALL WIRES AFTER PLASTERING: Feeder and branch circuits wiring must not be installed into conduit before the rough plastering work is completed. No conductors must be pulled into floor conduits before floor is poured.
2. CONDUIT SECURED IN PLACE: No conductor must be pulled into any conduit run before all joints are made up tightly and the entire run rigidly secured in place.
3. WIRE ENDS: All wires must be left with sufficiently long ends for proper connection and stowing.
4. PULLING COMPOUNDS: to ease the pulling-in of wires into the conduit, only approved compounds as recommended by cable manufacturers must be used.
5. PRESSURE CONNECTORS: pressure connectors for wires must be of the cast copper or forged copper pressure plate type. Connectors must be O.Z., Burndy, National Electric Products or approved equal.
6. Splices and feeder taps in the gutters of panel boxes must be made by means of pressure plate-type connectors encased in composition covers as manufactured by O.Z., Burndy, National Electric Products or approved equal.
7. Splices in branch wiring for sound systems and fire systems, must be first made mechanically secure, then soldered and taped.
8. In lieu of soldered splices (except for sound and fire systems, which must have soldered splices) the following alternates are acceptable for operating temperatures up to 105 degrees C., for fluorescent fixtures and for the splicing of branch circuit wiring up to No. 8 AWG wire:
    a. Mechanical splices made with mechanical connectors as manufactured by the Minnesota Manufacturing Company "Scotchlock" or approved equal. Mechanical connectors requiring a special tool (pressure connectors, insulators and locking rings) by Buchanan or approved equal. The tool used for connector application must be as approved by the connector manufacturer.

b. For branch circuit wire and cable No. 6 AWG and larger, the seamless tubular connector will only be accepted. Application of this connector must be with a tool recommended by the connector manufacturer.

9. TAGS: All feeders and risers must be tagged at both ends, and in all pull and junction boxes and gutter spaces through which they pass. Such tags must be of fiber and have the feeder designation and size stamped thereon.

10. BRANCH CIRCUIT WIRING:

a. The Contractor installing branch circuit wiring must test the work for correct connections and leave all loop splices in the fixture outlet boxes properly spliced and taped. The Contractor must provide wire ends long enough for convenient connection to device.

b. NEUTRALS: No common neutrals must be used except for lighting branch circuits. Each neutral wire must be terminated separately on a neutral busbar in the panelboard. No common neutrals will be permitted for convenience receptacle branch circuits.

I. TERMINATIONS

1. LUGS: All lugs for all devices and all cable terminations must be copper. AL/CU rated lugs will not be permitted. The only exception to this requirement is when the particular device is not manufactured with copper lugs by any manufacturer. Lugs for No. 6 AWG cable and larger must be cast copper or forged copper pressure plate type. Lugs for 1/0 and larger must be fastened with two (2) bolts.

2. All lugs must be of the proper size to accept the cable connected to them. Any Subcontractor furnishing a device containing lugs is to coordinate with the Contractor to ensure that the device terminations are adequate for the wire or cable (whose size may be larger than expected due to voltage drop considerations) connected to the device.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.5**

**3.5 CIRCUIT PROTECTIVE DEVICES:**

This Section sets forth the circuit protective devices such as circuit breakers and safety switches, used in connection with Motor Control Equipment, Distribution Centers, Panel boards and Service Entrance.

A. CIRCUIT BREAKERS:

1. CIRCUIT BREAKERS: must be operable in any position and must be of the quick-make, quick-break type on manual operation. The handle must be trip free, preventing contacts from being held in closed position against abnormal overloads or short circuits. Positive visual indication of automatic tripped position of breaker must be provided, in addition to the "On" and "Off" indication. All circuit breakers must be of the bolted type.

2. TRIP RATING: Circuit breakers must be provided with the required number of trip elements, calibrated at 40 degrees C., ambient temperature, in accordance with wire sizes or motor currents as shown on Contract Drawings or indicated in the Specifications.

3. POLE BARRIER: Multipole pole breakers must be designed to break all poles simultaneously. They must be provided with barriers between poles and arc suppressing devices.

4. ELEMENTS: Multipole circuit breakers must have frames of not less than a 100 Ampere rating. Multipole circuit breakers for 480 volts AC operation must have an NEMA interrupting rating of 18,000 Amperes, unless a higher rating is specified in the Specifications or indicated on the Contract Drawings.

5. For circuit breakers with frame size up to and including 225 Amperes, the breakers may be

provided with non-interchangeable trip elements. For frame ratings above 225 Amperes, the breakers must be provided with interchangeable trip elements, which can be replaced readily.

6. Single pole circuit breakers for branch circuits must have a frame size of no less than 100 Amperes and must be rated at 125 volt A.C. with a NEMA interrupting rating of 10,000 Amperes, unless a higher rating is specified in the Specifications or indicated on the Contract Drawings.

7. INVERSE TIME ACTION: The circuit breakers must be dual element type, one (1) element with time limit characteristics, so that tripping will be prevented on momentary overloads, but will occur before dangerous values are reached and the other with instantaneous trip action. Inverse time delay action must be effective between a minimum tripping point of 125% of rating of breaker and an instantaneous tripping point between 600% and 700% of rated current.

8. CONSTANCY OF CALIBRATION: The tripping elements must ensure constant calibration and be capable of withstanding excessive short circuit conditions without injury.

9. CONTACTS: must be non-welding under operating conditions and of the silver to silver type.

10. TEMPERATURE RISE: Current carrying parts, except thermal elements, must not rise in temperature in excess of 30 degrees C. while carrying current at the part's rated current and frequency.

11. NUMBERING: Each circuit breaker must be distinctly numbered when installed in a group with other breakers. The calibration of trip element must be indicated on each breaker.

B. SAFETY SWITCHES:

NEMA TYPE HD: When safety switches are permitted to be used for service entrance, motor disconnecting means or to control other types of electrical equipment, they must be of the type HD of a rating not less than 30 Amperes. Enclosures must be provided with means for locking. For ratings above 60 Amperes terminals must have double studs.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.6**

**3.6 DISTRIBUTION CENTERS:**

This Section sets forth the construction and installation procedure for Switchboards, Panel boards and Cabinets.

A. PANEL BOARDS, GENERAL TYPE: The panel boards must be of the automatic circuit breaker type with individual breakers for each circuit, removable without disturbing the other units. Circuit breakers must be in accordance with the requirements outlined under Section 3.5, "Circuit Protective Devices."

B. NUMBER AND RATING OF CIRCUIT BREAKERS: The Contract Drawings show a layout of each panel, giving the number, frame, size and trip setting of circuit breakers and number of branch circuits and spare breakers. Each branch circuit must be distinctly numbered.

C. BUS BAR CONSTRUCTION AND SUPPORT: Panel Boards must be of the dead front type and must have bus bars and branch circuits designed to suit the system and voltage. Current carrying parts, exclusive of circuit breakers, must be copper and based on a maximum density of 1,000 Amperes per square inch. Bus bars for the main switchboard must be designed for the frame rating of the Service Breaker. Bus bars must run up the center of the panel, unless otherwise indicated, and must have connected thereto the various branch circuits. Unless otherwise specified, bus bars for each panel board must be equipped with main lugs only and capacity as required on Contract Drawings. Where main protection is required, automatic circuit breakers must be used. A neutral bus of at least the same capacity as a live bus bar must be provided for the connection of all neutral conductors. Each terminal must be identified. All current carrying parts, exclusive of circuit breakers, must be of copper with a minimum number of joints. The bus bar structure must be a self-supporting unit, firmly fastened to a ½

inch plastic board, extending the full length and width of assembly which must serve to insulate the bus structure from the back of panel box. Other methods affording equally effective bus structure support and insulation will be given consideration. An insulating barrier must separate neutral bus from other parts of panel.

D. CIRCUIT BREAKER ASSEMBLY: The entire circuit breaker and bus bar assembly must be mounted on an adjustable metal base or pan and secured to the back of the panel box. The panel must have edges flanged for rigidity.

E. PANEL MOUNTING: The panel must be centered in the panel box, line up with the door openings, be set level and plumb, and no live parts may be exposed with the door open.

F. PANEL CABINET:

1. PANEL CABINET INSTALLATION: When installed, surface mounted in panel closets must be mounted on Kindorf channel.

2. Where cabinets cannot be set entirely flush due to mustow walls or partitions or where cabinet is extra deep, the protruding sides of cabinet must be trimmed with a metal or hardwood return molding of approved design and fastened to cabinet so as to conceal the intersection between the wall and cabinet.

G. NAMEPLATES: Where required, nameplates must be made of engraved Lamicoid sheet, or approved equal. Letters and numbers must be engraved white on a black background (except for Firehouse projects which must have white letters on a red background). The Contractor must submit an engraved sample for approval as to design and style of lettering before proceeding with the manufacture of the nameplate. Nameplates must be of suitable size and must also be provided at the top of the switchboard or section thereof and on the trim at the top of all lighting and power panels. Similar nameplates must also be provided for each distribution circuit breaker giving the breaker number, the number of the feeder, and the name of the equipment fed.

H. SHOP DRAWINGS: showing all details of boxes, panels, etc., must be submitted for approval.

I. DIRECTORIES: A directory must be fastened with brass screws and consist of a noncorrosive metal frame with dimensions not less than five (5) inches x eight (8) inches and a transparent window of Plasticile, Plexiglass, Lucite, Polycarbonate or approved equal that is not less than 1/16 inch thick over cardboard or heavy paper. The directory must be typewritten and show the number and name of each circuit, and lighting or equipment supplied. The size of riser feeder must be as indicated on the directory. The dimensions of the directory must be submitted for approval for each size of panel.

J. CONSTRUCTION

1. FINISH: Panel boxes, doors and trim for installation in dry locations, must be zinc coated after fabrication by the hot-dip galvanizing or electroplate process on inside and outside surfaces. In damp locations, panel boards must be enclosed and gasketed NEMA 3R type. Panel boards located outdoors or exposed to the weather must be NEMA 3X type.

2. PAINTING: Panel boxes, doors and trim must receive a coat of approved priming paint and a second coat of approved paint in the field after installation. Paint must be applied to the inside and outside of boxes and on both sides of trim. Panel trims and doors must receive a third or finishing coat on the outside after installation. Approval as to texture and color must be obtained before the final coat is applied.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.7**

**3.7 MOTORS:**

This Section sets forth the general design, construction and performance requirements, which must apply to all motors furnished in the Contract.

A. MOTOR DESIGN: All motors must be designed to comply with the New York State Energy Conservation Construction Code and the New York City Energy Conservation Code. In the event of any conflict or inconsistency between such codes, the New York City Energy Conservation Code must prevail. Motors must have standard NEMA frames and must have nameplate ratings adequate to meet the specified conditions of operation. Motor performance under variable conditions of voltage and frequency must be within the limits set in NEMA standards, unless modified in the Specifications. Motors must be expressly designed for the hazard duty load, voltage and frequency as specified in the Contract. All motor windings must be copper. All motors intended to operate on a 208 volt system must be designed and rated for 200 volts.

B. STANDARDS OF COMPARISON: In the absence of specific motor specifications, in general, the best standard products of the leading motor manufacturers must be considered as a standard for comparison. The requirements of the NEMA standards for motors and generators must be deemed to contain the minimum requirements of performance and design.

C. OBJECTIONABLE NOISES: Objectionable noises will not be tolerated and exceptionally quiet motors may be required for certain specified locations. Noise control tests as per the New York City Construction Codes may be performed as directed by the Commissioner. Such motors must bear a nameplate lettered "Quiet Motor." Springs and slip rings must be of approved non-ferrous material.

D. BEARINGS:

1. Bearings, unless specified otherwise, must be of the ball or roller type. Motors one (1) horsepower and larger that are equipped with ball roller bearings must also have lubrication of the pressure-relief greasing type. The Contractor furnishing four (4) or more such motors must also furnish, as part of the Contract, a pressure grease gun of rugged design, of approximately ten (10) ounce capacity, complete with necessary adapters. The Contractor must also provide ten (10) pounds of approved gun grease.

2. For any particular unit where sleeve bearings are deemed desirable, permission for their use may be granted by the Commissioner. Motors one (1) horsepower and larger that are equipped with sleeve type bearings must, in addition to having protected fittings easily accessed for oiling, be provided with visible means for determining normal oil level. Lubrication must be positive, automatic and continuous.

E. MOTOR TERMINALS AND BOXES: Each motor must be furnished with flexible leads of sufficient length to extend for a distance of not less than three (3) inches beyond the face of the conduit terminal box. This box must be furnished of ample size to make and house motor connections. These requirements must be met irrespective of any other standards or practices. Size of cable terminals and conduit terminal box holes must be subject to approval. For motors five (5) horsepower or larger, each terminal must come with two (2) cast or forged copper pressure type connectors with bolts, nuts and washers. For motors of smaller ratings, connectors of other acceptable types may be furnished. For installations exposed to the weather or moist locations, terminal boxes must be of cast iron with threaded hubs and gasketed covers. Cover screws must be of non-corrosive material.

F. MOTOR TEMPERATURE RISES: The motor nameplate temperature rises for the various types of motor enclosures must be as listed below:

| | | |
|---|---|---|
| 1. | Open Frame | 40 degrees C. |
| 2. | Totally enclosed and enclosed fan cooled | 55 degrees C. |
| 3. | Explosion proof and submersible | 55 degrees C. |

4. Partially enclosed and drip proof 40 degrees C.

The temperature of the various parts of a motor must meet the requirements of NEMA standards for the size and type of the motors. Tests for heating must be made by loading the motor to its rated horsepower and keeping it so loaded for the rated time interval or until the temperature becomes constant.

G. SPECIAL CODE INSTALLATIONS: Electrical installations covered by special publications of NBFU and by special City rulings and regulations must comply in design and safety features with such applicable codes, regulations and rulings, and must be furnished and installed complete with all accessories and safety devices as therein specified.

H. MOTORS ON LIGHTING PANELS: The largest A.C. motor permitted on branch circuits of lighting panels must not exceed 1/4 horsepower.

I. MOTORS RATED: ½ horsepower and larger must be polyphase.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.8**

**3.8 MOTOR CONTROL EQUIPMENT:**

This Section sets forth the requirements for motor controllers and associated devices. Such requirements are applicable to all motor control equipment furnished or installed.

A. MANUFACTURER: All control equipment furnished under the Contract must be the product of a single manufacturer. Exceptions to this rule may be granted in the case of controllers for fractional horsepower motors driving special equipment, the various units of which have been engineered to obtain specific performance.

B. CONTROL ITEMS REQUIRED: The Contractor furnishing motors must also furnish therewith complete disconnecting, starting and control equipment as required by the detailed Specifications, the various code authorities and for the successful operation of the driven equipment. These items include circuit breakers, magnetic starters with overload protection and low voltage release or protection, push button stations, pilot lights and alarms, float, pressure, temperature and limit switches, load transfer switches, devices for manual operation and speed controllers, etc. The Contractor must furnish as many of these items as required for the successful operation of the driven unit.

1. Where a motor is to be located out of sight of the controller, the Contractor must furnish an approved disconnecting means to be mounted near motor.

C. TYPES OF STARTERS:

1. SQUIRREL CAGE: A.C. motors of the squirrel cage type, rated from one (1) to thirty (30) horsepower, must have magnetic across the line starters; motors rated above thirty (30) horsepower must be furnished with reduced voltage (autotransformer type) starter or part winding start with time delay to reduce inrush current. Size of starters must be based on 200V operation.

2. SLIP RING: A.C. motors of the slip-ring type must be furnished with primary across the line starters interlocked with secondary starting and regulating equipment. The interlocking feature must prevent starting of the motor when the secondary controller is off the initial starting point.

3. MAGNETIC: For fractional horsepower motors, magnetic type starters are not required unless the particular method of controlling the driven equipment makes them necessary. Where individual single phase fractional horsepower motors or the sum of fractional horsepower motors controlled by an automatic device are ½ horsepower or more, magnetic starters and circuit breakers must be used. Single phase A.C. motors smaller than ½ horsepower or three-phase A.C. motors smaller than one (1) horsepower where manual control is specified may be furnished with starters of toggle switch or push button type with inbuilt thermal protection. No additional disconnecting means is required to be furnished with this type of starter. This type of starter may also be used in series

with automatic control devices such as thermostats, float and pressure switches, provided the individual motor or the sum of fractional horsepower motors is less than ½ horsepower. Means for manual operation must be provided.

D. DISCONNECTING BREAKER: All motor starters, unless otherwise specified, must be provided with a disconnecting means in the form of a circuit breaker of the type specified under Article 3.5 CIRCUIT PROTECTIVE DEVICES. This disconnecting means must be contained in the same housing with the starter and must be operable from outside. Means must be provided for locking the handle of the circuit breaker in the "OFF" position if it is desired to take the equipment out of service and prevent unauthorized starting.

E. CONTROL CABINET – DRY LOCATIONS: All starters must be furnished with general purpose, NEMA Type 1, sheet metal enclosures with hinged covers and baked enamel finish.

F. CONTROL CABINET – WATERTIGHT: In wet locations, cast iron watertight enclosures with threaded hubs, galvanized and gasketed hinged covers must be provided.

G. PANELS: Motor control devices and appliances must be mounted on approved insulating slabs with all wiring and connections made on the back of the slabs.

H. WIRING AND TERMINALS: Wiring connections for currents of one hundred (100) Amperes or less may be made with copper wire or cable with special flameproof insulating coverings. Such wires must be installed in a neat workmanlike manner, flat against the slab, and held in place by clips. Connections must be made with pressure connectors for No. 8 AWG and larger wires, and with grommets for small, stranded wires. Except for incoming and outgoing main leads, all connections must terminate on approved connector blocks, which may be installed on the face of the slab. For small, across the line starters, the above requirements may be modified if satisfactory connections are provided.

I. COPPER BUS: For currents exceeding one hundred (100) Amperes, copper bus must be used in place of wires. The bus must be constructed of copper rods, tubing or flat strap, bent and shaped properly and securely attached to the slab in a neat and workmanlike manner. The cross section of copper must provide sufficient areas to keep current density at not more than one thousand (1,000) Amperes per square inch.

J. COOPERATION: The Contractor’s Subcontractor(s) who furnish electrically operated equipment must give to the Contractor and the Contractor’s electrical Subcontractor full information relative to sizes and locations of apparatus furnished by them which require electrical connections.

**END OF SECTION 01 35 06**

# SECTION 01 35 26
# SAFETY REQUIREMENTS PROCEDURES

## PART I – GENERAL

### 1.1 RELATED DOCUMENTS:

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

B. The Contractor shall comply with the requirements of "*The City of New York Department of Design and Construction Safety Requirements".* This document is included in the Information for Bidders.

### 1.2 SUMMARY:

A. This Section includes administrative and general procedural requirements for Safety and Health Requirements, including:

1. Definitions
2. Required Safety Meeting
3. Compliance with Regulations
4. Submittals
5. Personnel Protective Equipment
6. Hazardous and / or Contaminated Materials
7. Emergency Suspension of Work
8. Protection of Personnel
9. Environmental Protection

### 1.3 DEFINITIONS:

A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.

B. Design Consultant: "Design Consultant" must mean the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.

### 1.4 REQUIRED SAFETY MEETINGS:

A. Prior to commencing construction, the Resident Engineer will schedule and hold a preconstruction kick-off meeting either at DDC's main office or at the Project site with representatives of the Contractor, including the principal on-site project representative, one or more safety representatives, the Commissioner's designated representatives and other concerned parties for the purpose of reviewing the Contract safety requirements. Additionally, implementing Work safety provisions must be discussed.

B. The Contractor is responsible for conducting weekly documented jobsite safety meetings, given to all jobsite personnel including all Subcontractors on the Project, with the purpose of discussing safety topics and job-specific requirements at the DDC worksite.

**1.5 COMPLIANCE WITH REGULATIONS:**

A. The Work, including contact with or handling of hazardous materials, disturbance or dismantling of structures containing hazardous materials, and disposal of hazardous materials, shall comply with the applicable requirement for 29 CFR Parts 1910 and 1926, and 40 CFR, Parts 61, 261, 761 and 763.

B. Work involving disturbance or dismantling of asbestos or asbestos-containing materials, demolition of structures containing asbestos and removal of asbestos, shall comply with 40 CFR Part 61, Subparts A and M, and 40 CFR Part 763, as applicable.

C. Additionally, Work shall comply with all applicable federal, state, and local safety and health regulations.

D. In case of a conflict between applicable regulations, the more stringent requirements shall apply.

E. All workers working on the DDC Project site are required by NYC Local Law 41 to complete the OSHA 10-hour training course.

**1.6 SUBMITTALS:**

A. The Contractor shall submit to the Resident Engineer, copies of the Safety Program, Site Safety Plan and other required documentation in accordance with the "*New York City Department of Design and Construction Safety Requirements*".

B. Permits: If hazardous materials are disposed of off-site, the Contractor must submit to the Resident Engineer copies of shipping manifests, permits from applicable federal, state, or local authorities and disposal facilities, and certificates that the material has been disposed of in accordance with regulations.

C. Accident Reporting: Submit a copy of each accident report to the Resident Engineer in accordance with the "*New York City Department of Design and Construction Safety Requirements*".

D. All asbestos and lead project regulatory notifications are to be submitted to DDC's Office of Environmental and HazMat Services (OEHS) through the Resident Engineer.

E. Request for Subcontractor Approval: Any Subcontractor performing environmental work must submit required documentation for approval to perform such work as required by DDC's OEHS.

**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, theContractor has taken satisfactory corrective action, the Commissioner shall provide written notice to the Contractor that the Work may resume.

D. The Contractor shall not be allowed any extension of time or compensation for damages in connection with a work stoppage for an unsafe condition.

### 3.2 PROTECTION OF PERSONNEL:

A. The Contractor shall take all necessary precautions to prevent injury to the public, occupants, or damage to property of others. The public and occupants includes all persons not employed by the Contractor or a Subcontractor.

B. Whenever practical, the work area shall be fenced, barricaded, or otherwise blocked off from the public or occupants to prevent unauthorized entry into the work area, in compliance with the requirements of Section 01 50 00 TEMPORARY FACILITIES, SERVICES AND CONTROLS, and including without limitation, the following:

1. Provide traffic barricades and traffic control signage where construction activities occur in vehicular areas.
2. Corridors, aisles, stairways, doors, and exit ways shall not be obstructed or used in a manner to encroach upon routes of ingress or egress utilized by the public or occupants, or to present an unsafe condition to the public or occupants.
3. Store, position and use equipment, tools, materials, scraps and trash in a manner that does not present a hazard to the public or occupant by accidental shifting, ignition, or other hazardous activity.
4. Store and transport refuse and debris in a manner to prevent unsafe and unhealthy conditions for the public and occupants. Cover refuse containers and remove refuse on a frequent regular basis acceptable to the Resident Engineer. Use tarpaulins or other means to prevent loose transported materials from dropping from trucks or other vehicles.

### 3.3 ENVIRONMENTAL PROTECTION:

A. Dispose of solid, liquid and gaseous contaminants in accordance with local codes, laws, ordinances and regulations.

B. Comply with applicable federal, state, and local noise control laws, ordinances, and regulations, including but not limited to 29 CFR 1910.95, 29 CFR 1926.52 and NYC Administrative Code Chapter 28 of Title 15.

**END OF SECTION 01 35 26**

# SECTION 01 35 91
# HISTORIC TREATMENT PROCEDURES

**REFER TO THE ADDENDUM FOR APPLICABILITY OF THIS SECTION 01 35 91**

## PART I – GENERAL

### 1.1 RELATED DOCUMENTS:

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

### 1.2 SUMMARY:

A. This Section includes administrative and procedural requirements for the treatment of Landmark Structures and Landmark Quality Structures, as identified in the Addendum. Specific requirements are indicated in other sections of the Specifications.

B. This Section includes, without limitation, the following:

1. Storage and protection of existing historic materials
2. General Protection
3. Protection during use of heat-generating equipment
4. Photographic Documentation
5. NYC Landmarks Preservation Commission Final Approval signoffs

### 1.3 RELATED SECTIONS: include without limitation the following:

A. Section 01 10 00 SUMMARY
B. Section 01 32 33 PHOTOGRAPHIC DOCUMENTATION
C. Section 01 33 00 SUBMITTAL PROCEDURES
D. Section 01 77 00 CLOSEOUT PROCEDURES
E. Section 01 78 39 CONTRACT RECORD DOCUMENTS

### 1.4 DEFINITIONS:

A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.

B. Design Consultant: “Design Consultant” means the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the “Design Consultant” may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.

C. Landmark Structure or Site: Any building or site which has been designated as a landmark, or any building or site within a landmark district, as designated by the New York City (NYC) Preservation Commission or the New York State Historic Preservation Office.

D. Landmark Quality Structure: Any building which has been determined by the City to be of landmark quality and/or historical significance.

E. Preservation: To apply measures necessary to sustain the existing form, integrity, and materials of a historic property. Work may include preliminary measures to protect and stabilize the property.

F. Rehabilitation: To make possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features that convey its historical, cultural, or architectural values.

G. Restoration: To accurately depict the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and the reconstruction of missing features from the restoration period.

H. Reconstruction: To reproduce in the exact form and detail a building, structure, or artifact as it appeared at a specific period in time.

I. Stabilize: To apply measures designed to reestablish a weather-resistant enclosure and the structural reinforcement of an item or portion of the building while maintaining the essential form as it exists at present.

J. Protect and Maintain: To remove deteriorating corrosion, reapply protective coatings, and install protective measures such as temporary guards; to provide the least degree of intervention.

K. Repair: To stabilize, consolidate, or conserve; to retain existing materials and features while employing as little new material as possible. Repair includes patching, piecing-in, splicing, consolidating, or otherwise reinforcing or upgrading materials. Within restoration, repair also includes limited replacement in kind, rehabilitation, and reconstruction, with compatible substitute materials for deteriorated or missing parts of features when there are surviving prototypes.

L. Replace: To duplicate and replace entire features with new material in kind. Replacement includes the following conditions:

1. Duplication: Includes replacing elements damaged beyond repair or missing. Original material is indicated as the pattern for creating new duplicated elements.
2. Replacement with New Materials: Includes replacement with new material when original material is not available as patterns for creating new duplicated elements.
3. Replacement with Substitute Materials: Includes replacement with compatible substitute materials. Substitute materials are not allowed, unless otherwise indicated.

M. Remove: To detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.

N. Remove and Salvage: To detach items from existing construction and deliver them to the City ready for reuse.

O. Remove and Reinstall: To detach items from existing construction, repair and clean them for reuse, and reinstall them where indicated.

P. Existing to Remain or Retain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed and salvaged, or removed and reinstalled.

Q. Material in Kind: Material that matches existing materials as much as possible, in species, cut, color, grain, and finish.

**1.5 SUBMITTALS:**

A. Historic Treatment Program: Submit a written plan for each phase or process, including protection of surrounding materials during operations. Describe in detail materials, methods, and equipment to be used for each phase of the Work.

B. Alternative Methods and Materials: If alternative methods and materials to those indicated are proposed for any phase of the Work, submit for the Commissioner’s approval a written description, including

evidence of successful use on other comparable projects and provide a program of planned testing to demonstrate the effectiveness of the alternative methods and materials for use on this Project.

C. Qualification Data: Submit qualification data for historic treatment specialists as specified and required by individual sections of the Project specifications.

D. Photographs for Designated Landmark Structures: Submit photographs in accordance with Section 01 32 33 PHOTOGRAPHIC DOCUMENTATION and as described in this section.

E. Record Documents: Include modifications to manufacturer's written instructions and procedures, as documented in the historic treatment preconstruction conference and as the Work progresses.

**1.6 QUALITY ASSURANCE:**

A. Historic Treatment Specialist Qualifications: Refer to Section 01 40 00 QUALITY REQUIREMENTS for Qualifications for Historic Treatment Specialists.

B. Historic Treatment Preconstruction Conference: The Resident Engineer will schedule and hold a preconstruction meeting at the site in accordance with Section 01 31 00 PROJECT MANAGEMENT AND COORDINATION.

1. Review manufacturer's written instructions for precautions and effects of products and procedures on building materials, components, and vegetation.

a. Record procedures established as a result of the review and distribute to affected parties.

**1.7 STORAGE AND PROTECTION OF HISTORIC MATERIALS:**

A. Removed and Salvaged Historic Materials: As specified and required by individual sections of the Project specifications.

B. Removed and Reinstalled Historic Materials: As specified and required by individual sections of the Project specifications.

C. Existing Historic Materials to Remain: Protect construction indicated to remain against damage and soiling during historic treatment. When permitted by the Commissioner, items may be removed to a suitable, protected storage location during historic treatment and reinstalled in their original locations after historic treatment operations are complete.

D. Storage and Protection: When removed from their existing location, store historic materials, at a location acceptable to the Commissioner, within a weather tight enclosure where they are protected from wetting by rain, snow, or ground water, and temperature variations. Secure stored materials to protect from theft.

1. Identify removed items with an inconspicuous mark indicating their original location.

**PART II – PRODUCTS (Not Used)**

**PART III – EXECUTION**

**3.1 GENERAL PROTECTION:**

A. Comply with manufacturer's written precautions against harmful effects of products and procedures on adjacent building materials, components, and vegetation.

B. Ensure that supervisory personnel are present when work begins and throughout its progress.

C. Temporary Protection of Historic Materials during Construction:

1. Protect existing materials during installation of temporary protections and construction. Do not deface or remove existing materials.

2. Attachments of temporary protection to existing construction must be approved by the Commissioner prior to installation.

D. Protect landscape work adjacent to or within work areas as follows:

1. Provide barriers to protect tree trunks.

2. Bind spreading shrubs.

3. Use coverings that allow plants to breathe and remove coverings at the end of each day. Do not cover plant material with a waterproof membrane for more than eight (8) hours at a time.

4. Set scaffolding and ladder legs away from plants.

E. Existing Drains: Prior to the start of work or any cleaning operations, test drains and other water removal systems to ensure that drains and systems are functioning properly. Notify the Commissioner immediately of drains or systems that are stopped or blocked. Do not begin Work pertaining to this Section until the drains are in working order.

1. Provide a method to prevent solids, including stone or mortar residue, from entering the drains or drain lines. Clean out drains and drain lines that become blocked or filled by sand or any other solids because of the Work performed under this Contract.

2. Protect storm drains from pollutants. Block drains or filter out sediments, allowing only clean water to pass.

**3.2 PROTECTION DURING USE OF HEAT-GENERATING EQUIPMENT:**

A. No roofing work requiring the use of an open flame will be permitted on any Landmark Structure or any Landmark Quality Structure whose roof or wall structure is made of wood or primarily of wood.

B. Comply with the following procedures while performing work with heat-generating equipment, including welding, cutting, soldering, brazing, paint removal with heat, and other operations where open flames or implements utilizing heat are used:

1. Obtain Commissioner’s approval for operations involving use of open-flame or welding equipment. Notification must be given for each occurrence and location of work with heat-generating equipment.

2. Where possible, use heat-generating equipment in shop areas or outside the building.

3. Before work with heat-generating equipment commences, furnish personnel to serve as a fire watch (or watches) for location(s) where work is to be performed.

4. Do not perform work with heat-generating equipment in or near rooms or in areas where flammable liquids or explosive vapors are present or thought to be present. Use a combustible gas indicator test to ensure that the area is safe.

5. Remove and keep the area free of combustibles, including rubbish, paper, waste, etc., within the area of operations.

6. If combustible material cannot be removed, provide fireproof blankets to cover such materials.

7. Where possible, furnish and use baffles of metal or gypsum board to prevent the spraying of sparks or hot slag into surrounding combustible material.

8. Prevent the extension of sparks and particles of hot metal through open windows, doors, holes, and cracks in floors, walls, ceilings, roofs, and other openings.

9. Inspect each location of the day's work not sooner than thirty (30) minutes after completion of operations to detect hidden or smoldering fires and to ensure that proper housekeeping is maintained.

C. Where sprinkler protection exists and is functional, maintain it without interruption while operations are being performed. If operations are performed close to automatic sprinkler heads, shield the individual heads temporarily with guards.

**3.3 PHOTOGRAPHIC DOCUMENTATION:**

A. Photographs for Designated Landmark Structures: Show existing conditions prior to any historic treatments, including one overall photograph and two close-up photographs of all areas of work affected. Show one overall photograph and two close-up photographs of all areas of work after the successful execution of all historical treatments.

**3.4 NEW YORK CITY LANDMARKS PRESERVATION COMMISSION FINAL APPROVALS SIGNOFF:**

A. For all projects involving a Landmark Structure or Site, the Contractor, at the completion of the Work, must submit to the Commissioner, in accordance with Section 01 78 39 CONTRACT RECORD DOCUMENTS, all documentation concerning the successful execution of all historic treatments. This must include, but not be limited to, copies of all before and after photographs of historic treatments, one copy of the GC Contractor's as-built drawings, copies of testing and analysis results, including cleaning, mortar analysis, pointing mortars and all other information pertaining to work performed under the NYC Landmarks Preservation Commission jurisdiction.

**END OF SECTION 01 35 91**

# SECTION 01 40 00
# QUALITY REQUIREMENTS

## PART I - GENERAL

### 1.1 RELATED DOCUMENTS:

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

### 1.2 SUMMARY:

A. This Section includes the following:

1. Definitions
2. Engineering Services
3. Conflicting Requirements
4. Quality Assurance
5. Quality Control
6. Approval of Materials
7. Special Inspections (Controlled Inspection)
8. Inspections by Other City Agencies
9. Certificates of Approval
10. Acceptance Tests
11. Repair and Protection

B. This section includes administrative and procedural requirements for quality control to assure compliance with quality requirements specified in the Contract Documents.

C. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Documents.

D. Specified tests, inspections, and related actions do not limit Contractor's other quality assurance and quality control procedures that facilitate compliance with the Contract Documents.

E. Provisions of this section do not limit requirements for the Contractor to provide quality assurance and quality control services required by the Commissioner or authorities having jurisdiction.

F. Specific test and inspection requirements are specified in the individual sections of the Specifications.

G. LEED: Refer to the Addendum to identify whether the 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 13.04 SUSTAINABLE DESIGN REQUIREMENTS FOR LEED v4 BUILDINGS.

H. COMMISSIONING: Refer to the Addendum to identify whether the Project will be commissioned by an independent third party under separate contract with the City of New York. Commissioning must be in accordance with ASHRAE and USGBC LEED-NC procedures, as described in Section 01 91 13 GENERAL COMMISSIONING REQUIREMENTS FOR MEP SYSTEMS and/ or Section 01 91 15 GENERAL COMMISSIONING REQUIREMENTS FOR BUILDING ENCLOSURE. The Contractor must cooperate with the Commissioning Agent and provide whatever assistance is required.

**1.3 RELATED SECTIONS:** Include without limitation the following:

A. Section 01 10 00 SUMMARY

B. Section 01 31 00 PROJECT MANAGEMENT AND COORDINATION

C. Section 01 32 00 CONSTRUCTION PROGRESS DOCUMENTATION

D. Section 01 33 00 SUBMITTAL PROCEDURES

E. Section 01 77 00 CLOSEOUT PROCEDURES

F. Section 01 78 39 CONTRACT RECORD DOCUMENTS

**1.4 DEFINITIONS:**

A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.

B. Design Consultant: "Design Consultant" means the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (Drawings and Specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.

C. Commissioning: A Total Quality Assurance process that includes checking the design and installation of equipment, as well as performing functional testing of the same to confirm that the installed equipment is operating and in conformance with the Contract Documents and the City's requirements.

D. Experienced: When used with an entity or individual, "experienced," means having minimum experience levels as described in Article 1.7, Paragraph B "Minimum Experience qualification levels."

E. Installer/ Applicator/ Erector: Contractor or another entity engaged by Contractor as an employee or Subcontractor, to perform a particular construction operation, installation, erection, application, assembly and similar operations.

F. Mockups: Full-size physical assemblies that are constructed on-site either as freestanding temporary built elements or as part of permanent construction. Mockups are constructed to verify selections made under sample Submittals; to demonstrate aesthetic effects and qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.

G. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.

H. Product Tests: Tests and inspections that are performed by a Nationally Recognized Testing Laboratory (NRTL) according to 29 CFR 1910.7, by a testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program (NVLAP), or by a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.

I. Source Quality-Control Tests: Tests and inspections that are performed at the source; for example, plant, mill, factory, or shop.

J. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory means the same as testing agency.

K. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

L. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements.

**1.5 ENGINEERING SERVICES**

A. Performance and Design Criteria: Where professional design services provided by a professional engineer are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are insufficient to perform services or certification required, submit a written request for clarification to the Commissioner.

**1.6 CONFLICTING REQUIREMENTS:**

A. General: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, the Contractor must comply with the most stringent requirement. The Contractor must refer any uncertainties and/or conflicting requirements to the Commissioner for a decision before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified must be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. The Contractor must refer any uncertainties to the Commissioner for a decision before proceeding.

**1.7 QUALITY ASSURANCE:**

A. General: Qualifications paragraphs in this Article establish the minimum qualification levels required. Individual Specification Sections may specify supplementary qualification requirements.

1. **Minimum Experience**: Minimum Experience qualification levels as described herein, apply to all entities indicated in the Specification Sections for the Project, unless such entity requires Special Experience requirements per Subsection 1.7 A.2. below. Individual Specification Sections may specify supplementary qualification requirements.

2. **Special Experience**: Special Experience qualification levels as described herein, apply to all entities indicated in the "Special Experience Requirements" page of the PASSPort procurement. Individual Specification Sections may specify supplementary qualification requirements.

B. **Minimum Experience qualification levels:**

1. **Qualifications for Installer or Applicator or Erector**: An entity complying with the requirements of authorities having jurisdiction and having, prior to the bid opening, been regularly engaged for a minimum of three (3) consecutive years in installing, erecting, applying, or assembling work in a timely fashion similar in material, design, and extent to that indicated for the Project, and whose

work has resulted in construction with a record of successful in-service performance.

2. **Qualifications for Installer or Applicator or Erector requiring approval or certification or authorization by Manufacturer**: An entity complying with the requirements of authorities having jurisdiction and having, prior to the bid opening, been regularly engaged for a minimum of three (3) consecutive years in installing, erecting, applying, or assembling work in a timely fashion similar in material, design, and extent to that indicated for the Project, and whose work has resulted in construction with a record of successful in-service performance. In addition, the entity must be approved, or certified, or authorized by the manufacturers listed in the Specification Section and must be eligible to receive manufacturers' warranty.

3. **Qualifications for Fabricator**: An entity complying with the requirements of authorities having jurisdiction; having, prior to the bid opening, been regularly engaged for a minimum of three (3) consecutive years in producing products similar to those indicated for the Project and having a record of successful in-service performance, as well as sufficient production capacity to produce required units.

4. **Qualifications for Manufacturer**: An entity complying with the requirements of authorities having jurisdiction; having, prior to the bid opening, been regularly engaged for a minimum of three (3) consecutive years in manufacturing products or systems similar to those indicated for the Project; having a record of successful in-service performance for not less than three (3) consecutive years and having sufficient production capacity to produce required units. Manufacturer must meet warranty requirements and technical or factory-authorized service representative requirements.

5. **Qualifications for Specialist:** An entity complying with the requirements of authorities having jurisdiction; satisfying qualification requirements indicated in the Specification Section and having, prior to the bid opening, a minimum of three (3) consecutive years successfully engaged in the activities indicated.

C. **Special Experience Qualification Levels:**

1. **Special Qualifications for Installer or Applicator or Erector**: An entity complying with the requirements of authorities having jurisdiction and having, prior to the bid opening, been regularly engaged for a minimum of five (5) consecutive years in successfully installing, erecting, applying, or assembling work similar in material and design to that indicated for the Project. Entity must provide documentation of having successfully completed a minimum of three (3) projects similar in scope, size and type as required for the Project.

2. **Special Qualifications for Fabricator**: An entity complying with the requirements of authorities having jurisdiction; having, prior to the bid opening, been regularly engaged for a minimum of five (5) consecutive years in producing products similar to those indicated for the Project; having a record of successful in-service performance, as well as sufficient production capacity to produce required units. Entity must provide documentation of having successfully completed a minimum of three (3) projects similar in nature, size, and extent, to the requirements of the project.

3. **Special Qualifications for Installer of a Manufacturer-Warrantied Roof System:** An entity complying with the requirements of authorities having jurisdiction; regularly engaged in performing roofing projects with its own workforce; having successfully completed in a timely fashion within the last three (3) consecutive years prior to the bid opening, at least three (3) roofing projects similar in scope, size and type to the required Project, and having performed at least one (1) of those projects in the last twelve (12) months. The three (3) qualifying projects must have utilized one or more of the roofing systems specified for the project being bid herein,

been installed by the entity utilizing its own workforce and must have qualified for, and have been issued, the warranty provided by the manufacturer of the roofing system. In addition, the entity must be a certified or authorized installer for the manufacturer's roofing systems specified herein and must submit proof of same.

4. **Special Qualifications for Installer of Roof tie-in to maintain existing Roof System Warranty:** An entity complying with the requirements of authorities having jurisdiction; regularly engaged in performing roofing projects with its own workforce; having successfully completed in a timely fashion within the last three (3) consecutive years prior to the bid opening, at least three (3) roofing projects similar in scope, size and type to the required Project, and having performed at least one (1) of those projects in the last twelve (12) months. The three (3) qualifying projects must have utilized the manufacturer and manufacturer's Product, been installed by the entity utilizing its own workforce and must have qualified for, and have been issued, the warranty provided by the manufacturer listed in the technical specification. In addition, the entity must be a certified or authorized installer for this manufacturer's specified roofing system specified herein and must submit proof of same.

5. **Special Qualifications for Manufacturer:** An entity complying with the requirements of authorities having jurisdiction; having, prior to the bid opening, been regularly engaged for a minimum of five (5) consecutive years in manufacturing products or systems similar to those indicated for the Project; having completed a minimum of three (3) projects similar in nature, size, and extent, to the requirements of the project; having a record of successful in-service performance, as well as sufficient production capacity to produce required units. Manufacturer must meet warranty requirements, and technical or factory-authorized service representative requirements.

6. **Special Qualifications for Historic Treatment Specialist:** An entity complying with the requirements of authorities having jurisdiction and having prior to the bid opening, been regularly engaged for a minimum of five (5) consecutive years in successfully completing in a timely fashion project similar in scope, size, and type to the required work, based on architectural style, construction method and materials and age of building for the project. Entity must provide documentation of having successfully completed a minimum of three (3) projects similar in scope, size and type as required for the Project, and where at least one (1) such prior project of the three (3) must have involved a landmarked building, as officially designated by the City, State, or Federal government.

D. Professional Engineer Qualifications: A professional engineer who is licensed and registered 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 the Project in material, design, and extent.

E. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for the Project.

F. Testing Agency Qualifications: A Nationally Recognized Testing Laboratory (NRTL), a National Voluntary Laboratory Accreditation Program (NVLAP), or an independent agency with the experience and capability to conduct testing and inspection indicated, as documented according to ASTM E329 (Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection); and with additional qualifications specified in individual Specification Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.

G. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:

1. Contractor responsibilities include the following:

   a. Provide test specimens representative of proposed products and construction.
   b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
   c. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.
   d. Build site-assembled test assemblies and mockups using installers who will perform same tasks for Project.
   e. Build laboratory mockups at testing facility using personnel, products, and methods of construction indicated for the completed Work.
   f. When testing is complete, remove test specimens and test assemblies, and mockups, and laboratory mockups; do not reuse products on Project.

2. Testing Agency Responsibility: Submit a certified written report of each test, inspection, and similar quality-assurance service to Commissioner, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

H. 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 Commissioner.
2. Notify Commissioner 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 Commissioner'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.

I. Integrated Exterior Mockups: Construct integrated exterior mockup according to approved Shop Drawings or as indicated on Drawings. Coordinate installation of exterior envelope materials and products for which mockups are required in individual Specification Sections, along with supporting materials. Comply with requirements in "Mockups" Paragraph in this Section.

J. Room Mockups: Construct room mockups according to approved Shop Drawings or as indicated on Drawings, incorporating required materials and assemblies, finished according to requirements. Provide required lighting and additional lighting where required to enable Commissioner to evaluate quality of the Work. Comply with requirements in "Mockups" Paragraph in this Section.

K. Laboratory Mockups: Comply with the requirements of preconstruction testing and those specified in individual Specification Sections.

**1.8 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. (Refer to Special Inspections Article 1.10.)

1. COST OF TESTS BORNE BY THE CITY: Where the City directs tests to be performed to determine compliance with the Specifications regarding materials or equipment, and where such compliance is ascertained as a result thereof, the City will bear the cost of such tests.
2. The City will furnish the Contractor with names, addresses, and telephone numbers of testing entities engaged and a description of the types of testing and inspecting they are engaged to perform.

3. Costs for retesting and re-inspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to the Contractor.

B. Contractor's Responsibility: Tests and inspections not explicitly assigned to the City are the Contractor's responsibility. Unless otherwise indicated, the Contractor must provide quality control services as set forth in the Specifications and those required by authorities having jurisdiction, whether specified or not.

1. COST OF TESTS BORNE BY CONTRACTOR - In the case of tests which are specifically called for in the Specifications to be provided by the Contractor or tests which are required by any authority having jurisdiction, but are not indicated as the responsibility of the City, the cost thereof will be borne by the Contractor and will be deemed to be included in the Contract price. The Contractor must reimburse the City for expenditures incurred in providing tests on materials and equipment submitted by the Contractor as the equivalent of that specifically named in the Specifications and rejected for non-compliance.
2. Where services are indicated as Contractor's responsibility, the Contractor must engage a qualified testing agency to perform these quality-control services. Any testing agency engaged by the Contractor to perform quality control services is subject to prior approval by the Commissioner.
3. The Contractor must not employ same entity engaged by the City, unless agreed to in writing by the Commissioner.
4. The Contractor must notify testing agencies and the Commissioner at least 72 hours in advance of the date and time for the performance of Work that requires testing or inspecting.
5. Where quality control services are indicated as Contractor's responsibility, the Contractor must submit a certified written report of each quality-control service, in triplicate, to the Commissioner.
6. Testing and inspecting requested by the Contractor and not required by the Contract Documents are Contractor's responsibility.
7. The Contractor must submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

C. Manufacturer's Field Services: Where indicated, the Contractor must engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Results must be submitted in writing as specified in Section 01 33 00 SUBMITTAL PROCEDURES. Manufacturer's field representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.

D. Retesting/Re-inspecting: Regardless of whether the original tests or inspections were the Contractor's responsibility, the Contractor must provide quality control services, including retesting and re-inspecting, for construction that replaced Work that failed to comply with the Contract Documents.

E. Testing Agency Responsibilities: Cooperate with Commissioner and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Commissioner and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
2. Determine the locations from which test samples will be taken and in which in-situ tests are conducted.
3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
6. Do not perform duties of Contractor.

F. Associated Services: The Contractor must cooperate with entities performing required tests, inspections, and similar quality control services, and must provide reasonable auxiliary services as requested. The

Contractor must notify the testing agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist testing entity in obtaining samples.
4. Facilities for storage and field curing of test samples.
5. Delivery of samples to testing entities.
6. Design mix proposed for use for material mixes that require control by the testing entity.
7. Security and protection for samples and for testing and inspecting equipment at the Project site.

G. Coordination: Coordinate sequence of activities to accommodate required quality assurance and quality control services with minimal delay and avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

2. Coordinate and cooperate with the Commissioning Authority/Agent as applicable for start-up, inspection and functional testing in the implementation of the Commissioning Plan.

H. Manufacturer's Directions: Where the Specifications provide that the manufacturer's directions are to be used, such printed directions must be submitted to the Commissioner.

I. 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 specially manufactured or prepared for use in or part of the permanent construction, such entity will be subject to prior written approval by the Commissioner.

1. NOTICE - The Contractor must give notice in writing to the Commissioner, sufficiently in advance of its intention to commence the manufacture or preparation of materials specially manufactured or prepared for use in or as part of the permanent construction. Such notice must contain a request for inspection, the date of commencement, and the expected date of completion of the manufacture or preparation of materials. Upon receipt of such notice, the Commissioner will arrange to have a representative present at such times during the manufacture as may be necessary to inspect the materials, or the Commissioner will notify the Contractor that the inspection will be made at a point other than the point of manufacture, or the Commissioner will notify the Contractor that inspection will be waived.

J. No Shipping Before Inspection: The Contractor must comply with the foregoing before shipping any material.

K. Certificate of Manufacture: When the Commissioner so requires, the Contractor must furnish to the Commissioner, authoritative evidence in the form of Certificates of Manufacture that the materials to be used in the Work have been manufactured and tested in conformity with the Specifications. These certificates must include copies of the results of physical tests and chemical analyses where necessary, that have been made directly on the product, or on similar products being fabricated by the manufacturer. This may include such approvals as the Bureau of Standards and Appeals (B.S.A.), the Materials and Equipment (M.E.A.) acceptance Index, the Bureau of Electrical Control (B.E.C.), etc.

L. Acceptance: When materials or manufactured products comprise of such quantity that it is not practical to make physical tests or chemical analyses directly on the product furnished, a certificate stating the results of such tests or analyses of similar materials which were concurrently produced may, at the discretion of the Commissioner, be considered as the basis for the acceptance of such material or manufactured product.

M. Testing Compliance: The testing personnel must make the necessary inspections and tests, and the reports thereof must be in such form as will facilitate checking to determine compliance with the Specifications, indicating thereon all analyses and/or test data and interpreted results thereof.

N. Reports: Reports in duplicate must be submitted and authoritative certification thereof must be furnished to the Commissioner as a prerequisite for the acceptance of any material or equipment.

O. 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.

P. Furnish Designated Materials: Upon rejection of any material or equipment submitted as the equivalent of that specifically named in the Specifications, the Contractor must immediately proceed to furnish the designated material or equipment.

**1.9 APPROVAL OF MATERIALS:**

A. Local Laws: All materials, appliances and types or methods of construction must be in accordance with the Specifications and must in no event be less than that necessary to conform to the requirements of the New York City (NYC) Construction Codes, Administrative Code and Charter of the City of New York.

B. Approval of Manufacturer: The names of proposed manufacturers, material suppliers, and dealers who are to furnish materials, fixtures, equipment, appliances or other fittings must be submitted to the Commissioner for approval, as early as possible, to afford proper review and analysis. No manufacturer will be approved for any materials to be furnished under the Contract unless it has a plant of ample capacity and have successfully produced similar products. All approvals of materials or equipment that are legally required by the NYC Construction Codes and other governing authorities must be obtained prior to installation.

C. All Materials: Fixtures, fittings, supplies and equipment furnished under the Contract must be new and unused, except as approved by the Commissioner, and of standard first-grade quality and of the best workmanship and design. The City of New York encourages the use of recycled products where practical.

D. INFORMATION TO SUPPLIERS - In asking for prices on materials under any item of the Contract, the Contractor must provide the manufacturer or dealer with such complete information from the Specifications and Contract Drawings as may in any case be necessary, and in every case the Contractor must inform the manufacturer or dealer of all the General Conditions and requirements herein contained.

**1.10 SPECIAL INSPECTIONS:**

A. SPECIAL INSPECTIONS:

1. Inspection of selected materials, equipment, installation, fabrication, erection, or placement of components and connections made during the progress of the Work to ensure compliance with the Contract Documents and provisions of the NYC Construction Codes, will be made by a Special Inspector. The City of New York will retain the services of the Special Inspector and bear the costs for the performance of Special Inspections in compliance with NYC Construction Codes requirements or as additionally may be called for in the project specifications, except as noted below for Form TR-3: Technical Report for Concrete Design Mix. The Special Inspector will be an entity that is in compliance with the requirements of the NYC Construction Codes. The Contractor must notify the relevant Special Inspector in writing at least 72 hours before the commencement of any Work requiring special inspection.

2. Form TR3: Technical Report Concrete Design Mix: The Contractor will be responsible for, and bear all costs associated with the filing and securing of approvals, if any, for Form TR3: Technical Report Concrete Design Mix, including, but not limited to, engaging the services of a New York City licensed Concrete Testing Lab for the review and approval of concrete design mix, testing, signatures and professional seals, etc., compliant with NYC Department of Buildings requirements, for each concrete design mix.

3. The Contractor must notify the relevant Special Inspector in writing at least 72 hours before the commencement of any Work requiring Special Inspection. The Contractor will be responsible for and bear related costs to assure that all construction or work has suitable access and remains exposed for inspection purposes until the required inspection is completed.

4. Inspections and tests performed under "Special Inspection" will not relieve the Contractor of the responsibility to comply with the Contract Documents, and that there is no warranty given to the Contractor by the City of New York in connection with such inspection and tests or certifications made under "Special Inspections".

5. The Contractor must coordinate with the Commissioner to provide access and schedule the Work for inspection by the Special Inspector.

6. Any fabricators or off-site activities that require Special Inspection paid for by the City of New York must be within the continental United States, Canada, or Mexico, unless approved in writing by the Commissioner. If approval is granted, the Contractor will be responsible for the Special Inspector's travel costs.

**1.11 INSPECTIONS BY OTHER CITY AGENCIES:**

A. Letter of Completion: Just prior to Substantial Completion of the Project, the Commissioner will file with the Department of Buildings, an application for a Letter of Completion or a Certificate of Occupancy for the structure.

B. Final Inspections: In connection with the above-mentioned application for a Letter of Completion or a Certificate of Occupancy and before certificates of final payments are issued, the Contractor will be required to arrange for all final inspections by the inspection staff of the Department of Buildings, Fire Department, or other Governmental Agencies having jurisdiction, and secure all reports, sign offs, certificates, etc., by such inspection staff or other governmental agencies, in order that a Letter of Completion or Certificate of Occupancy can be issued promptly.

**1.12 CERTIFICATES OF APPROVAL:**

A. Responsibility: The Contractor will be responsible for and must obtain all final approvals for the Work installed under the Contract in the form of such certificates that are required by all governmental agencies having jurisdiction over the Work of the Contract.

B. Transmittal: All such certificates must be forwarded to the DDC.

**1.13 ACCEPTANCE TESTS:**

A. Government Agencies: All equipment and appliances furnished and installed under the Contract must conform to the requirements of the Specifications and will in no event be less than that necessary to comply with the minimum requirements of the law and all of the governmental agencies having jurisdiction.

B. Notice of Tests: Whenever the Specifications and/or any governmental agency having jurisdiction requires the acceptance test, the Contractor will give to all concerned, written notice of the time when these tests will be conducted.

C. Energy: The City will furnish all energy, fuel, water, and light required for tests.

D. Labor and Materials: The Contractor must furnish labor and all other material and instruments necessary to conduct the acceptance tests at no additional cost to the City.

E. Certificates: The Final Acceptance by the Commissioner will be contingent upon the Contractor delivering to the Commissioner all necessary certificates evidencing compliance in every respect with the requirements of the regulatory agencies having jurisdiction.

F. Results: If the results of tests and Special Inspections indicate that the material or procedures do not meet requirements as set forth on the Contract Drawings or in the Specifications or are otherwise unsatisfactory, the Contractor must only proceed as directed by the Commissioner. Additional costs resulting from retesting, re-inspecting, replacing of material and/or damage to the Work and any delay caused to the schedule will be borne by the Contractor.

**PART II - PRODUCTS (Not Used)**

**PART III - EXECUTION**

**3.1 REPAIR AND PROTECTION**

A. General: On completion of testing, inspecting, sample taking, and similar services, the Contractor must repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.

**END OF SECTION 01 40 00**

# SECTION 01 42 00
# REFERENCES

## PART I – GENERAL

### 1.1 RELATED DOCUMENTS:

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

### 1.2 DEFINITIONS:

**REFER TO THE ADDENDUM, Article IX, FOR ADDITIONAL DEFINITIONS AND REVISIONS TO THE CONTRACT AND SPECIFICATIONS**

A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.

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

C. Design Consultant: “Design Consultant” means the entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the “Design Consultant” may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services.

D. "DIRECTED," "REQUIRED," ETC.- Wherever reference is made in the Contract to the Work or its performance, the terms "directed," "required," "permitted," "ordered," "designated," "prescribed," "determined," and words of similar import will, unless expressed otherwise, imply the direction, requirements, permission, order, designation or prescription of the Commissioner.

E. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."

F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

H. "Provide": Furnish and install, complete and ready for the intended use.

I. "Project Site": Space available for performing construction activities. The extent of Project Site is shown on Drawings.

**1.3 CODES, AGENCIES AND REGULATIONS:**

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| A.B.A | Architectural Barriers Act |
| A.D.A.A.G. | Americans with Disabilities Act (ADA) Accessibility Guidelines |
| B.G. & E. | Bureau of Gas and Electricity of the City of New York |
| B.S. A. | New York City Board of Standards and Appeals |
| DOE | Department of Energy |
| E.C.C.C.N.Y.S. | Energy Conservation Construction Code of New York State |
| EPA | Environmental Protection Administration |
| N.Y.C.C.C. | New York City Construction Codes |
| N.Y.C.P.C. | New York City Plumbing Code |
| N.Y.C.B.C. | New York City Building Code |
| N.Y.C.M.C. | New York City Mechanical Code New York |
| N.Y.C.F.G.C. | New York City Fuel Gas Code |
| N.Y.S. D.O.L | New York State Department of Labor |
| N.Y.C.D.O.B. | New York City Department of Buildings |
| N.Y.C.D.E.P. | New York City Department of Environmental Protection |
| N.Y.C.D.O.T. | New York City Department of Transportation |
| 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 must be construed to mean the latest standard, code, specification adopted and published by that technical society, organization or body, as of the date of the bid opening, unless the provisions of the N.Y.C.C.C. adopts a different or earlier dated version of such standard. All references to the ICC A117.1 are only to the 2009 version, whether or not a specific version is specified.

B. APPLICABILITY OF STANDARDS: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect, to the extent referenced, as if bound or copied directly into the Contract Documents. Such standards are made a part of the Contract Documents by reference.

C. CONFLICTING REQUIREMENTS: Where compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantity or quality, comply with the most stringent requirements. Immediately refer uncertainties and requirements that are different but apparently equal, to the Commissioner in writing for a decision before proceeding.

D. STANDARD SPECIFICATIONS - When no reference is made to a code, standard, or specification, the Standard Specifications of the ASTM or the AIEE, as the case may be, shall govern.

E. REFERENCES - Reference to a technical society, organization, or body may be made in the Specifications by abbreviations. Abbreviations and acronyms used in the Specifications and other Contract Documents mean the associated name. The following names are subject to change and are believed, but are not assured, to be accurate and up-to-date as of the Issue Date of the Contract Documents.

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| AA | Aluminum Association, Inc. (The) |
| AAADM | American Association of Automatic Door Manufacturers |
| AABC | Associated Air Balance Council |
| AAMA | American Architectural Manufacturers Association |
| AAPFCO | Association of American Plant Food Control Officials |
| 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) |
| ACAC | American Council for Accredited Certification |
| 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 |

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| AIA | American Institute of Architects (The) |
| AIEE | American Institute of Electrical Engineers |
| AIHA | American Industrial Hygiene Association |
| AISC | American Institute of Steel Construction |
| AISI | American Iron and Steel Institute |
| AITC | American Institute of Timber Construction |
| ALCA | Associated Landscape Contractors of America (Now PLANET - Professional Landcare Network) |
| ALSC | American Lumber Standard Committee, Incorporated |
| ALI | Automotive Lift Institute |
| AMCA | Air Movement and Control Association International, Inc. |
| ANSI | American National Standards Institute |
| AOSA | Association of Official Seed Analysts, Inc. |
| APA | APA - The Engineered Wood Association |
| APA | Architectural Precast Association |
| API | American Petroleum Institute |
| ARI | Air-Conditioning & Refrigeration Institute |
| ARMA | Asphalt Roofing Manufacturers Association |
| ASA | American Standards Association |
| ASAE | American Society of Agricultural Engineers |
| ASCE/SEI | American Society of Civil Engineers, Structural Engineering Institute |
| ASHRAE | American Society of Heating, Refrigerating and Air-Conditioning Engineers |
| ASIS | American Society for Industrial Security |
| ASME | American Society of Mechanical Engineers |

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| ASSE | American Society of Sanitary Engineering |
| ASTM | ASTM International (Formerly: American Society for Testing and Materials) |
| AWCI | Association of the Wall and Ceiling Industry |
| 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 | Building Industry Consulting Services International |
| BIFMA | BIFMA International (Business and Institutional Furniture Manufacturer's Association International) |
| BISSC | Baking Industry Sanitation Standards Committee |
| CDPH | California Department of Public Health |
| CIBSE | Charted Institute of Building Services Engineers |
| CCC | Carpet Cushion Council |
| CDA | Copper Development Association |
| CEA | Consumer Electronics Association |
| CESB | Council of Engineering and Scientific Specialty Boards |
| CFFA | Chemical Fabrics & Film Association, Inc. |
| CFSEI | Cold-Formed Steel Engineers Institute |
| CGA | Compressed Gas Association |
| CGSB | Canadian General Standards Board |
| CIMA | Cellulose Insulation Manufacturers Association |

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| CIPRA | Cast Iron Pipe Research Association |
| CISCA | Ceilings & Interior Systems Construction Association |
| CISPI | Cast Iron Soil Pipe Institute |
| CLFMI | Chain Link Fence Manufacturers Institute |
| CPA | Composite Panel Association |
| CPPA | Corrugated Polyethylene Pipe Association |
| CPSC | Consumer Product Safety Commission |
| CRI | Carpet & Rug Institute (The) |
| CRSI | Concrete Reinforcing Steel Institute |
| CSA | Canadian Standards Association |
| CSI | Cast Stone Institute |
| CSI | Construction Specifications Institute (The) |
| CSSA | Certified Steel Stud Association |
| 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 |

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| DOL | U.S. Department of labor |
| EJCDC | Engineers Joint Contract Documents Committee |
| DOTn | U.S. Department of Transportation |
| EN | European Committee of Standards |
| EJMA | Expansion Joint Manufacturers Association, Inc. |
| ESD | ESD Association |
| EVO | Efficiency Valuation Organization |
| FEMA | Federal Emergency Management Agency |
| FGIA | Fenestration and Glazing Industry Alliance |
| FIBA | Federation Internationale de Basketball Amateur (The International Basketball Federation) |
| FIVB | Federation Internationale de Volleyball (The International Volleyball Federation) |
| FMG | FM Global (Formerly: FM - Factory Mutual System) |
| FMRC | Factory Mutual Research (Now FMG) |
| FRSA | Florida Roofing, Sheet Metal & Air Conditioning Contractors Association, Inc. |
| FSA | Fluid Sealing Association |
| FSC | Forest Stewardship Council |
| GA | Gypsum Association |
| GANA | Glass Association of North America |
| GRI | (Now GSI) |
| GS | Green Seal |
| GSI | Geosynthetic Institute |
| HI | Hydraulic Institute |
| HI | Hydronics Institute |

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| HMMA | Hollow Metal Manufacturers Association (Part of NAAMM) |
| HPVA | Hardwood Plywood & Veneer Association |
| HPW | H. P. White Laboratory, Inc. |
| HUD | U.S. Department of Housing and Urban Development |
| IAPMO | International Association of Plumbing and Mechanical Officials |
| IAS | International Approval Services (Now CSA International) |
| IBF | International Badminton Federation |
| ICC | International Code Council, Inc. |
| ICEA | Insulated Cable Engineers Association, Inc. |
| ICRI | International Concrete Repair Institute, Inc. |
| IEC | International Electrotechnical Commission |
| IEEE | Institute of Electrical and Electronics Engineers, Inc. (The) |
| IESNA | Illuminating Engineering Society of North America |
| IEST | Institute of Environmental Sciences and Technology |
| IGCC | Insulating Glass Certification Council |
| IGMA | Insulating Glass Manufacturers Alliance |
| IICRC | Institute of Inspection, Cleaning, and Restoration |
| ILIA | Indiana Limestone Institute of America, Inc. |
| IPEMA | International Play Equipment Manufacturers Association |
| ISA | International Society of Arboriculture |
| ISO | International Organization for Standardization |
| ISSFA | International Solid Surface Fabricators Association |

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| 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 |
| MIL | Military Specification Standards of the US Dept of Defense |
| MPEG | Moving Picture Experts Group |
| MPI | Master Painters Institute |
| MSS | Manufacturers Standardization Society of The Valve and Fittings Industry Inc. |
| NAAMM | National Association of Architectural Metal Manufacturers |
| NACE | NACE International (National Association of Corrosion Engineers International) |
| NADCA | National Air Duct Cleaners Association |
| NAGWS | National Association for Girls and Women in Sport |
| NAIMA | North American Insulation Manufacturers Association |
| NBA | National Basketball Association |
| NBGQA | National Building Granite Quarries Association, Inc. |
| NCAA | National Collegiate Athletic Association (The) |
| NCMA | National Concrete Masonry Association |

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| 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 |
| NESC | National Electrical Safety Code |
| 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 |
| NICET | National Institute for Certification in Engineering Technologies |
| NLGA | National Lumber Grades Authority |
| NIS | National Institute of Standards and Technology |
| NOFMA | NOFMA: The Wood Flooring Manufacturers Association<br>(Formerly: National Oak Flooring Manufacturers Association) |
| NRCA | National Roofing Contractors Association |
| NRDCA | National Roof Deck Association |
| NRMCA | National Ready Mixed Concrete Association |
| NSI | Natural Stone Institute |
| NSF | NSF International (National Sanitation Foundation International) |
| NSSGA | National Stone, Sand & Gravel Association |

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| 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) |
| RUS | Rural Utilities Service, Department of Agriculture |
| SAE | SAE International |
| SCAQMD | South Coast Air Quality Management District |
| SCS | Scientific Certification System |
| SDI | Steel Deck Institute |
| SDI | Steel Door Institute |
| SEFA | Scientific Equipment and Furniture Association |

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| SGCC | Safety Glazing Certification Council |
| SHBI | Steel Heating Boiler Institute |
| SIA | Security Industry Association |
| SIGMA | Sealed Insulating Glass Manufacturers Association (Now IGMA) |
| SFIA | Steel Framing Industry Association |
| 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<br>(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 |
| SSMA | the Steel Stud Manufacturers Association |
| SSPC | SSPC: The Society for Protective Coatings |
| SSSA | Soil Science Society of America |
| STI | Steel Tank Institute |
| SWI | Steel Window Institute |
| SWRI | Sealant, Waterproofing, & Restoration Institute |
| TABB | Testing, Adjusting, and Balancing Bureau |
| TCA | Tile Council of America, Inc. |
| TIA/EIA | Telecommunications Industry Association/Electronic Industries Alliance |

| | |
|---|---|
| TMS | The Masonry Society |
| TPI | Truss Plate Institute, Inc. |
| TPI | Turfgrass Producers International |
| TRI | Tile Roofing Institute (Formerly: RTI - Roof Tile Institute) |
| UL | Underwriters Laboratories Inc. |
| ULC | Underwriters Laboratories of Canada |
| UNI | Uni-Bell PVC Pipe Association |
| USAV | USA Volleyball |
| USC | United States Code |
| USGBC | U.S. Green Building Council |
| USITT | United States Institute for Theatre Technology, Inc. |
| WASTEC | Waste Equipment Technology Association |
| WCLIB | West Coast Lumber Inspection Bureau |
| WCMA | Window Covering Manufacturers Association (Now WCSC) |
| WCSC | Window Covering Safety Council<br>(Formerly: WCMA - Window Covering Manufacturers Association) |
| WDMA | Window & Door Manufacturers Association<br>(Formerly: NWWDA - National Wood Window and Door Association) |
| WNBA | Women's National Basketball Association |
| WI | Woodwork Institute (Formerly: WIC - Woodwork Institute of California) |
| WIC | Woodwork Institute of California (Now WI) |
| WMMPA | Wood Moulding & Millwork Producers Association |
| WRI | Wire Reinforcement Institute, Inc. |
| USEPA | United States Environmental Protection Agency |

WSRCA Western States Roofing Contractors Association

WWPA Western Wood Products Association

**PART II – PRODUCTS (Not Used)**

**PART III – EXECUTION (Not Used)**

**END OF SECTION 01 42 00**

# SECTION 01 50 00
# TEMPORARY FACILITIES, SERVICES AND CONTROLS

## PART I – GENERAL

### 1.1 RELATED DOCUMENTS:

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

### 1.2 SUMMARY:

A. This section includes the following:
1. Temporary Water System
2. Temporary Sanitary Facilities
3. Temporary Electric Power, Temporary Lighting System, and Site Security Lighting
4. Temporary Heat
5. Dewatering Facilities and Drains
6. Temporary Field Office for Contractor
7. DDC Field Office
8. Material Sheds
9. Temporary Enclosures
10. Temporary Partitions
11. Temporary Fire Protection
12. Work Fence Enclosure
13. Rodent and Insect Control
14. Plant Pest Control Requirements
15. Project Identification Signage
16. Project Construction Sign and Rendering
17. Security Guards/Fire Guards on Site
18. Safety

### 1.3 RELATED SECTIONS: include without limitation the following:

A. Section 01 10 00 SUMMARY

B. Section 01 42 00 REFERENCES

C. Section 01 54 11 TEMPORARY ELEVATORS AND HOISTS

D. Section 01 54 23 TEMPORARY SCAFFOLDS AND SWING STAGING

E. Section 01 77 00 CLOSE OUT PROCEDURES

### 1.4 DEFINITIONS:

A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.

| Term | Definition |
|---|---|
| Design Consultant | The entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the Design Consultant may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services. |
| Permanent Enclosure | As determined by the Commissioner, permanent or temporary roofing that is complete, insulated, and weather tight; exterior walls which are insulated and weather tight; and all openings that are closed with permanent construction or substantial temporary closures. |

**1.5 SUBMITTALS:**

A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.

B. Reports: Submit reports of tests, inspections, meter readings and similar procedures for temporary use.

**1.6 PROJECT CONDITIONS:**

A. Temporary Use of Permanent Facilities and Services: The Contractor will be responsible for the operation, maintenance, and protection of each permanent facility and service during its use as a construction facility before Final Acceptance by the City, regardless of previously assigned responsibilities.

B. The Contractor must install, operate, maintain and protect temporary facilities, services, and controls, including without limitation:

1. Keep temporary services and facilities clean and neat in appearance;
2. Operate temporary services in a safe and efficient manner;
3. Relocate temporary services and facilities as needed as Work progresses;
4. Do not overload temporary services and facilities or permit them to interfere with progress;
5. Provide necessary fire prevention measures; and
6. Do not allow hazardous, dangerous or unsanitary conditions, or public nuisances to develop or persist on-Site.

**1.7 NON-REGULAR WORK HOURS (OVERTIME):**

A. The Contractor must provide the temporary services, facilities and controls set forth in this section during non-regular working hours if the Contract Drawings and/or the Specifications indicate that the Work, or specific components thereof, must be performed during non-regular working hours. In such case, all costs for the provision of temporary services, facilities and controls during non-regular working hours will be deemed included in the total Contract price.

B. The Contractor must provide the temporary services, facilities and controls set forth in this section during non-regular working hours if a change order is issued directing the Contractor to perform the Work, or specific components thereof, during non-regular working hours. In such case, compensation for the provision of temporary services, facilities and controls during non-regular working hours will be provided

through the change order.

**1.8 SERVICES BEYOND COMPLETION DATE:**

A. The Contractor must provide the temporary services, facilities and controls set forth in this section until the date on which it completes all required Work at the Site, including all Final Approved Punch List Work, as certified in writing by the Resident Engineer, or earlier if so directed in writing by the Commissioner. The Contractor must provide such temporary services, facilities and controls even if completion of all required Work at the Site occurs after the time fixed for such completion in Schedule A.

**PART II – PRODUCTS**

**2.1 MATERIALS:**

A. The Contractor must provide undamaged materials in serviceable condition and suitable for use intended.

B. Tarpaulins: Waterproof, fire-resistant UL labeled with flame spread rating of fifteen (15) or less. For temporary enclosures, provide translucent, nylon-reinforced, laminated polyethylene or polyvinyl chloride, fire-retardant tarpaulins.

C. Water: Potable and in compliance with requirements of the New York City Department of Environmental Protection (DEP).

**2.2 EQUIPMENT:**

A. The Contractor must provide undamaged equipment in serviceable condition and suitable for use intended.

B. Water Hoses: Heavy-duty abrasive-resistant flexible rubber hoses, one hundred (100) feet (thirty (30) m) long with pressure rating greater than the maximum pressure of the water distribution system. Provide adjustable shutoff nozzles at hose discharge.

C. Electric Power Cords: Grounded extension cords.

1. Provide hard-service cords where exposed to abrasion or traffic.

2. Provide waterproof connectors to connect separate lengths of electric cords where single lengths do not reach areas of construction Activity.

3. Do not exceed safe length-voltage ratio.

D. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

**PART III –EXECUTION:**

**3.1 INSTALLATION, GENERAL:**

A. The Contractor must locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.

B. The Contractor must provide each facility ready for use when needed to avoid delay. The Contractor must not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities as approved by the Resident Engineer.

**3.2 TEMPORARY WATER SYSTEM:**

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.2 A**

A. TEMPORARY WATER SYSTEM - NEW FACILITIES: During construction, the Contractor must furnish a Temporary Water System as set forth below.

1. Immediately after the Commissioner has issued an order to start the Work, the Contractor must file an application with DEP for the schedule of charges for water use during construction. The Contractor will be responsible for payment of water charges.

2. Immediately after the Commissioner has issued an order to start the Work, the Contractor must file an application with DEP's Bureau of Water Supply and obtain a permit to install the temporary water supply system. The system must be installed and maintained for the use of the Contractor and its Subcontractors. A copy of the above-mentioned permit must be filed with the Commissioner. The Contractor must provide temporary water main, risers and waste stacks as directed and install on each floor, outlets with two (2) 3/4" hose valve connections over a barrel installed on a steel pan. The Contractor must provide drains from the pans to the stack and house sewer and hose bibs to drain the water supply risers and mains. During winter months, the Contractor must take the necessary precautions to prevent the temporary water system from freezing. The Contractor must provide repairs to the temporary water supply system for the duration of the Project until said temporary system is dismantled and removed.

3. Disposition of Temporary Water System: The Contractor will be responsible for dismantling the temporary water system when no longer required for the construction operations, or when replaced by the permanent water system installed for the Project, or as otherwise directed by the Resident Engineer. All repair work resulting from the dismantling of the temporary water system will be the responsibility of the Contractor.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.2 B**

B. TEMPORARY WATER SYSTEM – PROJECTS IN EXISTING FACILITIES:

1. When approved by the Commissioner, use of existing water system will be permitted for temporary water service during construction, as long as the system is cleaned and maintained in a condition acceptable to the Commissioner. At Substantial Completion, the Contractor must restore the existing water system to conditions existing before initial use.

2. The Contractor will be responsible for all repairs to the existing water system permitted to be used for temporary water service during construction. The Contractor will be responsible to maintain the existing system in a clean condition on a daily basis, acceptable to the Commissioner.

3. The Contractor will be responsible for payment of water charges as directed by the Commissioner. Billing will be in accordance with the New York City Water Board Water and Wastewater Rate Schedule.

C. WASH FACILITIES: The Contractor must install wash facilities supplied with potable water at convenient locations for personnel involved in handling materials that require wash-up for a healthy and sanitary condition, including without limitation:

1. Dispose of drainage properly.

2. Supply cleaning compounds appropriate for each condition; and

3. Include safety showers, eyewash fountains and similar facilities for the convenience, safety and sanitation of personnel.

D. DRINKING WATER FACILITIES: The Contractor must provide drinking water fountains or containerized tap-dispenser bottled-drinking water units, complete with paper cup supplies. Where power is available, provide

electric water coolers to maintain dispensed water temperature at forty-five (45) to fifty-five (55) deg. F (7 to 13 deg. C).

**3.3 TEMPORARY SANITARY FACILITIES:**

A. The Contractor must provide toilets, wash facilities, and drinking water fixtures in compliance with regulations and health codes for type, number, location, operation and maintenance of fixtures and facilities. Provide toilet tissue, paper towels, paper cups and similar disposable materials as appropriate for each facility, and provide covered waste containers for used materials.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.3 B**

B. SELF-CONTAINED TOILET UNITS:

1. The Contractor must provide temporary single-occupant toilet units of the chemical, aerated re-circulation, or combustion type for use by all construction personnel. Units must be properly vented and fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material. Quantity of toilet units must comply with the latest Occupational Safety and Health Administration (OSHA) regulations.

2. Toilets: The Contractor must install separate, self-contained toilet units for male and female personnel. Shield toilets to ensure privacy.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.3 C**

C. EXISTING TOILETS:

1. TOILET FACILITIES: When approved by the Commissioner, the Contractor must arrange for the use of existing toilet facilities by all personnel during the execution of the Work. The Contractor will be responsible to clean and maintain facilities in a condition acceptable to the Resident Engineer and, at Substantial Completion, to restore facilities to the condition at the time of initial use.

2. MAINTENANCE - The Contractor must maintain the temporary toilet facilities in a clean and sanitary manner and make all necessary repairs.

3. NUISANCES - The Contractor must not cause any sanitary nuisance to be committed by its employees or the employees of its Subcontractors in or about the Work and must enforce all sanitary regulations of the City and State Health Authorities.

**3.4 TEMPORARY ELECTRIC POWER, TEMPORARY LIGHTING SYSTEM, AND SITE SECURITY LIGHTING:**

A. SCOPE: This section sets forth the General Conditions and procedures relating to Temporary Electric Power, Temporary Lighting System, and Site Security Lighting during the construction period.

B. TEMPORARY ELECTRIC POWER: The Contractor must provide and maintain a temporary electric power service and distribution system of sufficient size, capacity and power characteristics required for construction operations for all required Work by the Contractor and its Subcontractors, including but not limited to, power for the temporary lighting system, site security lighting, construction equipment, hoists, temporary elevators and all field offices. temporary electric power must be provided as follows:

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.4 B (1)**

1. CONNECTION TO UTILITY LINES:

a. Temporary electric power service for use during construction must be provided as follows: The Contractor must make all necessary arrangements with the public utility company and pay all charges for the Temporary Electric Power system. The Contractor must include in its total Contract price any charges for temporary electric power, including charges that may be made

by the public utility company for extending its electrical facilities, and for making final connections. The Contractor will make payment directly to the public utility company.

b. APPLICATIONS FOR METER: The Contractor must complete an application to the public utility company and sign all documents necessary for, and pay all charges incidental to, the installation of a watt hour meter or meters for Temporary Electric Power. The Contractor must pay to the public utility company all bills for temporary electric energy used throughout the Work as they become due.

c. SERVICE AND METERING EQUIPMENT: The Contractor must furnish and install, at a suitable location on the Site, approved service and metering equipment for the Temporary Electric Power System, ready for the installation of the public utility company's metering devices. The temporary service mains to and from the metering location must not be less than one hundred (100) Amperes, 3-phase, 4-wire and must be of sufficient capacity to take care of all demands for all construction operations and must meet all requirements of the New York City Electrical Code.

d. PAYMENT: See Sub-Section 3.4.F regarding payment for this scope of work.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.4 B (2)**

2. CONNECTION TO EXISTING ELECTRICAL POWER SERVICE:

a. When approved by the Commissioner, electrical power service for the temporary lighting system and for the operation of small tools and equipment less than ¼ horsepower may be taken from the existing electric distribution system if the existing system is of adequate capacity for the temporary power load. The Contractor must cooperate and coordinate with the facility custodian, so as not to interfere with the normal operation of the facility.

b. There will be no charge to the Contractor for the electrical energy consumed.

c. The Contractor must provide, maintain and pay all costs for separate temporary electric power for any temporary power for equipment larger than 1/4 horsepower. When directed by the Commissioner, the Contractor must remove its own temporary power system.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.4 B (3)**

3. ELECTRICAL GENERATOR POWER SERVICE:

a. When connection to utility lines or existing facility electric service is not available or is not adequate to supply the electric power need for construction operations, the Contractor must provide self-contained generators to provide power beyond that available.

b. Pay for all energy consumed in the progress of the Work, exclusive of that available from the existing facility or utility company.

c. Provide for control of noise from the generators.

d. Comply with the Ultra Low Sulfur Fuel in Non-Road Vehicles requirements as set forth in Article 5.4 of the Contract.

e. PAYMENT: See Sub-Section 3.4.F regarding payment for this scope of work.

C. USE OF COMPLETED PORTIONS OF THE ELECTRICAL WORK:

1. USE OF MAIN DISTRIBUTION PANEL: As soon as the permanent electric service feeders and equipment metering equipment and main distribution panel are installed and ready for operation, the Contractor must have the temporary lighting and power system changed over from the temporary service points to the main distribution panel.

2. COST OF CHANGE OVER: The Contractor will be responsible for all costs due to this change over of service and it must also make application to the public utility company for a watt hour meter to be set on the permanent meter equipment.

3. The requirements for temporary electric power service specified herein must be adhered to after change over of service until Final Acceptance of the Project.

4. NO EXTRA COST: The operation of the service and switchboard equipment will be under the supervision of the Contractor, but this will in no way be interpreted to mean the acceptance of such part of the installation or relieve the Contractor from its responsibility for the complete Work or any part thereof. There will be no additional charge for supervision by the Contractor.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.4 D**

D. TEMPORARY LIGHTING SYSTEM:

1. The Contractor must provide adequate service for the temporary lighting system, or a minimum of one hundred (100) Amperes, 3-phase, 4-wire service for the temporary lighting system, whichever is greater, and make all necessary arrangements with the public utility company and pay all charges by them for the Temporary Lighting System.

2. The Contractor must furnish and connect to the metered service point a Temporary Lighting System to illuminate the entire area where Work is being performed and points adjacent to the Work, with separately fused circuits for stairways and bridges. Control switches for stairway circuits must be located near entrance on ground floor.

3. ITEMS: The Temporary Lighting System provided by the Contractor must consist of wiring, fixtures, left-hand double sockets (one (1) double socket for every 400 square feet, with one (1) lamp and one (1) three-prong outlet), lamps, fuses, locked-type guards, pigtails and any other incidental material. Additional details may be outlined in the detailed Specifications for the electrical Work. Changes may be made, provided the full equivalent of those requirements is maintained.

4. The Temporary Lighting System will be progressively installed as required for the advancement of the Work under the Contract.

5. RELOCATION: The cost for the relocation or extension of the original Temporary Lighting System, as required by the Contractor or its Subcontractors, that is not required due to the normal advancement of the Work, as determined by the Resident Engineer, will be borne by the Contractor.

6. PIGTAILS: The Contractor must furnish pigtails with left-hand sockets with locked-type guards and forty (40) feet of rubber covered cable. The Contractor must furnish and distribute a minimum of three (3) complete pigtails to each Subcontractor. See the detailed Electrical Specifications for possible additional pigtails required.

7. LAMPS: The Contractor must furnish and install one (1) complete set of lamps, including those for the trailers. Broken and burned out lamps in the temporary lighting system, DDC field office, and construction trailers must be replaced by the Contractor. All lamps must be compact fluorescent.

8. CIRCUIT PROTECTION: The Contractor must furnish and install Ground Fault Interruption (GFI) protection for the temporary lighting and site security lighting systems.

9. MAINTENANCE OF TEMPORARY LIGHTING SYSTEM:

   a. The Contractor must maintain the Temporary Lighting System in good working order during the scheduled hours established.

   b. The Contractor must include in its total Contract price all costs in connection with the Temporary Lighting System, including all costs for installation, maintenance and electric power.

10. REMOVAL OF TEMPORARY LIGHTING SYSTEM: The temporary lighting system must be removed by the Contractor when authorized by the Commissioner.

11. HAND TOOLS: The temporary lighting system must not be used for power purposes, except that light hand tools not larger than 1/4 horsepower may be operated from such system by the Contractor and its Subcontractors.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.4 E**

E. SITE SECURITY LIGHTING (NEW CONSTRUCTION ONLY):

1. The Contractor must furnish, install and maintain a system of site security lighting, as herein specified, to illuminate the construction Site of the Project, with the system connected to and energized from the Temporary Lighting System. All costs in connection with site security lighting will be deemed included in the total Contract price.

2. It is essential that the site security lighting system be completely installed and operating at the earliest possible date. The Contractor must direct its Subcontractors to cooperate, coordinate and exert every effort to accomplish an early complete installation of the site security lighting system. If, after the system is installed and in operation, a part of the system interferes with the Work of any trade, the Contractor will be completely responsible for the expense of removing, relocating, and replacing all equipment necessary to reinstate the system to proper operating conditions.

3. The system must consist of flood lighting by pole-mounted guarded sealed-beam units. Floodlight units must be mounted sixteen (16) feet above grade. Floodlights must be spaced around the perimeter of the Site to produce an illumination level of no less than one (1) foot candle around the perimeter of the Site, as well as in any potentially hazardous area or any other area within the Site that might be deemed by the Resident Engineer to require security illumination. The system must be installed in a manner acceptable to the Resident Engineer. The first lighting unit in each circuit must be provided with a photoelectric cell for automatic control. The photoelectric cell must be installed as per manufacturer's recommendations.

4. All necessary poles must be furnished and installed by the Contractor.

5. The site security lighting must be kept illuminated at all times during the hours of darkness. The Contractor must, at its own expense, keep the system in operation and must furnish and install all material necessary to replace all damaged or burned out parts.

6. The Contractor must be on telephone call alert for maintaining the system during the operating period stated above.

7. All materials and equipment furnished under this section will remain the property of the Contractor and must be removed and disposed of by the Contractor when authorized in writing by the Resident Engineer.

F. PAYMENT FOR TEMPORARY ELECTRICAL

1. The following temporary Electrical scope will be paid for on unit price basis:

   a. Temporary Electric power where the Contractor pays for the utility costs (subsection 3.4.B.1)

   b. Temporary Electric power where the Contractor provides generator service (subsection 3.4.B.3)

2. All temporary electrical scope described in Subsection 3.4 except as noted above in 3.4.F.1 must be included in the Contractor’s lump sum price.

3. For the temporary electric power that will be paid for by unit price:

a. The quantity to be measured for payment under this item will be the number of months (to the nearest 1/4 month increment) that the Contractor satisfactorily provides for temporary electric power in accordance with these General Conditions.

b. The unit price bid per month for temporary electric power must include the cost of furnishing all labor, materials, plant, equipment, insurance, and incidentals required to provide temporary electric power, all in accordance with the Contract Drawings, these specifications, and the directions of the Commissioner.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.5**

**3.5 TEMPORARY HEAT:**

A. GENERAL:

1. Definition: The provision of Temporary Heat means the provision of heat in order to permit construction to be performed in accordance with the Progress Schedule during all seasons of the year and to protect the Work from the harmful effects of low temperature. In the event the building, or any portion thereof, is occupied during construction, the provision of Temporary Heat will include the provision of heat to permit normal operations in such occupied areas.

   a. The provision of Temporary Heat must be in accordance with the temperature requirements set forth in sub-section 3.5 C herein.

   b. The provision of Temporary Heat must include the provision of: 1) all fuel necessary and required, 2) all equipment necessary and required, and 3) all operating labor necessary and required. Operating labor must mean that minimum force required for the safe day-to-day operation of the system for the provision of Temporary Heat and must include, without limitation, heating maintenance labor and/or fire watch as required by New York City Fire Department (FDNY) regulations. Operating labor may be required seven (7) days per week and during non-regular working hours, for the period of time required by seasonal weather conditions.

   c. In the event the building, or any portion thereof, is occupied and the Project involves the replacement, modification, and/or shut down of the permanent heating system, or any key component thereof, and such system is a combined system which furnishes domestic hot water for the building occupants, the provision of Temporary Heat must include the provision of domestic hot water at the same temperature as the system which is being replaced. Domestic hot water must be provided in accordance with the phasing requirements set forth in the Contract Documents.

2. Responsibility: The Contractor's responsibility for the provision of Temporary Heat, including all expenses in connection therewith, is as set forth below:

   a. Projects involving enclosure of the building:

      i. Prior to Enclosure: Until the Commissioner determines that the building has been enclosed, as set forth in sub-section 3.5 B, the Contractor is responsible for the provision of Temporary Heat.

      ii. Post Enclosure: Once the Commissioner determines that the building, or any portion thereof, has been enclosed, as set forth in sub-section 3.5 B, the Contractor is responsible for the provision of Temporary Heat by one or more of the following means: 1) by an existing heating system (if any), 2) by a permanent heating system which is being installed as part of the Project, or 3) by a temporary heating system(s).

      iii. The Contractor must, within two (2) weeks of the kick-off meeting, submit to DDC for review its proposed plan to provide Temporary Heat. Such plan is subject to approval

by the Resident Engineer. The Contractor must provide Temporary Heat in accordance with the approved plan until written acceptance by the Commissioner of the Work of all Subcontractors, 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:

i. If the Project involves the installation of a new permanent heating system if one did not exist previously, or the replacement, modification, and/or shut down of the existing permanent heating system, or any key component thereof, the Contractor will be responsible for the provision of Temporary Heat, except as otherwise provided in sub-section 3.5 H.3(b).2 herein.

ii. If the Project does not involve the installation of a new permanent heating system if one did not exist previously, or the replacement, modification, and/or shut down of the existing permanent heating system, or any key component thereof, there is no Contractor responsibility of the provision of Temporary Heat, unless otherwise specified in the Contract Documents. However, if the Commissioner, pursuant to sub-section 3.5 H.3 (b).1 herein, determines that the provision of Temporary Heat is necessary due to special and/or unforeseen circumstances, the Contractor will be responsible for the provision of Temporary Heat and must be paid for the same in accordance with sub-section 3.5 H.3 (b).1 herein.

B. ENCLOSURE OF STRUCTURES:

1. Notification: The Contractor must notify all of its Subcontractors and the Resident Engineer at least thirty (30) Days prior to the anticipated date that the building(s) will be enclosed.

2. Commissioner Determination: The Commissioner will determine whether the building, or any portion thereof, has been enclosed. As indicated in sub-section 3.5 A.2 above, once the building has been enclosed, the Contractor will be responsible for the provision of Temporary Heat. The Commissioner's determination with respect to building enclosure will be based upon all relevant facts and circumstances, including without limitation, 1) whether the building meets the criteria set forth in Paragraph 3 below, and 2) whether the openings in the building, such as doorways and windows, have been sufficiently covered so as to provide reasonable heat retention and protection from the elements.

3. Criteria for enclosure:

a. Roof Area:

i. A building will be considered to be roofed when the area to be roofed is covered by a permanent structure and all openings through the permanent structure are covered and protected by temporary covers as described in Paragraph (c) below.

ii. Intermediate floor structures of multi-floor buildings will be considered to be roofed subject to the same requirements of the building roof.

iii. The final roofing system need not be in place for the building or structure to be determined to be enclosed, provided, however, all openings through the permanent structure covering the roof must be covered and protected by temporary covers, as described in Paragraph (c) below.

b. Walls: For the walls to be determined to be enclosed, permanent exterior wall elements or facing material must be in place and all openings must be covered and protected by temporary covers, as described in Paragraph (c) below.

c. Temporary Covers: In order to be acceptable, temporary covers must be securely fixed to prevent the entrance of rain, snow and direct wind. The minimum material requirements for temporary covers are as follows: 1) minimum ten (10) millimeter plastic, 2) minimum twelve (12) ounce waterproof canvas tarpaulins, or 3) a minimum three-eighths (3/8) inch thickness exterior grade plywood.

d. Temporary covers for openings will be the responsibility of the Contractor and such Work will be deemed included in the Contract price.

C. TEMPERATURE REQUIREMENTS:

1. Unoccupied Buildings: The temperature requirement for the provision of Temporary Heat in unoccupied buildings will be the GREATER of the following: 1) fifty (50) degrees Fahrenheit, or 2) the temperature requirement for the particular type of Work set forth in the Contract Documents.

2. Occupied Buildings: The temperature requirement for the provision of Temporary Heat in occupied buildings, or portions thereof, will be the GREATER of the following: 1) sixty-eight (68) degrees Fahrenheit, or 2) the temperature requirement for the particular type of Work set forth in the Contract Documents.

D. DURATION:

1. The Contractor is required to provide Temporary Heat until Final Acceptance, including all punch list work, as certified in writing by the Resident Engineer, or earlier if so directed in writing by the Commissioner. The Contractor is 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. Payment for temporary heat will be made on a unit price basis in accordance with Sub-Section 3.5.K.

E. METHOD OF TEMPORARY HEAT:

1. The method of temporary heat must be in conformance with the New York City Fire Code and with all applicable laws, rules, and regulations. Prior to implementation, such method must be subject to the written approval of the Commissioner.

2. The method of temporary heat must:

a. Not cause the deposition of dirt or smudges upon any finished Work or cause any defacement or discoloration to the finished Work.

b. Not be injurious or harmful to people or materials.

c. Portable fueled heating devises or equipment will NOT be allowed for use as temporary heat other than construction-related curing or drying in conformance with the NYC Fire Code.

3. No open fires will be permitted.

F. TEMPORARY HEATING SYSTEM:

1. The temporary system for the provision of Temporary Heat provided by the Contractor following enclosure of the building must be complete, including, subject to provisions of paragraph E above, boilers pumps, radiators, space heaters, water and heating piping, insulation and controls. The temporary system for the provision of Temporary Heat must be capable of maintaining the minimum temperature requirements set forth in Paragraph C above.

G. COORDINATION:

1. The Contractor, in the provision of Temporary Heat, must coordinate its operations in order to insure sufficient and timely performance of all required Work, including Work performed by trade Subcontractors. The Contractor must supply and pay for all water required and used in the building

for the operation of the heating system(s) for the purpose of Temporary Heat. The Contractor must include all expenses in connection with the supply of water for Temporary Heat in its total Contract price. During the period in which Temporary Heat in an enclosed building is being furnished and maintained, the Contractor must provide proper ventilating and drying, open and close the windows and other openings when necessary for the proper execution of the Work and when directed by DDC. The Contractor must maintain all permanent or temporary enclosures at its own expense.

H. USE OF PERMANENT HEATING SYSTEMS:

1. Use of Permanent Heating System for Temporary Heat after Building Enclosure:

   a. The Contractor must provide all labor and materials to promptly furnish and set all required equipment, convectors and/or radiators, piping, valves, fitting, etc., in ample time for their use for the provision of Temporary Heat after enclosure of the building.

   b. New portions of the permanent heating system that are used for furnishing Temporary Heat must be left in near-perfect condition when delivered to the City for operation. Any repairs required, other than for ordinary wear and tear on the equipment, must be made by the Contractor at his/her expense. The starting date for the warranty or guarantee period for such equipment must be the date of Substantial Completion acceptance.

   c. In the event that the Contractor does not advance the installation of the permanent heating system in sufficient time to permit its use for Temporary Heat as determined by DDC, the Contractor must furnish and install a separate system for the provision of Temporary Heat as required to maintain the minimum temperature requirements set forth in Paragraph C above.

2. All equipment for the system for the provision of Temporary Heat must be placed so as to comply with the requirements specified hereinbefore, and must be connected, disconnected and suitably supported and located so as to permit construction Work, including finish Work such as wall plastering and painting, to proceed. The installation of the system for the provision of Temporary Heat by the Contractor, including the placing of ancillary system equipment, must be coordinated with the operations of all trade Subcontractors so as to insure sufficient and timely performance of the Work. Once the permanent heating system is operating properly, the Contractor must remove all portions of the system for Temporary Heat not part of the permanent heating system.

I. RELATED ELECTRICAL WORK:

1. The Contractor must be responsible for providing the items set forth below and must include all expenses in connection with such items in its total Contract price. The Contractor must provide such items promptly when required and must in all respects coordinate its Work with the Work performed by trade Subcontractors in order to facilitate the provision of Temporary Heat.

   a. The Contractor must provide all labor, materials, equipment and power necessary and required to furnish and maintain any temporary or permanent electrical connections to all equipment specified to be connected as part of the work of the Contractor’s Contract.

   b. The Contractor must supply and pay for all power necessary and required for the operation of the system for the provision of Temporary Heat and/or the permanent heating system used for Temporary Heat. Such power must be provided by the Contractor for the duration the Contractor is required to provide Temporary Heat, as set forth in sub-section 3.5 D herein.

2. In providing the items set forth in Paragraph 1 above, the Contractor is advised that labor may be required seven (7) days a week and/or during non-regular working hours for the period of time required by seasonal weather conditions.

J. RELATED PLUMBING WORK:

1. The Contractor must be responsible for providing all labor, materials, and equipment necessary and required to furnish and maintain all temporary or permanent connections to all equipment or plumbing

outlets specified to be provided as part of the Work of this Contract. The Contractor must include all expenses in connection with such items of Work in its total Contract price. The Contractor must provide such items of Work promptly when required and must in all respects coordinate its Work with the Work performed by trade Subcontractors in order to facilitate the provision of Temporary Heat.

2. In the event portions of the permanent plumbing equipment furnished by the Contractor as part of the Work of this Contract are used for the provision of Temporary Heat either during construction or prior to acceptance by the City of the complete plumbing system, the Contractor will be responsible to provide such plumbing equipment to the City in near-perfect condition and must make any repairs required, other than for ordinary wear and tear on the equipment, at the Contractor's expense. The starting date for warranty and/or guarantee period for such plumbing equipment must be the date of Substantial Completion by the City.

3. For Projects requiring the installation of new and/or modified gas service, as well as associated meter installations, the Contractor must promptly perform all required filings and coordination with the utility companies in order to expedite the installation, testing, and approval of the gas service and associated meter(s).

K. PAYMENT FOR TEMPORARY HEAT

1. Payment for temporary heat will be made on a unit price basis.

2. The quantity to be measured for payment under this item will be the number of months (to the nearest 1/4 month increment) that the Contractor satisfactorily provides for temporary heat in accordance with these specifications.

3. The unit price bid per month for temporary heat must include the cost of furnishing all labor, materials, plant, equipment, insurance, and incidentals required to provide temporary heat, all in accordance with the Contract Drawings, these specifications, and the directions of the Commissioner. When directed in writing by the Commissioner, temporary heat will be provided and paid for a period of time beyond 6 months past the Substantial Completion date. Payment for each month's temporary heat after the date of Substantial Completion acceptance will be made as part of the final payment.

## 3.6 STORM WATER CONTROL, DEWATERING FACILITIES AND DRAINS:

A. PUMPING:

1. Comply with requirements of authorities having jurisdiction. Maintain Project Site, excavations, and construction free of water. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of storm water from heavy rainfall.

2. Contractor must furnish and install all necessary automatically operated pumps of adequate capacity with all required piping to run-off agencies, so as to maintain the excavation, cellar floor, pits and exterior depressions and excavations free from accumulated water during the entire period of construction and up to the date of Final Acceptance of Work of the Contract.

3. All pumps must be maintained at all times in proper working order.

4. Dispose of rainwater in a lawful manner that will not result in flooding the Project or adjoining properties nor endanger permanent Work or temporary facilities.

5. Remove snow and ice as required to minimize accumulations.

## 3.7 TEMPORARY FIELD OFFICE FOR CONTRACTOR:

A. The Contractor must establish a temporary field office for its own use at the Site during the period of construction, at which readily available copies of all Contract Documents must be kept.

B. The field office must be located where it will not interfere with the progress of any part of the Work or with visibility of traffic control devices.

C. CONTRACTOR'S REPRESENTATIVE: There must be a responsible and competent representative of the Contractor in charge of the office who is duly authorized to receive orders and directions and to put them into effect.

D. Arrangements must be made by the Contractor whereby its representative may be readily available by telephone.

E. All temporary structures must be of substantial construction and neat appearance, and must be painted a uniform gray unless otherwise directed by the Commissioner.

F. CONTRACTOR'S SIGN: The Contractor must post and keep posted on the outside of its field office, office, exterior fence, or wall at Site of Work, a legible sign giving the full name of the company, address of the company and telephone number(s) of responsible representative(s) of the firm who can be reached in the event of an emergency at any time.

G. ADVERTISING PRIVILEGES: The City reserves the right to all advertising privileges. The Contractor must not cause any signs of any kind to be displayed at the Site unless specifically required herein or authorized by the Commissioner.

**3.8 DDC FIELD OFFICE**:

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.8 A**

A. OFFICE SPACE IN EXISTING BUILDING:

1. The Resident Engineer will arrange for office space for sole use in the building where Work is in progress. The Contractor must provide and install a lockset for the door to secure the equipment in the room. The Contractor must provide two (2) keys to the Resident Engineer. After completion of the Project the Contractor must replace the original lockset on the door and ensure its proper operation.

2. In addition to equipment specified in sub-section 3.8 D, the Contractor must provide, for exclusive use of the DDC Field Office, the following:

   a. Two (2) single pedestal desks, 42” x 32”; two (2) swivel chairs with arms and three (3) side chairs without arms to match desk. Two metal (2) lockers, single units, 15” x 18” x 78” overall including 6” legs. Lockers to have flat key locks with two (2) keys each, General Steel products or approved equal. Two (2) full ball bearing suspension four (4) drawer vertical legal filing cabinets with locks, approximately 52”H x 28 ½”D x 18”W.

   b. One (1) 9000 B.T.U air conditioner or as directed by Commissioner. Wiring for the air conditioner must be minimum No. 12 AWG fed from individual circuits in the fuse box.

   c. One (1) folding conference table, 96” x 30” and ten (10) folding chairs.

   d. Two (2) metal wastebaskets.

   e. One (1) fire extinguisher, one (1) quart vaporizing liquid type, brass, wall mounted by Pyrene No. C21 or approved equal.

   f. One (1) Crystal Springs water cooler with bottled water, Model No. LP14058 or approved equal to be furnished for the duration of the Project as required.

3. The Contractor must provide one (1) telephone, where directed and must pay all costs for telephone service for calls within the New York City limits for the duration of the Project.

4. All furniture and equipment, except computer equipment specified in sub-section 3.8 D.3, must

remain the property of the Contractor.

5. Computer workstation quantities must be provided as specified in sub-section 3.8 B 3-a for DDC Managed Projects, or sub-section 3.8 B 3-b for CM Managed Projects.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.8 B**

B. DDC FIELD OFFICE TRAILER:

1. GENERAL: The Contractor must, for the time frame specified herein, provide and maintain at its own cost and expense a DDC Construction Field Office and all related items as specified herein [hereinafter collectively referred to as the "DDC Field Office"] for the exclusive use of the Resident Engineer. The DDC Field Office must be located at the Project Site and must be solely dedicated to the Project. Provision of the DDC Field Office must commence within thirty (30) Days from Notice to Proceed (NTP) and must continue through forty-five (45) Days after Substantial Completion of the required construction at the Project Site. The Contractor must remove the DDC Field Office forty-five (45) Days after Substantial Completion of the required construction, or as otherwise directed in writing by the Commissioner.

2. TRAILER: The Contractor must provide at its own cost and expense a mobile office trailer for use as the DDC Field Office. The Contractor must install and connect all utility services to the trailer within thirty (30) Days from NTP. The trailer must have equipment in compliance with the minimum requirements hereinafter specified. Any permits and fees required for the installation and use of said trailer must be borne by the Contractor. The trailer including furniture and equipment therein, except computer equipment specified in sub-section 3.8D.3 herein, must remain the property of the Contractor.

3. Trailer must be an office-type trailer of the size specified herein, with exterior stairs at entrance. Trailer construction must be minimum 2 x 4 wall construction fully insulated with paneled interior walls, pre-finished gypsum board ceilings and vinyl tile floors.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.8.B.3a or SUB-SECTION 3.8.B.3b.**

a. DDC Managed Project Trailer: DDC Field Office Trailer Size, Layout and Computer Workstation:

1) Overall length: 32 Feet
Overall width: 10 Feet
2) Interior Layout:
Provide one (1) general office/conference room area and one (1) private office at one end of the trailer. Provide equipment and amenities as specified in sub-section 3.8.B herein.

iii. Computer Workstation: Provide one (1) complete computer workstation and one (1) tablet, 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 and two (2) tablets as specified in sub-section 3.8.D herein. Provide one (1) each complete computer workstation in each private office and one (1) complete computer workstation at the secretarial position as directed by the Resident Engineer.

4. The exterior of the trailer must be lettered with black block lettering of the following heights with white borders:

| | |
|---|---|
| CITY OF NEW YORK | 2-1/2" |
| DEPARTMENT OF DESIGN AND CONSTRUCTION | 3-3/4" |
| DIVISION OF PUBLIC BUILDINGS | 3-1/2" |
| DDC FIELD OFFICE | 2-1/2" |

NOTE: In lieu of painting letters on the trailer, the Contractor may substitute a sign constructed of a good quality weatherproof material with the same type and size of lettering above.

5. All windows and doors must have aluminum insect screens. Provide wire mesh protective guards at all windows.

6. The interior must be divided by partitions into general and private office areas as specified herein. Provide a washroom located adjacent to the private office and a built-in wardrobe closet opposite the washroom. Provide a built-in desk in the private office(s) with fixed overhead shelf and clearance below for two (2) file cabinets.

7. Provide a built-in drafting or reference table, located in the general office/conference room, at least sixty (60) inches long by thirty-six (36) inches wide with cabinet below and wall type plan rack at least forty-two (42) inches wide.

8. The washroom must be equipped with a flush toilet, wash basin with two (2) faucets, medicine cabinet, complete with supplies and a toilet roll tissue holder. Plumbing and fixtures must be approved house type, with each appliance trapped and vented and a single discharge connection. Five (5) gallon capacity automatic electric heater for domestic hot water must be furnished.

9. HVAC: The trailer must be equipped with central heating and cooling adequate to maintain a temperature of seventy-two (72) degrees during the heating season and seventy-five (75) degrees during the cooling season when the outside temperature is five (5) degrees F. winter and eighty-nine (89) degrees F. summer.

10. Interior lighting must be provided via ceiling mounted fluorescent lighting fixtures to a minimum level of fifty (50) foot candles in the open and private office(s) along with sufficient lighting in the washroom. Broken and burned out lamps must be replaced by the Contractor. A minimum of four (4) duplex convenience outlets must be provided in the open office and two (2) each in the private office(s). These outlets must be in addition to special outlet requirements for computer stations, copiers, HVAC unit, etc. Exterior lighting must be provided for the security of staff and visitors, with lighting provided at all entrances and as directed by the Commissioner.

11. Electrical service switch and panel must be adequately sized for the entire trailer load. Provide dedicated circuits for HVAC units, hot water heater, copiers and other equipment as required. All wiring and installation must conform to the New York City Electrical Code.

12. The following movable equipment must be furnished:

a. Two (2) single pedestal desks, 42" x 32"; two (2) swivel chairs with arms and three (3) side chairs without arms to match desk. Two (2) full ball bearing suspension four (4) drawer

vertical legal filing cabinets with locks and two (2) full ball bearing two (2) drawer vertical legal filing cabinets in each private office located below built-in desk.

b. One (1) folding conference table, 96” x 30” and ten (10) folding chairs.

c. Three (3) metal wastebaskets.

d. One (1) fire extinguisher one (1) quart vaporizing liquid type, brass, wall mounted by Pyrene No. C21 or approved equal.

e. One (1) Crystal Springs water cooler with bottled water, Model No. LP14058 or approved equal to be furnished for the duration of the Contract as required.

13. TRAILER TEMPORARY SERVICE: Plumbing and electrical Work required for the trailer will be furnished and maintained as below.

a. PLUMBING WORK: The Contractor must provide temporary water and drainage service connections to the DDC Field Office trailer for a complete installation. Provide all necessary soil, waste, vent and drainage piping.

Contractor to frost-proof all water pipes to prevent freezing.

1) REPAIRS, MAINTENANCE: The Contractor must provide repairs for the duration of the Project until the trailer is removed from the Site.

2) DISPOSITION OF PLUMBING WORK: At the expiration of the time limit set forth in sub-section 3.8 B 1 herein, the temporary water and drainage connections and piping to the DDC Field Office trailer must be removed by the Contractor and must be plugged at the mains. All piping must become the property of the Contractor for plumbing Work and must be removed from the Site, all as directed. All repair Work due to these removals must be the responsibility of the Contractor.

b. ELECTRICAL WORK:

1) The Contractor must furnish, install and maintain a temporary electric feeder to the DDC Field Office trailer immediately after it is placed at the job Site.

2) The temporary electrical feeder and service switch/fuse must be adequately sized based on the trailer load and installed per the New York City Electrical Code and complying with utility requirements.

3) Make all arrangements and pay all costs to provide electric service.

4) The Contractor must pay all costs for current consumed and for maintenance of the system in operating condition, including the furnishing of the necessary bulb replacements lamps, etc., for the duration of the Project and for a period of forty-five (45) Days after the date of Substantial Completion.

5) Disposition of Electric Work: At the expiration of the time limit set forth, the temporary feeder, safety switch, etc., must be removed and disposed of as directed.

6) All repair Work due to these removals must be the responsibility of the Contractor.

c. MAINTENANCE:

1) The Contractor must provide and pay all costs for regular weekly janitor service and furnish toilet paper, sanitary seat covers, cloth towels and soap and maintain the DDC Field Office in first-class condition, including all repairs, until the trailer is removed from the Site.

2) Supplies: The Contractor must be responsible for providing (1) all office supplies, including without limitation, pens, pencils, stationery, filtered drinking water and sanitary

supplies, and (2) all supplies in connection with required computers and printers, including without limitation, an adequate supply of blank CD's/DVD's, storage boxes for blank CDs/DVDs, and paper and toner cartridges for the printer.

3) Risk of Loss: The entire risk of loss with respect to the DDC Field Office and equipment must remain solely and completely with the Contractor. The Contractor must be responsible for the cost of any insurance coverage determined by the Contractor to be necessary for the field office.

4) At forty-five (45) Days after the date of Substantial Completion, or sooner as directed by the Commissioner, the Contractors must have all services disconnected and capped to the satisfaction of the Commissioner. All repair Work due to these removals must be the responsibility of the Contractor.

d. TELEPHONE SERVICE: The Contractor must provide and pay all costs for the following telephone services for the DDC Field Office trailer:

1) Separate telephone lines for one (1) desk phone in each private office.

2) One (1) wall phone (with six (6) foot extension cord) at plan table.

3) Telephone and internet access in each private office. Telephone service must include voice mail. All electronic voicemail messages must be automatically forwarded as email attachments, to allow for the voicemails to be played remotely.

4) A remote bell located on outside of trailer.

5) The telephone service must continue until the trailer is removed from the Site.

e. SECURITY CAMERAS: Wi-Fi enabled security cameras must be provided at all entrances and exits, except for fire escapes / emergency stairwells, which do not require cameras. One security camera must be provided for the interior of the DDC Field Office, with the location to be determined by the Commissioner. Cameras must be minimum 1080p video resolution. Cameras must have internet cloud storage, with all videos stored for a minimum of two weeks. The cloud storage must be accessible via desktop or mobile. Cameras may be hardwired for power or battery powered; battery powered cameras must have the batteries changed by the Contractor as required to ensure no lapses of service. Signs must be posted indicating that the area is under video surveillance.

f. PERMITS: The Contractor must make the necessary arrangements and obtain all permits and pay all fees required for this Work.

C. RENTED SPACE: The Contractor has the option of providing, at its cost and expense, rented office or store space in lieu of trailer. Said space must be in the immediate area of the Project and have adequate plumbing, heating and electrical facilities. Space chosen by the Contractor for the DDC Field Office must be approved by the Commissioner before the area is rented. All insurance, maintenance and equipment, including computer workstations and security cameras specified in sub-section 3.8 D in quantities required as specified in sub-section 3.8 B 3 for the DDC Field Office trailer, must also apply to rented spaces.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.8 D**

D. ADDITIONAL EQUIPMENT FOR THE DDC FIELD OFFICE:

1. Photocopying Machine: Stand-alone, heavy duty, electric, dry-process color photocopying type with color scan and send capability via email, a minimum production rate of seventy (70) pages per minute and an adequate supply of copy paper, toner, etc. The machine must be capable of duplex copying paper sizes of 8-1/2 x 11 inches, 8-1/2 x 14 inches and 11 x 17 inches, and have separate trays for each paper size. It must have a document feeder, collator, stapler, and the capability to reduce/enlarge copies between each paper size. The supply of each size copy paper, toner, etc.

must be replenished and the machines must be maintained for the duration of the Contract by the Contractor as required by the Resident Engineer. Make and model can be Minolta, Canon, IBM, Epson, or an approved equivalent, and must be networked to the office computers for printing capability. Copier must remain at job Site until the DDC Field office trailer is removed from the Site.

2. The Contractor must furnish a fax service and a telephone answering service (or computer based equivalent system) at commencement of the Project for the exclusive use of the DDC Field Office. All materials must be new, sealed in manufacturer's original packaging and must have manufacturers' warrantees. All items must remain the property of the City of New York at the completion of the Project.

3. COMPUTER WORKSTATION: The Contractor must provide one (1) complete computer workstation, in quantities specified in sub-section 3.8.B.3, as specified herein:

   a. Hardware/Software Specification:

      1) Computer Equipment: Computers must be provided for all Contracts that have a total Consecutive Calendar Days (CCD) for construction duration, as set forth in Schedule "A", of 180 CCD's or greater. Contracts of lesser duration must not require computers.

      2) Computers furnished by the Contractor for use by City Personnel for the duration of the Contract must be in accordance with the Specific Requirements contained herein, must remain the property of the City of New York at the completion of the Project, and must meet the following minimum requirements:

      3) Personal Computers – Personal Computers must meet the requirements of the US General Services Administration (GSA) Government-Wide Strategic Solutions (GSS) Standard Laptop, Desktop, and Tablet Specifications, V7. (Available online at (Government-Wide Strategic Solutions (GSS) Version 7 Specifications | NITAAC (nih.gov)).

         (a) Computer type for Personal Computers to be “Desktop Small Form Factor.” Computer type for tablet to be “Tablet”
         (b) The following components listed as optional in the GSA specification must be provided with each personal computer: monitor, speakers, optical drive, smart card reader, webcam, and headset.
         (c) The following additional software must be provided with licenses for each computer:
            1. Adobe Acrobat Pro DC or Bluebeam Revu
            2. Microsoft Office Professional
            3. Autodesk AutoCAD LT
            4. Anti-virus software
            5. Microsoft Visio (only one license required per field office)

      iv. DDC Field Office Specs: DDC Field Offices requiring computers must be provided with the following:

         a) One (1) broad-band internet service account. See table below for minimum required upload and download 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 #** | **Download Speeds (*Minimum*)** | **Upload Speeds (*Minimum*)** |
|---|---|---|
| 1 – 5 | 10 Mbps | 15 Mbps |

| | | |
|---|---|---|
| 6 – 10 | 20 Mbps | 15 Mbps |
| 11 – 15 | 25 Mbps | 15 Mbps |
| 16 – 20 | 50 Mbps | 15 Mbps |

This account will be active for the life of the Project. The e-mail name for the account must be the DDC Field Office/Project ID (preferably Gmail or Outlook e.g. ABC1234@gmail.com).

b) One (1) 600 DPI HP Color Laser Jet Printer (twelve (12) pages per minute or faster) with one (1) Extra Paper (Legal Size) (Not required if photocopying machine prints in color).

c) All necessary cabling for equipment specified herein

d) Storage Boxes for Blank CD's

e) Printer Table

f) UPS/Surge Suppressor combo

g) Ten (10) USB Thumb (or Flash) Drives – sixteen (16) GB each

5) All computers required for use in the DDC Field Office must be delivered, installed, and setup in the Field Office by the Contractor.

6) All Computer Hardware must come with a three (3) year warranty for on-site repair or replacement. Additionally, and notwithstanding any terms of the warranty to the contrary, the Contractor is responsible for rectifying all computer problems or equipment failures within one (1) business day.

7) An adequate supply of blank CDs/DVDs, and paper and toner cartridges for the printer must be provided by the Contractor and must be replenished by the Contractor as required by the Resident Engineer.

8) It is the Contractor's responsibility to ensure that electrical service and phone connections are also available at all times; that is, the Field Office Computer(s) is to be powered and turned on twenty-four (24) hours each Day.

9) Broadband connectivity is preferred at each field office location. Please take into consideration that an extra phone line dedicated to the modem must be ordered as part of the Contract unless Internet broadband connectivity, via Cable or DSL, is available at the planned field office location. Any questions regarding this policy should be directed to the Assistant Commissioner of ITS at 718-391-1761.

E. HEAD PROTECTION (HARD HATS):

1. The Contractor must provide a minimum of ten (10) standard protective helmets for the exclusive use of DDC personnel and their visitors. Helmets must be turned over to the Resident Engineer and kept in the DDC Field Office.

2. Upon completion of the Project, the helmets must become the property of the Contractor.

F. PAYMENT FOR DDC FIELD OFFICE

1. The DDC Field Office will be paid monthly on a unit price basis.

2. MEASUREMENT. The quantity to be measured for payment under this item will be the number of months that the DDC Field Office is available for occupancy by the Commissioner during the period of the Project. Payment will begin the first month that the DDC Field Office is fully equipped, serviced

as specified, and made available for occupancy. The DDC Field Office is to be continuously made available and monthly payments will continue for the duration of the Project through a period not to exceed 6 months past the Substantial Completion date. When directed in writing by the Commissioner, the DDC Field Office will be provided and paid for a period of time beyond 6 months past the Substantial Completion date. Payment for each month's occupancy after the date of Substantial Completion acceptance will be made as part of the final payment. Monthly payments may be terminated on a specified date prior to acceptance of the Project by written notification by the Commissioner that such office will no longer be required on the Project.

3. PRICE TO COVER. The unit price bid per month for the item DDC Field Office shall include the cost of furnishing all labor, materials, equipment, ground rental, fire and theft insurance, and utility charges necessary to complete the work of providing or constructing the field office; making all necessary electrical, water, sewer, and other connections required to make the above facilities operative; payment of all rental costs; furnishing and paying for heating fuel, as required; all electrical energy; private telephone services; staples, as specified; and all necessary incidentals to complete the work all in accordance with the specifications and the directions of the Commissioner.

**3.9 MATERIAL SHEDS:**

A. Material sheds used by the Contractor for the storage of its materials must be kept at locations which will not interfere at any time with the progress of any part of the Work or with visibility of traffic control devices.

B. The Contractor must store combustible materials apart from the facility.

**3.10 TEMPORARY ENCLOSURES:**

A. The Contractor must provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weather tight enclosure for building exterior.

B. Where heating or cooling is needed and Permanent Enclosure is not complete, the Contractor must insulate temporary enclosures.

**3.11 TEMPORARY PARTITIONS:**

A. The Contractor must provide floor-to-ceiling dustproof partitions to limit dust and dirt migration and to separate occupied tenant areas from fumes and noise, including, but without limitation:

1. Construct dustproof partitions with gypsum wallboard with joints taped on occupied side, and fire-retardant plywood on construction operations side.
2. Construct dustproof partitions with 2 layers of 3-mil (0.07-mm) polyethylene sheet on each side. Cover floor with two (2) layers of 3-mil (0.07-mm) polyethylene sheet, extending sheets eighteen (18) inches (460 mm) up the sidewalls. Overlap and tape full length of joints. Cover floor with fire-retardant plywood.
    a. Construct vestibule and airlock at each entrance through temporary partition with not less than forty-eight (48) inches (1219 mm) between doors. Maintain water-dampened foot mats in vestibule.
3. Insulate partitions to provide noise protection to occupied areas.
4. Seal joints and perimeter. Equip partitions with dustproof doors and security locks.
5. Protect air-handling equipment.
6. Weather strip openings.

7. Provide walk-off mats at each entrance through temporary partition.

**3.12 TEMPORARY FIRE PROTECTION:**

A. The Contractor must install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with National Fire Protection Association (NFPA) Standard 241.

B. Smoking in all areas is prohibited.

C. The Contractor must supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.

D. The Contractor must develop and supervise an overall fire-prevention and protection program for personnel at Project Site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.

E. The Contractor must provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.13**

**3.13 WORK FENCE ENCLOSURE:**

A. The Contractor must furnish, erect and maintain a wood construction or chain-link fence to the extent shown on the Contract Drawings or required by the Work enclosing the entire Project on all sides. All materials used must be new. Any permit required for the installation and use of said fence and costs must be borne by the Contractor.

B. WOOD FENCE must be seven (7) feet high with framing construction of yellow pine, using 4" x 4" approved preservative-treated posts on not more than 6'-0" centers, with three (3) rails of at least 2" x 4" size to which must be secured minimum 1/2 inch thick exterior grade plywood. Posts must be firmly fixed in the ground at least 30" and thoroughly braced. Top edge of fence must be trimmed with a rabbeted edge mould. Provide on the street traffic sides of fence, observation openings as directed.

1. GATES: The Contractor must provide an adequate number of double gates, complete with hardware, located as approved by the Resident Engineer. Double gates must have a total clear opening of 14'-0" with two (2) 7'-0" hinged swinging sections. Hanging posts must be 6" x 6" and must extend high enough to receive and be provided with tension or sag rods for the swinging sections.

2. PAINTING: The fence and gates must be entirely painted on the street and public sides with one (1) coat of exterior primer and one (1) top coat of exterior grade acrylic-latex emulsion paint. Black stenciled signs reading "POST NO BILLS" must be painted on fence with three (3) inch high letters on twenty-five (25) foot spacing for the entire length of fence on street traffic sides. Signs must be stenciled five (5) feet above the sidewalk.

C. CHAIN-LINK FENCING must be minimum two (2) inch thick, galvanized steel, chain-link fabric fencing; eight (8) feet high with galvanized steel pipe posts; minimum 2-3/8-inch Outside Diameter (OD) line posts and 2-7/8-inch OD corner and pull posts, with 1-5/8-inch OD top and bottom rails. Fence must be accurately aligned and plumb, adequately braced and complete with gates, locks and hardware as required. Under no condition must fencing be attached or anchored to existing construction or trees.

D. ADDITIONAL REQUIREMENTS:

1. It must be the obligation of the Contractor to remove all posters, advertising signs, and markings, etc., immediately.

2. Should the fencing be required to be relocated during the course of the Contract, it must be done by

the Contractor at no additional cost to the City.

3. Where sidewalks are used for "drive over" purposes for Contractor vehicles, a suitable wood mat or pad must be provided for protection of sidewalks and curbs.

4. Where required, make provision for fire hydrants, lampposts, etc.

E. REMOVAL: When directed by the Commissioner, the fence must be removed.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.14**

**3.14 RODENT AND INSECT CONTROL:**

A. DESCRIPTION: The Contractor must provide all labor, materials, plant and equipment, and incidentals required to survey and monitor rodent activity and to control any infestation or outbreak of rodents, rats, mice, water beetles, roaches and fleas within the Project area. Special attention should be paid to the following conditions or areas:

1. Wet areas within the Project area, including all temporary structures.

2. All exterior and interior temporary toilet structures within the Project area.

3. All Field Offices and shanties within the Project area of all Subcontractors and DDC.

4. Wherever there is evidence of food waste and/or discarded food or drink containers, in quantity, that would cause breeding of rodents or the insects herein specified.

5. Any other portion of the Site requiring such special attention.

B. MATERIALS:

1. All materials must be approved by the New York State Department of Environmental Conservation (DEC) and comply with the New York City Health Code, OSHA and the laws, ordinances and regulations of state and federal agencies pertaining to such chemical and/or materials.

C. PERSONNEL:

1. All pest control personnel must be supervised by an exterminator licensed in categories 7A and 8.

D. METHODS:

1. Application and dosage of all materials must be done in strict compliance with the manufacturer’s recommendations.

2. Any unsanitary conditions, such as uncollected garbage or debris, resulting from all Contractor’s activities, which will provide food and shelter to the resident rodent population must be corrected by the Contractor immediately after notification of such condition by the Resident Engineer.

E. RODENT CONTROL WORK:

1. In wetlands, woodlands, and areas adjacent to a stream, special precautions must be taken to protect water quality and to ensure the safety of other wildlife. To prevent poisoned bait from entering streams, no poisoned bait must be used in areas within seventy-five (75) feet of all stream banks. Live traps must be used in these seventy-five (75) foot buffer zone areas and within wetland and woodland areas.

2. In areas outside the seventy-five (75) foot zone of protection adjacent to streams, and in areas outside wetlands and woodlands, tamper proof bait stations with poisoned bait must be placed during the period of construction and any consumed or decomposed bait must be replenished as directed.

3. At least one (1) month prior to initiation of the construction Work, and periodically thereafter, live traps and/or rodenticide bait in tamper proof bait stations, as directed above, must be placed at locations that do not allow access to pets, human beings, children and other non-target species, particularly wildlife (for example-birds) in the Project area.

4. The Contractor must be responsible for collecting and disposing of all trapped and poisoned rodents found in live traps and tamper-proof bait stations. The Contractor must also be responsible for posting and maintaining signs announcing the baiting of each particular location.

5. The Contractor must be responsible for the immediate collection and disposal of any visible rodent remains found on streets or sidewalks within the Project area.

6. It is anticipated that public complaints will be addressed to the Commissioner. The Contractor, where directed by the Commissioner, must take appropriate actions, like baiting, trapping, proofing, etc., to remedy the source of complaint within the next six (6) hours of normal working time which is defined herein for the purposes of this section as 7 A.M. to 6 P.M. on Mondays through Saturdays.

7. Emergency service during the regular workday hours (Monday through Friday) must be rendered within twenty-four (24) hours, if requested by the Commissioner, at no additional cost to the City.

F. EDUCATION & NOTICES:

1. The Contractor must post notices on all Construction Bulletin Boards advising workers, employees, and residents to call the DDC Field Office to report any infestation or outbreak of rodents, rats, mice, water beetles, roaches and fleas within the Project area. The Contractor must provide and distribute literature pertaining to Integrated Pest Management (IPM) techniques of rodent control to affected businesses and superintendents of nearby residential buildings to ensure their participation in maintaining their establishments free of unsanitary conditions, harborage removal and rodent proofing.

2. Prior to application of any chemicals, the Contractor must furnish to the Commissioner copies or sample labels for each pesticide, antidote information, and Material Data Safety Sheets (MSDS) for each chemical used.

G. RECORDS

1. The Contractor must keep a record of all rodent and waterbug infestation surveys conducted and make available, upon request, to the Commissioner. The findings of each survey must include, but not be limited to, recommended IPM techniques, like baiting, trapping, proofing, etc., proposed for rodent and waterbug pest control.

2. The Contractor must maintain records of all locations baited along with the type and quantity of rodenticide and insecticide bait used, using the NYC Pesticide Use Reporting System (“NYCPURS”). These records will be kept by the Commissioner. A weekly report from NYCPURS must be prepared, signed and certified by the approved licensed exterminator retained by the Contractor. Such reports must be submitted to the Commissioner each week, prior to payment.

H. PAYMENT FOR RODENT AND INSECT CONTROL

1. Payment for rodent and inspect control will be made on a unit price basis.

2. The quantity to be measured for payment under this item will be the number of months (to the nearest 1/4 month increment) that the Contractor satisfactorily provides for rodent and insect

control in accordance with these specifications.

3. The unit price bid per month for rodent and insect control must include the cost of furnishing all labor, materials, plant, equipment, insurance and incidentals required to provide rodent and insect control, all in accordance with the Contract Drawings, these specifications, and the directions of the Commissioner.

**3.15 PLANT PEST CONTROL REQUIREMENTS AND TREE PROTECTION REQUIREMENTS:**

A. Plant Pest Control Requirements: The Contractor and its Subcontractors, including the Certified Arborist described below, must comply with all federal and New York State laws and regulations concerning Asian Longhorned Beetle (ALB) management, including protocols for ALB eradication and containment promulgated by the New York State Department of Agriculture and Markets (NYSDAM). The Contractor is referred to: (1) Part 139 of Title 1 NYCRR, Agriculture and Markets Law, Sections 18, 164 and 167, as amended, and (2) State Administrative Procedure Act, Section 202, as amended.

1. All tree Work performed within the quarantine areas must be performed by NYSDAM certified entities. Transportation of all host material, living, dead, cut or fallen, inclusive of nursery stock, logs, green lumber, stumps, roots, branches and debris of a half inch or more in diameter from the quarantine areas is prohibited unless the Contractor or its Subcontractor performing tree Work has entered into a compliance agreement with NYSDAM. The terms of said compliance agreement must be strictly complied with. Any host material so removed must be delivered to a facility approved by NYSDAM. For the purpose of this Contract, host material must be ALL species of trees.

2. Any host material that is infested with the ALB must be immediately reported to NYSDAM for inspection and subsequent removal by either State or City contracts, at no cost to the Contractor.

3. Prior to commencement of tree Work, the Contractor must submit to the Commissioner a copy of a valid ALB compliance agreement entered into with NYSDAM and the Contractor or its Subcontractor performing tree Work. If any host material is transported from the quarantine area the Contractor must immediately provide the Commissioner with a copy of the New York State 'Statement of Origin and Disposition' and a copy of the receipt issued by the NYSDAM approved facility to which the host materials are transported.

4. Quarantine areas, for the purpose of this Contract, must be defined as all five boroughs of the City of New York. In addition, prior to the start of any tree Work, the Contractor must contact the NYC Department of Parks & Recreation's (DPR) Director of Landscape Management at (718) 699-6724, to determine the limits of any additional quarantine areas that may be in effect at the time when tree Work is to be performed. The quarantine area may be expanded by federal and state authorities at any time and the Contractor is required to abide by any revisions to the quarantine legislation while working on this Contract. For further information please contact: NYSDAM (631) 288-1751.

B. Tree Protection Requirements: The Contractor must retain a Certified Arborist, as defined by DPR regulations, to provide the services described below.

1. Surveys and Reports: The Certified Arborist must, at the times indicated below, conduct a survey and prepare a plant material assessment report which includes: (1) identification, by species and pertinent measurements, of all plant material located on the Project Site, or in proximity to the Project Site, as described below, including all trees, significant shrubs and/or planting masses; (2) identification and plan for the containment of plant pests and pathogens, including the ALB, as described in paragraph A above; and (3) evaluation of the general health and condition of any infected plant material.

2. Frequency of Reports: The Certified Arborist must conduct a survey and provide a plant material assessment report at two (2) points in time: (1) prior to the commencement of construction Work; and (2) at the time of Substantial Completion. In addition, for projects exceeding twenty-four (24) months in duration, the Certified Arborist must conduct a survey and prepare a report at the midpoint of

construction. Copies of each plant material assessment report must be submitted to the Resident Engineer within two (2) weeks of the survey.

3. Proximity to Project Site: Off-site trees, significant shrubs and/or planting masses must be considered to be located in proximity to the Project Site under the circumstances described below.

   a. The tree trunk, significant shrub, or primary cluster of stems in a planting mass is within fifty (50) feet of the project's Contract Limit Lines (CLLs) or Property Lines (PLs).

   b. Any part of the tree or shrub stands within fifty (50) feet of: (a) a path for Site access for vehicles and/or construction equipment; or (b) scaffolding to be erected for construction activity, including façade remediation projects.

   c. The Certified Arborist determines that the critical root zone (CRZ) of an off-site tree, significant shrub, or primary cluster of stems in a planting mass extends into the Project Site, whether or not that plant material is located within the fifty (50) foot inclusionary perimeter as outlined above.

4. Tree Protection Plan: The Certified Arborist must prepare, and the Contractor must implement, a Tree Protection Plan for all trees that may be affected by any construction Work, excavation or demolition activities, including without limitation: (1) on-site trees, (2) street trees, as defined below, (3) trees under DPR jurisdiction as determined by the NYC Department of Transportation, and (4) all trees that are located in proximity to the Project Site, as defined above. The Tree Protection Plan must comply with the DPR rules, regulations and specifications. The Contractor is referred to Chapter 5 of Title 56 of the Official Compilation of the Rules of the City of New York. Copies of the Tree Protection Plan must be submitted to the Resident Engineer prior to the commencement of construction. Implementation of the Tree Protection Plan for street trees and trees under DPR jurisdiction must be in addition to any tree protection requirements specified or required for the Project Site. For the purpose of this article, a "street tree" means the following: (1) a tree that stands in a sidewalk, whether paved or unpaved, between the curb lines or lateral lines of a roadway and the adjacent property lines of the Project Site, or (2) a tree that stands in a sidewalk and is located within fifty (50) feet of the intersection of the Project's Site's PL with the street frontage property line.

C. No Separate Payment: No separate payment must be made for compliance with Plant Pest Control Requirements or Tree Protection Requirements. The cost of compliance with Plant Pest Control Requirements and Tree Protection Requirements must be deemed included in the Contractor's bid for the Project.

**3.16 PROJECT IDENTIFICATION SIGNAGE:**

A. The Contractor must provide, install and maintain Project identification and other signs where indicated to inform public and individuals seeking entrance to the Project.

B. In order to properly convey notice to persons entering upon a City construction Site, the Contractor must furnish and install a sign at the entrance (gates) as follows:

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**NO TRESPASSING**

**AUTHORIZED PERSONNEL ONLY**

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C. If no construction fence exists at the Site, this notice must be conveyed by incorporating the above language into safety materials (barriers, tape, and signs).

D. Provide temporary, directional signs for construction personnel and visitors.

E. Maintain and touch up signs so that they are legible at all times.

**3.17 PROJECT CONSTRUCTION SIGN AND RENDERING:**

A. PROJECT SIGN:

1. Responsibility: The Contractor must produce and install one (1) Project sign which must be posted and maintained upon the Project Site at a place and in a position directed by the Commissioner. The Contractor must protect the sign from damage during the continuance of Work under the Contract and must do all patching of lettering, painting and bracing thereof necessary to maintain the sign in first class condition and in proper position. Prior to fabrication, the Contractor must submit an 8-1/2" x 11" color match print proof from the sign manufacturer of the completed sign for approval by the Commissioner.

2. Sign Quality: The Contractor must provide all materials required for the production of the sign as specified herein. Workmanship must be of the best quality, free from defects and must be produced in a timely manner.

3. Schedule: Upon Project mobilization, the Contractor must commence production and installation of the sign.

4. Removal: At the completion of all Work under the Contract, the Contractor must remove and dispose of the Project sign away from the Site.

5. Sign construction:

   a. Frame: The frame must be from quality dressed 2"x2" pine, fire retardant, pressure treated lumber, that surrounds the inside back edge of the sign. The sign must have one (1) intermediate vertical and two (2) diagonal supports, glued and screwed for rigidity. Frame must be painted white with two (2) coats of exterior enamel paint, prior to mounting of sign panel.

   b. Edging: U-shaped, twenty-two (22) gauge aluminum edging, with a white enameled finish to match sign background, must run around entire edging of sign panel and frame. Corners must be mitered for a tight fit. Channel dimensions must be 1" inch (overlap to sign panel face) x 1 3/4" (or as required across frame depth) x 1" (back overlap).

   c. Sign Panel: 4' x 8' panel must be constructed in one (1) piece of fourteen (14) gauge (.0785") 6061-T6 aluminum. This panel must be pre-finished both sides with a glossy white baked-on enamel finish and be flush with edge of 2" x 2" wood frame. Samples must be submitted for approval.

   d. Fastening: Fasten sign panel to wood frame using cadmium plated no. 8 sheet metal screws at ½" below edge of panel and 8" on center. The U-shaped aluminum channel must be applied over the wood frame edge and fastened with cadmium plated no. 8 sheet metal screws at 12" on center around the entire perimeter.

6. Sign Graphics:

   a. A digital file of the Project sign will be provided to the Contractor by the Commissioner's representative for printing. The Commissioner's representative must insert the Project name and names and titles of personnel (three (3) or more) and any other required information associated with the Project. All signs may include a second panel for a Project rendering as described in sub-section 3.17.B herein.

   b. The digital file must be reproduced at the Sign Panel size of 4' x 8' on 3M High Performance Vinyl or approved equal. The 3M High Performance Vinyl or equivalent must be guaranteed for nine (9) years. Guarantee must cover fading, peeling, chipping or cracking. The sign manufacturer is

required to maintain all specified Pantone Matching System (PMS) type and other composition elements represented in the digital file of the Project sign.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SETION 3.17 B**

B. PROJECT RENDERING:

1. Responsibility: In addition to the Project sign, the Contractor must furnish and install one (1) sign showing a rendering of the Project. A digital file of the Project rendering will be provided to the Contractor by the Commissioner's representative. From an approved image file provided by DDC, the Project rendering is to be sized, printed, and mounted in an identical manner as described in sub-section 3.17.A above for the Project sign. A color match print proof from the sign manufacturer of the rendering sign printed from the supplied file is to be submitted to DDC for approval before fabrication. The rendering sign is to be posted at the same height as the Project sign. Where possible, the rendering sign must be mounted with a perfect match of the short sides of the rectangle so that the rendering sign and the Project sign together will create one long rectangle.

2. Removal: At the completion of all Work under the Contract, the Contractor must remove and dispose of the Project rendering away from the Site.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.18**

**3.18 SECURITY GUARDS/FIRE GUARDS ON SITE:**

A. SECURITY GUARDS (WATCHMEN):

1. The Contractor must provide a competent security guard service on the Site, beginning on the date on which the Contractor commences actual construction Work, or on such earlier date on which there is activity at the Site related to the Work, including without limitation, delivery of materials or construction set-up. The Contractor must continue to provide such security guard service until the date on which it completes all required Work at the Site, including all punch list Work, as certified in writing by the Resident Engineer, or earlier if so directed in writing by the Commissioner. Throughout the specified time period, there must be no less than one (1) security guard on duty every day, including Saturdays, Sunday and holidays, twenty-four (24) hours a day, except between the hours of 8:00 A.M. and 4:00 P.M. on any day that the Contractor is present. This exception during the working day must not apply after the finishing painting of the plaster Work is commenced; thereafter, not less than one (1) security guard must be on duty continuously, twenty-four (24) hours a day.

2. Every security guard must be required to hold a "Certificate of Fitness" issued by FDNY. Every security guard must, during his/her tour of duty, perform the duties of fire guard in addition to his/her security obligations.

3. Should the Commissioner find that any security guard is unsatisfactory, such guard must be replaced by the Contractor upon the written demand of the Commissioner.

4. Each security guard furnished by the Contractor must be instructed by the Contractor to include in his/her duties the entire construction Site including the Field Office, temporary structures, and equipment, materials, etc.

5. Should the Contractor or any other Subcontractor consider the security requirements outlined above inadequate, the Contractor must provide such additional security as it thinks necessary, after obtaining the written consent of the Commissioner. The additional cost of such approved increased protection will be paid by the Contractor.

6. Nothing contained in this sub-section must diminish in any way the responsibility of the Contractor and each Subcontractor for its own Work, materials, tools, equipment, nor for any of the other risks and obligations outlined hereinbefore in this Article.

B. COSTS: The Contractor must employ security guards/fire guards throughout the specified time period, except as otherwise modified by the detailed Specifications and as approved by the Commissioner, for the purpose of safeguarding and protecting the Site. All costs for security guards/fire guards must be borne by the Contractor.

C. RESPONSIBILITY: The Contractor and its Subcontractors will be responsible for safeguarding and protecting their own work, materials, tools and equipment.

D. PAYMENT FOR SECURITY GUARDS

1. Payment for security guards will be made on a unit price basis.

2. The quantity to be measured for payment under this item will be the number of months (to the nearest 1/4 month increment) that the Contractor satisfactorily provides for security guards in accordance with these specifications.

3. The unit price bid per month for security guards must include the cost of furnishing all labor, materials, plant, equipment, insurance and incidentals required to provide security guards, all in accordance with the Contract Drawings, these specifications, and the directions of the Commissioner.

**3.19 SAFETY:**

A. The Contractor, in compliance with requirements of Section 01 35 26, SAFETY REQUIREMENTS PROCEDURES, must provide and maintain all necessary temporary closures, guard rails, and barricades to adequately protect all workers and the public from possible injury. Any removal of these items, during the progress of the Work, must be replaced by the Contractor at no additional cost to the City.

**END OF SECTION 01 50 00**

# SECTION 01 54 11
# TEMPORARY ELEVATORS AND HOISTS

## PART I – GENERAL

### 1.1 RELATED DOCUMENTS:

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

### 1.2 SUMMARY:

A. This section includes the following:
   1. Temporary Use, Operation and Maintenance of Elevators during Construction
      a. For new buildings up to and including fifteen (15) stories
      b. For new buildings over fifteen (15) stories
      c. For existing buildings
   2. Temporary Construction Hoists and Hoistways (For Material and Personnel)

### 1.3 RELATED SECTIONS: include without limitation the following:

A. Section 01 10 00 SUMMARY

B. Section 01 42 00 REFERENCES

C. Section 01 50 00 TEMPORARY FACILITIES AND CONTROLS

D. Section 01 54 23 TEMPORARY SCAFFOLDS AND SWING STAGING

E. Section 01 77 00 CLOSE OUT PROCEDURES

## PART II – PRODUCTS (Not Used)

## PART III – EXECUTION

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.1**

### 3.1 TEMPORARY USE, OPERATION AND MAINTENANCE OF ELEVATORS DURING CONSTRUCTION FOR NEW BUILDINGS UP TO AND INCLUDING FIFTEEN (15) STORIES:

A. INSTALLATION: The Contractor must install, complete, operate, and maintain in good working order, as indicated herein, one (1) selected main elevator for the transport of employees of the Contractor and/or its Subcontractors, representatives of DDC, and other governmental agencies having jurisdiction of Work at the Project. The Contractor must furnish, install, and maintain such elevator in good working order, including all necessary hoisting ropes, governor cables, traveling conductor cables, operating devices, temporary hand reset target annunciators, temporary signal devices, and all other permanent or temporary parts. The installation, operation and maintenance of the temporary elevator and all equipment and/or parts utilized in connection therewith must be in accordance with the rules and regulations of all agencies and/or entities having jurisdiction over elevators in temporary use.

B. RESPONSIBILITY: The Contractor must be responsible for any injury to persons or damage to property arising out of the temporary elevator and all equipment and/or parts utilized in connection therewith.

C. COSTS: The Contractor must be responsible for all costs in connection with the temporary elevator, including without limitation:

1. Installing and operating the temporary elevator;
2. Maintaining the temporary elevator in clean and proper operating condition, including the cost of lubricants and/or parts for such maintenance;
3. Performing all Work in pits, shaft ways and machine rooms necessary for the operation of the temporary elevator;
4. Replacing the temporary elevator or any equipment or parts utilized in connection therewith, if required, due to damage, destruction, or excessive wear or corrosion, except for the replacement of hoisting ropes as set forth below;
5. Performing all required electrical Work in connection with the temporary elevator;
6. Providing all electric power required to operate the temporary elevator;
7. Providing all necessary conduit and wiring connections for the proper operation and signaling of the temporary elevator; and
8. Providing all labor for the operation and maintenance of the temporary elevator, including on an overtime basis if necessary.

The total Contract price must include all costs in connection with the temporary elevator, including without limitation, the costs specified herein.

D. COMMENCEMENT OF SERVICE: The Contractor must begin to provide temporary elevator service using the selected main passenger elevator no later than eight (8) weeks (forty (40) Days) after the machine room roof slab, or that portion of it surrounding the elevator shaft, has been placed. No later than three (3) weeks (fifteen (15) Days) after the machine room roof slab has been placed, or that portion of it surrounding the elevator shaft, the following Work must be completed:

1. The shaft must be completely enclosed by either a permanent or temporary enclosure meeting all building code requirements.
2. The machine room must be completely watertight either by permanent or temporary construction. Beams or other devices, either permanent or temporary, must be provided to enable the safe and practicable hoisting of the elevator machinery for installation.
3. On all floors at the shaft way entrances to the elevator, the Contractor must install solid substantial frames, either sliding or swing doors with substantial hardware and door locks, and any necessary approved wire mesh barricades for adjacent shaft ways.
4. The Contractor must furnish and install solid, substantial enclosures at front, back, sides and top of car platform enclosure, with an emergency exit at the top of car and a substantial temporary door or gate on the front of the elevator entrance.

E. ELECTRICAL INSTALLATION: The Contractor, no later than twenty (20) Days after the machine room roof slab or that portion of it surrounding the elevator has been placed, must furnish and install temporary or permanent power and light feeders as required for the elevator used for temporary service. Additionally, the Contractor must connect such feeders to the terminals on the starter panels or controllers in the machine room to the low voltage transformers and car light outlets in the center of the shaft way and for the car control and signal traveling cables. The Contractor must make all these required connections as soon as the equipment is declared ready for such connections by the Resident Engineer.

F. REMOVAL: As directed by the Commissioner and when elevators for permanent use have been installed and are in proper condition for service, the Contractor must remove the temporary enclosures and all temporary elevator equipment and promptly proceed with the installation of the permanent equipment as required under the Contract.

G. INSPECTION: Before temporary elevator equipment is removed, a joint inspection of the equipment must be made by the Contractor and the Commissioner to determine the condition of this equipment upon the discontinuation of its temporary use. If this inspection deems it necessary, the Contractor must furnish and install new governor and compensating ropes, traveling cables, controller parts, etc. The car and counterweight safeties must be thoroughly cleaned of all dirt and all foreign matter, then properly lubricated and placed in good operating condition to the satisfaction of the Commissioner. If it is determined and ordered by the Commissioner that new hoist ropes are required, such ropes must be installed and payment will be made in accordance with Article 26 of the Contract.

H. REPLACEMENT: The Contractor must furnish and install new equipment or parts for any equipment or parts of the temporary elevator installation that have been damaged, destroyed, or that indicate excessive wear or corrosion, except for the replacement of hoisting ropes. All shaft ways, pits, motor rooms and sheave spaces used for temporary operation of elevators must be thoroughly cleaned. Where lubricated rails are used they must be washed down. If roller guides are used, all rust, dirt, etc., must be moved from the rails. The full cost of parts replacement, cleaning, etc., must be borne by the Contractor except for the replacement of hoisting ropes.

I. LIMITATIONS ON USE: The temporary elevator must not be used during its operation for the hoisting of materials or the removal of rubbish, but must be limited only to the transportation of employees of the Contractor and/or its Subcontractors, representatives of DDC, and other governmental agencies having jurisdiction of work at the Project. However, the Resident Engineer may grant special permission at specified times to the Contractor and/or its Subcontractors to hoist materials, which in the Resident Engineer's opinion will not overload or damage the elevator installation. In the event of any damage to the temporary elevator, the Contractor must notify the Resident Engineer within twenty-four (24) hours after such damage has occurred. As indicated above, the Contractor must be responsible for the replacement of any equipment or parts of the temporary elevator that have been damaged.

J. LIQUIDATED DAMAGES: The Contractor will be charged at the rate of one hundred dollars ($100) per Day for each Day it fails to provide the temporary elevator service described in this section beginning with the forty-first (41st) Day after the machine room roof slab, or that portion of it surrounding the elevator shaft, has been placed and stripped. This charge will be deducted from any amount due and owing to the Contractor.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.2**

**3.2 TEMPORARY USE, OPERATION AND MAINTENANCE OF ELEVATORS DURING CONSTRUCTION FOR NEW BUILDING OVER FIFTEEN (15) STORIES:**

A. INSTALLATION: The Contractor must install, complete, operate, and maintain in good working order, as indicated herein, two (2) selected main elevators for the transport of employees of the Contractor and/or its Subcontractors, representatives of DDC, and other governmental agencies having jurisdiction of work at the Project. The Contractor must furnish, install, and maintain such elevators in good working order, including all necessary hoisting ropes, governor cables, traveling conductor cables, operating devices, temporary hand reset target annunciators, temporary signal devices, and all other permanent or temporary parts. The installation, operation, and maintenance of the temporary elevators and all equipment and/or parts utilized in connection therewith must be in accordance with the rules and regulations of all agencies and/or entities having jurisdiction over elevators in temporary use. The two (2) elevators must not be operated simultaneously.

B. RESPONSIBILITY: The Contractor must be responsible for any injury to persons or damage to property arising out of the temporary elevators and all equipment and/or parts utilized in connection therewith.

C. COSTS: The Contractor must be responsible for all costs in connection with the temporary elevators, including without limitation:

1. Installing and operating the temporary elevators;

2. Maintaining the temporary elevators in clean, proper operating condition, including the cost of lubricants and/or parts for such maintenance;

3. Performing all Work in pits, shaft ways and machine rooms necessary for the operation of the temporary elevators;

4. Replacing the temporary elevators or any equipment or parts utilized in connection therewith, if required due to damage, destruction, or excessive wear or corrosion, except for the replacement of hoisting ropes as set forth below;

5. Performing all required electrical Work in connection with the temporary elevators;

6. Providing all electric power required to operate the temporary elevators;

7. Providing all necessary conduit and wiring connections for the proper operation and signaling of the temporary elevators; and

8. Providing all labor for the operation and maintenance of the temporary elevators, including on an overtime basis if necessary.

The total Contract price must include all costs in connection with the temporary elevators, including without limitation, the costs specified herein.

D. LOW RISE ELEVATOR: The Contractor must begin to provide temporary elevator service using one (1) selected main passenger elevator no later than six (6) weeks (thirty (30) Days) after the twelfth ($12^{th}$) floor slab, or that portion of it surrounding the elevator shaft, has been placed and stripped. No later than one (1) week, (five (5) Days), after the twelfth ($12^{th}$) floor slab, or that portion of it surrounding the elevator shaft, has been placed and stripped, the following Work must have been completed:

1. The shaft must be completely enclosed up to the twelfth ($12^{th}$) floor by either the permanent or a temporary enclosure meeting the requirements of the law.

2. A temporary machine room enclosure must be provided at the eleventh ($11^{th}$) floor and must be completely watertight either by permanent or temporary construction. Beams or other devices, either permanent or temporary, must be provided which will enable the safe and practicable hoisting of the elevator machinery for installation.

3. The Contractor must install on all floors up to and including the ninth ($9^{th}$) floor at the shaft entrances to the elevator, solid substantial wood frames, either sliding or swing doors with substantial hardware and door locks, and any necessary approved wire mesh barricades for adjacent shaft ways.

4. The Contractor must furnish and install solid substantial enclosures at front, back, sides and top of car platform enclosure, with an emergency exit at top of car, except that the portion of the front at the elevator entrance must be provided with a substantial temporary door or gate.

E. ELECTRICAL INSTALLATION: The Contractor must, no later than ten (10) Days after the twelfth ($12^{th}$) floor slab or that portion of it surrounding the elevator has been poured and stripped, furnish and install temporary or permanent power and light feeders as required for the elevator used for temporary service. The Contractor must connect such feeders to the terminals on the starter panels or controllers in the temporary machine room to the low voltage transformers, car light outlets in the center of the shaftway, and for the car control and signal traveling cables. The Contractor must make all these required connections as soon as the equipment is declared ready for such connections by the Resident Engineer.

F. HIGH RISE ELEVATOR: The Contractor must begin to provide temporary elevator service to all floors using a selected main passenger elevator no later than eight (8) weeks (forty (40) Days) after the machine room roof slab, or that portion of it surrounding the elevator shaft has been placed. No later than three (3) weeks (fifteen (15) Days) after the machine room roof slab, or that portion of it surrounding the elevator shaft has been placed, the following Work must have been completed:

1. The shaft must be completely enclosed by either the permanent or temporary enclosure, meeting the

requirements of the law.

2. The machine room must be completely watertight either by permanent or temporary construction. Beams or other devices, either permanent or temporary, must be provided to enable the safe and practicable hoisting of the elevator machinery for installation.

3. The Contractor must install on all floors at the shaft way entrances to the elevator solid substantial frames, either sliding or swing doors with substantial hardware and door locks, and any necessary approved wire mesh barricades for adjacent shaft ways.

4. The Contractor must furnish and install solid substantial enclosures at front, back, sides and top of car platform enclosure, with an emergency exit at top of car, except that the portion of the front at the elevator entrance must be provided with a substantial temporary door or gate.

G. ELECTRICAL INSTALLATION: The Contractor must, not later than twenty (20) Days after the machine room slab or that portion of it surrounding the elevator shaft has been placed, furnish and install temporary or permanent power and light feeders as required for the high-rise elevator to be used for temporary service. The Contractor must connect such feeders to the terminals on the motor-generator starter panels, or controllers in the machine room, to the signal circuits low voltage transformers for the annunciators and car light outlets in the center of shaft way. The Contractor must make all these required connections as soon as the equipment is declared ready for such connections by the Resident Engineer.

H. When the high-rise elevator is completed and ready for temporary operation, the low-rise temporary elevator must be shut down.

I. REMOVAL: When directed by the Commissioner and one (1) or more elevators for permanent use have been installed and are in condition for service, the Contractor must remove the temporary enclosures, all temporary elevator equipment, and promptly proceed with the installation of the permanent equipment as required under the Contract.

J. INSPECTION: Before temporary elevator equipment is removed, a joint inspection of the equipment must be made by the Contractor and the Commissioner to determine the condition of this equipment upon the discontinuation of its temporary use. If this inspection determines it necessary, the Contractor must furnish and install new governor and compensating ropes, new traveling cables, new controller parts, etc. The car and counterweight safeties must be thoroughly cleaned of all dirt and all foreign matter, then properly lubricated and placed in good operating condition to the satisfaction of the Commissioner. If it is determined and ordered by the Commissioner that new hoist ropes are required, such ropes must be installed and payment will be made in accordance with Article 26 of the Contract.

K. REPLACEMENT: The Contractor must furnish and install new equipment or parts for any equipment or parts of the temporary elevator installations that have been damaged, destroyed, or that indicate excessive wear or corrosion, except the replacement of hoisting ropes. All shaft ways, pits, motor rooms and sheaves spaces used for temporary operation of elevators must be thoroughly cleaned down. Where lubricated rails are used they must be washed down; if roller guides are used, all rust, dirt, etc., must be removed from the rails. The full cost of parts replacement cleaning, etc., must be borne by the Contractor except for the replacement of hoisting ropes.

L. LIMITATIONS ON USE: The temporary elevators must not be used during their operation for the hoisting of materials or the removal of rubbish, but must be limited only to the transportation of employees of the Contractor and/or its Subcontractors, representatives of DDC, and other governmental agencies having jurisdiction of Work at the Project. However, the Resident Engineer may grant special permission at specified times to the Contractor and/or its Subcontractors to hoist materials, which in the Resident Engineer's opinion will not overload or damage the elevator installation, but only after such times as all plastering has been completed from the second floor up. In the event of any damage to the temporary elevator, the Contractor must notify the Resident Engineer within twenty-four (24) hours after such damage has occurred. As indicated above, the Contractor must be responsible for the replacement of any equipment or parts of the temporary elevator that have been damaged.

M. LIQUIDATED DAMAGES: The Contractor will be charged at the rate of one hundred dollars ($100) per Day for each Day it fails to provide the temporary elevator service described in this Section beginning with the thirty-first (31st) Day after the twelfth (12th) floor slab, or that portion of the twelfth (12th) floor slab surrounding the elevator shaft, has been placed and stripped. This charge will be deducted from any amount due and owing to the Contractor.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.3**

**3.3 TEMPORARY USE, OPERATION AND MAINTENANCE OF ELEVATORS DURING CONSTRUCTION FOR EXISTING BUILDINGS:**

A. The Contractor may use, at the Commissioner's discretion, one (1) selected elevator in the building for temporary operation by the Contractor for the transportation of employees of the Contractor and/or its Subcontractors, representatives of DDC, and other governmental agencies having jurisdiction over the Work at the Project. The operation of the temporary elevator and all equipment and/or parts utilized in connection therewith must be in accordance with the rules and regulations of all agencies and/or entities having jurisdiction over elevators in temporary use.

B. RESPONSIBILITY: The Contractor must be responsible for any injury to persons or damage to property arising out of the temporary elevator and all equipment and/or parts utilized in connection therewith.

C. REPLACEMENT: The Contractor must furnish and install new equipment or parts for any equipment or parts of the elevator for temporary operation that have been damaged, destroyed, or that indicate excessive wear or corrosion, except the replacement of hoisting ropes. All shaft ways, pits, motor rooms and sheave spaces used for temporary operation of elevators must be thoroughly cleaned down. Where lubricated rails are used they must be washed down, if roller guides are used, all rust, dirt, etc., must be moved from the rails. The full cost of parts replacement, cleaning, etc., must be borne by the Contractor except for the replacement of hoisting ropes. If it is determined and ordered by the Commissioner that new hoist ropes are required, such ropes must be installed and payment will be made in accordance with Article 26 of the Contract.

D. LIMITATIONS ON USE: The temporary elevator must not be used during its operation for the hoisting of materials or the removal of rubbish, but must be limited only to the transportation of employees of the Contractor and/or its Subcontractors, representatives of DDC, and other governmental agencies having jurisdiction of Work at the Project. However, the Resident Engineer may grant special permission at specified times to the Contractor and/or its Subcontractors to hoist materials, which in the Resident Engineer's opinion will not overload or damage the elevator installation. In the event of any damage to the temporary elevator, the Contractor must notify the Resident Engineer within twenty-four (24) hours after such damage has occurred. As indicated above, the Contractor must be responsible for the replacement of any equipment or parts of the temporary elevator that have been damaged.

E. LIQUIDATED DAMAGES: The Contractor will be charged at the rate of one hundred dollars ($100) per Day for each Day it fails to provide elevator services described in this section beginning with fifteen (15) Days from Notice to Proceed (NTP). This charge will be deducted from any amount due and owing to the Contractor.

**3.4 TEMPORARY HOISTS AND HOISTWAYS (FOR MATERIAL AND PERSONNEL):**

A. RESPONSIBILITY: The Contractor must provide adequate numbers of material hoists for the most expeditious performance of all parts of the Work including the Work of all its Subcontractors.

B. LOCATIONS: No hoists must be constructed at such locations as to interfere with, or affect the construction of, floor arches or the Work of Subcontractors. The hoists may be located at the exterior sides of the structure or in the courtyard and extend upward adjacent to the line of window openings. The hoists must be located a sufficient distance from the exterior walls and be so protected as to prevent any of the permanent Work from being damaged, stained or marred.

C. ELEVATOR SHAFT: Wherever possible, one or more of the permanent elevator shafts may be used as temporary hoistways, providing such use complies with the requirements of the Building Code of the City of New York, has been approved by the Commissioner, and does not interfere with the progress of the Work.

D. PROTECTION FOR INTERIOR HOISTS: All interior material hoistways must be enclosed on each floor and must be adequately protected with appropriate safety guards. In no event must the protection be less than that required by law.

**END OF SECTION 01 54 11**

# SECTION 01 54 23
# TEMPORARY SCAFFOLDING AND PLATFORMS

## PART I – GENERAL

### 1.1 RELATED DOCUMENTS:

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

B. Section 01 35 26 SAFETY REQUIREMENTS PROCEDURES.

C. The Contractor must comply with the requirements of "*The City of New York Department of Design and Construction Safety Requirements".* This document is included in the Information for Bidders.

### 1.2 SUMMARY:

A. This Section includes administrative and general procedural requirements for Temporary Scaffolding and Platforms, including:

1. Conformance
2. Responsibility
3. Jobsite Documentation and Submittals
4. Inspections

B. This Section governs ALL scaffold used on DDC Project site(s), including but not limited to, Suspended Scaffold, Supported Scaffold, and Sidewalk Sheds.

### 1.3 CONFORMANCE:

A. Unless otherwise indicated, the Contractor is responsible for providing, erecting, installing, and maintaining all temporary scaffolding and platforms which must comply with requirements of Chapter 33 (Safeguards During Construction or Demolition) of the New York City (NYC) Building Code, NYC Local Law 52 of 2005, OSHA Construction Standard 1926 Subpart L, and furnishing the items and personnel set forth in this Section.

### 1.4 RESPONSIBILITY:

A. Jobsite Safety Coordinator: The Contractor must designate and employ a Jobsite Safety Coordinator, who must be a competent person, who must have a daily presence on the Project site during scaffold use. This designee must possess and maintain a valid New York City Department of Buildings (DOB) supported scaffold certificate of completion. An alternate must also be designated in the event that the Jobsite Safety Coordinator is absent. The Jobsite Safety Coordinator must:

1. Verify completeness of documentation and submittals (as described below);
2. Verify that inspections are performed, including pull tests (see below), reports are filed and reported deficiencies are corrected;
3. Monitor trades using scaffold;
4. Limit access to scaffold areas that are tagged for non-use;
5. Inform trades of scaffold load limitations;
6. Monitor loading of decks;
7. Verify that any ties that are temporarily removed are properly restored in the same shift;
8. Verify that outriggers and planks that are moved are properly set up and secured;
9. Verify that all scaffold decks in use have proper access/egress;
10. Verify that all open sides of decks in excess of 14 inches have proper guardrails and toe-boards;

11. Notify appropriate parties, including but not limited to the Resident Engineer, Site Safety Coordinator / Monitor, Site Safety consultant, scaffold users, Contractor and the Scaffold Engineer, of misuses, non-conformances, hazards and accidents; and,
12. Keep a log of significant actions and events connected with the scaffolding.

B. The Contractor will be responsible for erecting, maintaining, and dismantling the scaffolding and/or sidewalk shed in conformance with requirements of the NYC Building Code, OSHA and the Contract Documents, including the Specifications. The Contractor must also be guided by generally accepted standards of scaffold industry practice as promulgated by the Scaffold Industry Association.

C. The Contractor must require the Subcontractor responsible for erecting the scaffolding to engage a Scaffold Engineer, licensed as a professional engineer by the State of New York. The Scaffold Engineer will be responsible to ensure the following: (1) that the installation design is in compliance with requirements of the NYC Building Code and OSHA, (2) that the design comports with the capabilities of the components and the characteristics of the site, (3) that scaffold loads on the host building, including netting, have been properly considered, and (4) that the design documents provide accurate information for erectors and users.

D. Scaffold users are trade contractors assigned to work on the scaffold. Training certificates from a DOB-approved training provider are mandatory. These users have a duty to become familiar with the NYC Building Code and OSHA requirements germane to users, to obey the instructions of the Jobsite Safety Coordinator, and to inform the Jobsite Safety Coordinator of known hazards, non-conformances, or violations.

**1.5 JOBSITE DOCUMENTATION AND SUBMITTALS:**

A. The Contractor must prepare, obtain, and submit the following to the Commissioner:

1. NYC DOB permit(s) for scaffold and sidewalk sheds (as applicable) including filing applications signed and sealed by a Professional Engineer licensed in the State of New York;
2. Site logistics plan / site safety plan;
3. Installation drawing(s), design, and product data to be provided for **all** scaffold(s) and shed(s) must include, at a minimum:
    a. Plan(s);
    b. Elevation(s);
    c. Duty load designation: “standard” (150 psf live load) or “heavy duty” (300 psf live load);
    d. Details including base support, anchors and ties;
    e. Notes and specifications including load limits, number of planked levels, tie spacing, netting, and sequence of installation and removal;
    f. Anchorage into sound material;
    g. Load limits based on pull tests;
    h. Specifications for pull test(s), method, proof load and the number of trials;
    i. Elevations, levels or heights, where anchorage is made into masonry;
    j. Specifications for frames, planks, screw jacks, anchors, and any other ancillary hardware;
    k. Samples for anchors, ties and netting;
    l. Sequence of operations for erection and demolition;
    m. Location plan, heights, widths, “jumps” over doorways and driveways;
    n. Specify size, maximum span and maximum spacing of headers and stringers;
    o. Specify legs, girts, braces, nailing and connections; and,
    p. All sidewalk sheds must be designed, engineered, signed, and sealed by a Professional Engineer licensed in the State of New York.
        i. Generic (not job-specific) engineering drawings are satisfactory for standard sheds and arrangements.

ii. Special engineering is required for custom sheds, site-specific problems or non-standard arrangements.

**1.6 INSPECTIONS:**

A. Signed inspection reports must be issued for each inspection and pull-test below, and must be logged and maintained on site by the Jobsite Safety Coordinator for the duration of the Project.

B. Pull testing will be required during design, and during or post erection, where anchorage is made into masonry. The Scaffold Engineer must specify the test method, proof load, and the number of trials.

C. Sidewalk sheds must be inspected after initial installation, major modification, or damage and thence every three months. Inspections must be by a Scaffold Engineer for custom sheds and by a Competent Person employed by the Contractor for standard sheds.

D. Scaffolds must be inspected by the Scaffold Engineer during erection, post-erection, and prior to use and thence every three (3) months. The Scaffold Engineer must repeat inspections after major alteration/ modification, and/or damage.

E. A Qualified Person assigned by the Contractor must inspect: the progress of erection and dismantling; and, the condition and integrity of the sidewalk sheds after high winds, major storms, and at least once per month during usage.

F. A Qualified Person assigned by the Contractor must inspect: the progress of erection and dismantling at least weekly; and, the condition and integrity of the scaffold after high winds, major storms, and at least once per month during usage.

G. Scaffolds and Sidewalk Sheds must be inspected daily by the Jobsite Safety Coordinator or alternate, prior to use by scaffold users. The inspection results must be recorded in the maintenance log and must always be available on-site.

H. At the completion of the Project, submit all inspection documents as Miscellaneous Record Documents in accordance with SECTION 01 78 39 CONTRACT RECORD DOCUMENTS.

**1.7 LADDERS AND STAIRS:**

A. The Contractor must provide and maintain ladders or temporary stairs extending from the street to the first story, and to and from every floor and roof level of the Project.

**1.8 ACCESS AND EXITS:**

A. The ladders or temporary stairs must be of acceptable size, number and location, so that proper and convenient access may be had by those required to proceed to and from all parts of the Project.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 1.9**

**1.9 PAYMENT FOR SIDEWALK SHEDS:**

A. Payment for sidewalk sheds will be made on a unit price basis.

B. The quantity to be measured for payment under this item will be the number of months (to the nearest 1/4 month increment) that the Contractor satisfactorily provides for sidewalk sheds in accordance with these specifications.

C. The unit price bid per month for sidewalk sheds must include the cost of furnishing all labor, materials, plant, equipment, insurance and incidentals required to provide sidewalk sheds, all in accordance with the Contract Drawings, these specifications, and the directions of the Commissioner.

**PART II – PRODUCTS (Not Used)**

**PART III – EXECUTION (Not Used)**

**END OF SECTION 01 54 23**

# SECTION 01 60 00
# PRODUCT REQUIREMENTS

## PART I – GENERAL

### 1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

### 1.2 SUMMARY

A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.

### 1.3 RELATED SECTIONS:

A. Section 01 42 00 REFERENCES for applicable industry standards for products specified.

### 1.4 DEFINITIONS

A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
3. Comparable Product: Product that is demonstrated and approved by Commissioner through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Basis-of-Design Product Specification: A specification in which a single manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation. In addition to the basis-of-design product description, product attributes and characteristics are listed to establish the significant qualities related to type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other special features and requirements for purposes of evaluating comparable products of additional manufacturers named in the specification.

C. Subject to Compliance with Requirements: Where the phrase "Subject to compliance with requirements" introduces a product selection procedure in an individual Specification Section, provide products qualified under the specified product procedure.

## 1.5 ACTION SUBMITTALS

A. Product Specification Submittals: Comply with requirements in Section 01 33 00 SUBMITTAL PROCEDURES. Show compliance with requirements.

B. Comparable Product Request Submittal: Submit request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
2. Review Action: If necessary, Commissioner will request additional information or documentation for evaluation and will notify Contractor of approval or rejection of proposed comparable product request.

    a. Format of Approval of Submittal: Per Article 1.6 of Section 01 33 00 SUBMITTAL PROCEDURES.
    b. Use product specified, or products by Manufacturers specified if Commissioner does not issue a decision on use of a comparable product request.

## 1.6 QUALITY ASSURANCE

A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.

B. Identification of Products: Except for required labels and operating data, do not attach or imprint manufacturer or product names or trademarks on exposed surfaces of products or equipment that will be exposed to view in occupied spaces or on the exterior.

1. Labels: Locate required product labels and stamps on a concealed surface, or, where required for observation following installation, on a visually accessible surface that is not conspicuous.
2. Equipment Nameplates: Provide a permanent nameplate on each item of service-connected or power-operated equipment. Locate on a visually accessible but inconspicuous surface. Include information essential for operation, including the following:

    a. Name of product and manufacturer.
    b. Model and serial number.
    c. Capacity.
    d. Speed.
    e. Ratings.

3. See individual identification sections in Divisions 21, 22, 23, and 26 for additional identification requirements.

## 1.7 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.

B. Delivery and Handling:

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.

C. Storage:

1. Store products to allow for inspection and measurement of quantity or counting of units.
2. Store materials in a manner that will not endanger Project structure.
3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
4. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
5. Protect stored products from damage and liquids from freezing.

## 1.8 PRODUCT WARRANTIES

A. Warranties specified in other Sections will be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of Guaranty obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to the City of New York.
2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for the City of New York.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
3. See other Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Section 01 77 00 CLOSEOUT PROCEDURES.

## PART II – PRODUCTS

### 2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.

1. Descriptive, performance, and reference standard requirements in the Specifications establish required characteristics of products.
2. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
3. Commissioner will review and approve products with warranties meeting the requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Commissioner will make selection.

B. Or Approved Equal:

1. Comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product, or for use of a product by an unnamed Manufacturer, as designated by the term "Or approved equal".

2. Submit additional documentation required by Commissioner, in order to establish equivalency of proposed products. Evaluation of "Or approved equal" product status is by the Commissioner, whose determination is final.

C. Product Selection Procedures:

1. Products: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products will be considered. Comply with requirements in "Comparable Products" Article for consideration of a product by an unnamed manufacturer. Products' listing is indicated by the following:

    a. Products: Subject to compliance with requirements, provide one of the following:

        1) Manufacturer; Product designation
        2) Manufacturer; Product designation
        3) Manufacturer; Product designation
        4) Or approved equal

2. Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed. Comparable products from unnamed Manufacturers will be considered. Comply with requirements in "Comparable Products" Article for consideration of a product by an unnamed manufacturer. Manufacturer's listing is indicated by the following:

    a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

        1) Manufacturer
        2) Manufacturer
        3) Manufacturer
        4) Or approved equal

3. Basis-of-Design Product: Where Specifications name a basis-of-design product, provide the specified product, or a comparable product by one of the other named manufacturers. Drawings may indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Specifications indicate performance requirements and physical properties, durability and other special and required features that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers. Basis-of-Design Product listing is indicated by the following:

    a. Subject to compliance with requirements, provide [product indicated on Drawings] [manufacturer's name; product name or designation] or comparable product by one of the following:

        1) Manufacturer
        2) Manufacturer
        3) Or approved equal

4. Sole Source Product (Single Proprietary): Where Specifications name a single manufacturer and product, provide the named product. A Sole Source Product selection requires prior request by the Design Consultant and approval by the Commissioner for its inclusion in specifications. Sole Source Product is indicated by the following phrase listing:

    a. Sole Source Product: Manufacturer's name and Product designation.

        1) No substitutions Permitted.

D. Visual Matching Specification: Where Specifications require "match Commissioner's sample," provide a product that complies with requirements and matches Commissioner's sample. Commissioner's decision will be final on whether a proposed product matches.

E. Visual Selection Specification: Where Specifications include the phrase "as selected by Commissioner from manufacturer's full range" or similar phrase, select a product that complies with requirements. Commissioner will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

## 2.2 COMPARABLE PRODUCTS

A. Conditions for Consideration of Comparable Products (Or Approved Equal): Commissioner will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Commissioner may return requests without action, except to record noncompliance with these requirements:

B. Evidence that proposed product does not require revisions to the Contract Documents, is consistent with the Contract Documents, will produce the indicated results, and is compatible with other portions of the Work. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant product qualities include attributes such as type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other specific features and requirements.

C. Evidence that proposed product provides specified warranty.

D. List of similar installations for completed projects with project names and addresses and names and addresses of architects and Owners, if requested.

E. Samples, if requested.

F. Submittal Requirements: Approval by the Commissioner of Contractor's request for use of comparable product is not intended to satisfy other submittal requirements.

G. Comply with all other specified product and submittal requirements.

**PART III – EXECUTION (Not Used)**

**END OF SECTION 01 60 00**

# SECTION 01 73 00
# EXECUTION

## PART I – GENERAL

### 1.1 RELATED DOCUMENTS:

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

### 1.2 SUMMARY:

A. This Section includes general procedural requirements governing execution of the Work including without limitation the following:

1. Delivery of Materials
2. Contractor's Superintendent
3. Surveys
4. Borings
5. Examination
6. Environmental Assessment
7. Preparation
8. Deferred Construction
9. Installation
10. Permits
11. Transportation
12. Sleeves and Hangers
13. Sleeve and Hanger Drawings
14. Cutting and Patching
15. Location of Partitions
16. Furniture and Equipment
17. Removal of Rubbish and Surplus Material
18. Cleaning
19. Security and Protection of Work Site
20. Maintenance of Site and Adjoining Property
21. Maintenance of Project Site
22. Safety Precautions for Control Circuits
23. Obstructions in Drainage Lines
24. Correction of the Work

### 1.3 RELATED SECTIONS: Include without limitation the following:

A. Section 01 10 00 SUMMARY
B. Section 01 31 00 PROJECT MANAGEMENT AND COORDINATION
C. Section 01 33 00 SUBMITTAL PROCEDURES
D. Section 01 74 19 CONSTRUCTION WASTE MANAGEMENT & DISPOSAL
E. Section 01 77 00 CLOSEOUT PROCEDURES
F. Section 01 78 39 CONTRACT RECORD DOCUMENTS

**1.4 DEFINITIONS:**

A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.

| Term | Definition |
|---|---|
| Design Consultant | The entity responsible for providing design services for the Project, including, without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services. |

**1.5 QUALITY ASSURANCE:**

A. Land Surveyor Qualifications: A professional land surveyor who is licensed in the State of New York and who is experienced in providing land-surveying services of the kind indicated.

**PART II - PRODUCTS (Not Used)**

**PART III - EXECUTION**

**3.1 DELIVERY OF MATERIALS:**

A. Material Orders: The Contractor must furnish to the Commissioner a copy of each material order, indicating date of order and quantity of material, and must also notify the Commissioner when materials have been delivered to the Site and in what quantities.

B. Ample Quantities: The Contractor must deliver materials in ample quantities to ensure the most prompt and uninterrupted progress of the Work so as to complete the Work within the Contract time.

C. Containers: The manufacturer's containers must be delivered with unbroken seals and must bear proper labels.

D. Deliveries: The Contractor must coordinate deliveries in order to avoid delaying or impeding the progress of the Work.

E. Handling: The Contractor must provide equipment and personnel to handle products by methods to prevent soiling or damage.

1. Promptly inspect shipments to assure products comply with requirements, quantities are correct, and products are undamaged.

2. Promptly return damaged shipments or incorrect orders to manufacturer.

3. For materials or equipment to be reused or salvaged, use special care in removal, storage and reinstallation to insure proper function in completed Work.

F. Storage: Store products in accordance with provisions of Article 3.1 of the Standard Construction Contract, and periodically inspect to assure that stored products are undamaged and are maintained under required conditions.

G. Stacking: All materials must be properly stacked in convenient places adjacent to the Site, or where directed, and protected in a satisfactory manner. Stacked materials must be arranged so as to not interfere with visibility of traffic control devices.

H. Overloading: If the Commissioner permits the storage of materials in any part of the Project area, they must be so stored as to cause no overloading.

I. No Interference: If it becomes necessary to remove and restack materials to avoid impeding the progress of any part of the Work or interfering with the Work to be done by any trade Subcontractor, the Contractor must remove and restack such materials at no additional cost to the City.

**3.2 CONTRACTOR'S CONSTRUCTION SUPERINTENDENT:**

A. Contractor's Construction Superintendent: The Contractor must devote its time and personal attention to the Work and must employ and retain at the Project Site, from commencement until Final Acceptance, a Contractor's Construction Superintendent. The Contractor's Construction Superintendent must be registered with the New York City Department of Buildings (DOB) in compliance with the Construction Superintendent Rule of the City of New York, be competent and capable of maintaining proper supervision and care of the Work, and be acceptable to the Commissioner. The Construction Superintendent, in the absence of the Contractor, and irrespective of any superintendent or foreman employed by any Subcontractor, must see that the instructions of the Commissioner are carried out.

B. Replacement: The Contractor's Construction Superintendent on the job must not be changed or removed without the consent of the Commissioner.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.3**

**3.3 SURVEYS:**

A. Line and Grade: The City will establish a baseline and bench mark near the Site of the Work for use by the Contractor in connection with the performance of the Work.

B. Responsibility: The Contractor must establish all other lines and elevations required for the Work and must be solely responsible for the accuracy thereof.

C. Safeguard All Points: The Contractor must safeguard all points, stakes, grade marks and bench marks made or established by the Contractor on the Work. The Contractor must re-establish same if disturbed, and bear the entire expense of rectifying the Work if improperly installed due to not maintaining, protecting or removing without authorization from the Commissioner such established points, stakes, or marks.

D. City Monuments and Markers: No Work must be performed near City monuments or markers so as to disturb them until the said monuments or markers have been referenced or reset or otherwise disposed of by the relevant Agency or party who installed them.

E. Foundations: The Contractor must furnish certification from a licensed Surveyor that all portions of the foundation Work are located in accordance with the Contract Drawings and at the elevations required thereby. This certification must show the actual locations and the actual elevations of all the Work in relation to the locations and elevations shown on the Contract Drawings, including, but not restricted to the following:

1. The locations and elevations of all piles, if any.
2. Elevations of tops of all spread footings, tops of pile caps, and tops of all foundation walls, elevator pit walls and ramp walls.
3. Location of all footing centers and pier centers including those for exterior wall columns.
4. Location of all foundation walls including wall columns, elevator pit walls and ramp walls.

F. Wall Lines: After the first courses of masonry or stone have been laid, the Contractor must establish the permanent lines of exterior walls. The Contractor must promptly furnish certification from a licensed Surveyor in the form of signed original drawings showing the exact location of such wall lines of all portions

of all structures. Except at its own risk, the Contractor must not proceed further with the erection of walls until the Surveyor's certification has been submitted and verified for correct location of wall lines.

G. Surveyor: The Surveyor selected for any of the purposes mentioned in Paragraph E and Paragraph F above, and Paragraph I below, must be a land Surveyor licensed in the State of New York and must be subject to the approval of the Commissioner. The Surveyor must not be a regular employee of the Contractor, nor must the Surveyor have any interest in the Contract. The Surveyor's certification must represent an independent and disinterested verification of all layout. The Surveyor must report to the Department of Design and Construction's (DDC) Resident Engineer each time upon arrival to and departure from the Site and review with the Resident Engineer the data required for the Project.

H. Final Certification: Final certification must be submitted upon completion of the Work or upon completion of any subdivision of the Work as directed by the Commissioner. Any exceptions or deviations from the Contract Drawings must be noted on the final certificate and must include any maps, plates, notes, pertinent documents and data necessary, in the opinion of the Commissioner, to constitute a full and complete report.

I. Final Survey: The Contractor must submit to DDC for submission to DOB a final Survey by the licensed Surveyor showing the location of the new Work, before completion of the Work. This Survey must show the location of the first tier of beams or of the first floor; the finish grades of the open spaces on the plot; the established curb level and the location of all other Work on the plan, together with the location and boundaries of the lot or plot upon which the Work is constructed, curb cuts, all yard dimensions, etc.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.4**

**3.4 BORINGS:**

A. The work of this article must be the responsibility of the Contractor unless otherwise indicated.

B. Reference Drawings: The boring drawings as listed on the title sheet are for information to the bidder and are to be used under the conditions as follows:

1. Boring logs: shown on the boring drawings, record information obtained under engineering supervision in the course of exploration carried out by or under the direction of DDC at the Site.

2. Soils and Rock Samples: All inferences are drawn from the indications observed as made by engineering and scientific personnel. All such inferences and all records of the Work, including soil samples and rock cores, if any, are available to bidders for inspection.

3. Certification of Samples: The City certifies that the Work was carried out as stated, and that the soil samples and rock cores were actually taken from the site at the times, places, and in the manner indicated on the boring drawings. The samples are available for inspection in DDC’s Subsurface Exploration Unit.

4. Bidder’s Responsibility: The bidder, however, is responsible for any conclusions to be drawn from the Work. If the bidder accepts those of the City, it must do so at its own risk. If the bidder prefers not to assume such risk, the bidder is under the obligation of employing its own experts to analyze the available information and must be responsible for any consequences of acting on their conclusions.

5. Continuity Not Guarantee: The City does not guarantee continuity of conditions shown at actual boring locations over the entire Site. Where possible, borings are located to avoid all obstructions and previous construction which can be found by inspection of the surface. The bidder is required to estimate the influence of such features from its own inspection of the Site.

**3.5 EXAMINATION**:

A. Existing Conditions: The existence and location of Site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning the Work, the Contractor must investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.

1. Before construction, the Contractor must verify the location and points of connection of utility services.

B. Existing Utilities: The existence and location of underground utilities and other construction indicated as existing are not guaranteed. Before beginning Site Work, the Contractor must investigate and verify the existence and location of underground utilities and other construction affecting the Work.

1. Before construction, the Contractor must verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, water-service piping, and underground electrical services.
2. The Contractor must furnish location data for Work related to the Project that must be performed by public utilities serving the Project Site.

C. Acceptance of Conditions: Examine all existing substrates, areas, equipment, and conditions, with the Subcontractor responsible for purchase of equipment, installation or application, for compliance with requirements for installation tolerances, equipment compatibility, and other conditions affecting performance. The Contractor must record observations of these examinations:

1. Verify compatibility with and suitability of substrates and equipment, including compatibility with existing finishes, primers, electrical services, and mechanical equipment.
2. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
3. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.

Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces, equipment, and conditions.

**3.6 ENVIRONMENTAL ASSESSMENTS:**

A. City Responsibilities: An Environmental Assessment and survey is performed by DDC and its findings are included in the Contract Documents. In accordance with the NYC Administrative Code Title 15 Chapter 1, an asbestos survey is required to be performed by an Asbestos Investigator certified by the NYC Department of Environmental Protection (DEP) to identify the presence of asbestos containing material (ACM) prior to any alteration, renovation, or demolition activity. The findings of such survey are required for the submission of approvals and permits issued by DOB. When the findings indicate that asbestos containing material is present and will be disturbed during the alteration, renovation, or demolition activity, then abatement design specifications will be incorporated into the Contract Documents. The Contractor must comply with all federal, state and local asbestos regulations affecting the work for this Contract.

B. Contractor Responsibility: The Contractor must comply with all federal, state and local environmental regulations, including without limitation, United States Environmental Protection Agency (EPA) and Occupational Safety and Health Administration (OSHA) regulations, which require the Contractor to assess if lead-based paint will be disturbed during the Work in order to protect the Contractor's workers and the building occupants from migration of lead dust into the air. The Contractor must comply with all federal, state and local environmental waste disposal regulations which may be required during the Work. The Contractor is required to hire licensed abatement and disposal companies for the requisite Work.

**3.7 PREPARATION:**

A. Field Measurements: The Contractor must verify all dimensions and conditions on the Site so that all Work will properly join the existing conditions.

B. Before commencing the Work, the Contractor must examine all adjoining materials on which its Work is in any way dependent on good workmanship in accordance to the intent of the Specifications and the Contract Drawings. The Contractor must report to the Commissioner any condition that will prevent it from performing Work that conforms to the required Specifications.

C. Existing Utility Information: The Contractor must furnish information to the Commissioner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Additionally, the Contractor must coordinate with authorities having jurisdiction.

D. Space Requirements: The Contractor must verify space requirements and dimensions of items shown diagrammatically on the Contract Drawings.

**3.8 DEFERRED CONSTRUCTION:**

A. In order to permit the installation of any item or items of equipment required to be furnished and installed within the time allowed for completing the Work of the Contract, the Contractor must defer construction Work limited to adequate areas as approved and certified by the Commissioner.

B. The Contractor must confer with the affected trade Subcontractors and ascertain arrangements, time, and facilities necessary to be made by the Contractor in order to execute the provisions specified herein.

**3.9 INSTALLATION:**

A. General: The Contractor must locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical Work plumb and make horizontal Work level.

2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.

3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated on the Contract Drawings.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.

F. Templates: Obtain and distribute to the parties involved templates for Work specified to be factory-prepared and field-installed. Check shop drawings of other work and work of trade Subcontractors to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

G. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by the Design Consultant.

2. Allow for building movement, including thermal expansion and contraction.

3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral

anchors that are to be embedded in concrete or masonry. Deliver such items to Project Site in time for installation.

H. Joints: Make joints of uniform width. Where joint locations in exposed Work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

**3.10 PERMITS:**

A. The Contractor must comply with all local, state and federal laws, rules, and regulations affecting the Work of this Project, including, without limitation, (1) obtaining all necessary permits for the performance of the Work prior to commencement thereof, and (2) complying with all requirements for the disposal of demolition and/or construction debris, waste, etc., including disposal in City landfills. The Contractor must be responsible for all costs in connection with such regulatory compliance, unless otherwise specified in the Contract.

**3.11 TRANSPORTATION:**

A. Availability: The Contractor must determine the availability of transportation facilities and dockage for the use of its employees, equipment, and materials, and the conditions under which such use will be permitted.

B. Costs: If transportation facilities and dockage are available and are permitted to be used by the governmental agency having jurisdiction, the Contractor must pay all necessary costs and expenses, and abide by all rules and regulations promulgated in connection therewith.

C. Vehicles: With respect to the use of vehicles on highways and bridges, the Contractor's attention is directed to the limitations set forth in the Rules of the City of New York, Title 34, Chapter 4, Section 4-15.

D. Continued Use: It is understood that the Commissioner makes no warranty as to the continued use by the Contractor of such facilities.

E. Trucking: All third-party trucking hired by one of the Prime Contractors or any Tier Subcontractor must be submitted as a Request for Subcontractor Approval (RFAS) as a subcontractor with the following exceptions:
1. For materials delivered by a supplier;
2. For pick-up and delivery of containers and/or dumpsters not used for soils.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.12**

**3.12 SLEEVES AND HANGERS:**

A. Coordinate with Progress Schedule: The Contractor must promptly furnish and install conduits, outlets, piping sleeves, boxes, inserts and all other materials and equipment that is to be built into the Work in conformity with the requirements of the Project.

B. Cooperation of Subcontractors: All Subcontractors must fully cooperate with each other in connection with the performance of the above Work as "cutting in" new work is neither contemplated nor will it be tolerated.

C. Timeliness: To avoid delay, in the event that timely delivery of sleeves and other materials cannot be made, the Contractor may arrange to have boxes or other forms set at the locations where the piping or other material is to pass through or into the slabs, walls or other Work. Upon the subsequent installation of the sleeves or other material, the Contractor must fill around them with materials as required by the Contract. The necessary expenditures incurred for the boxing out and filling in must be borne by the Contractor.

D. Inserts: The Contractor is to install strip inserts four (4) foot on center and perpendicular to beams in ceiling slabs of boiler, machine, and mechanical equipment rooms. Inserts are to be installed for strippable concrete slabs only.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.13**

**3.13 SLEEVE AND PENETRATION DRAWINGS:**

A. As soon as practicable after the commencement of Work, and when the order in which concrete for the first slabs, walls, etc. to be poured is determined, the Contractor must submit to DDC a sketch indicating the location and size of all penetrations for sleeves, ducts, etc. which will be required to accommodate the mechanical trades in order to determine if such penetrations will materially weaken the Project's structure. The sketch must be stamped and returned if approved and/or comments will be transmitted. The Contractor must continue to submit sketches as the pouring schedule and the concrete Work progresses and until approvals for the penetration sketches have been given. The Contractor must not predicate its layout Work on unapproved sketches.

**3.14 CUTTING AND PATCHING:**

A. Responsibility: The Contractor must do all cutting, patching, and restoration required by its Work, unless otherwise particularly specified in the Specifications.

B. Restore Work: The Contractor must restore any Work damaged during the performance of the Work.

C. Competent Workers: All restoration Work must be done to the satisfaction of the Commissioner by competent workers skilled in the trade required by such restoration. If, in the judgment of the Commissioner, workers engaged in restoration Work are incompetent, they must be replaced immediately by competent workers.

D. Structural Elements: Do not cut and patch structural elements without the prior approval, in writing, of the Commissioner.

E. Operational Elements: Do not cut and patch operating elements and related components.

F. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in the Commissioner's opinion, reduce the building's aesthetic qualities. The Contractor must remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

G. Existing Warranties: The Contractor must remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.

H. Removals: The Contractor must remove from the premises all demolished materials of every nature or description resulting from cutting, patching, and restoration work, in accordance with the requirements hereinafter stipulated under Sub-Section 3.17 herein and as further required in Section 01 74 19, CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 3.15**

**3.15 LOCATION OF PARTITIONS**:

A. Within three (3) weeks after the concrete slabs have been poured on each floor level, the Contractor must immediately locate accurately all of the partitions, including the door openings, on the floor slabs in a manner approved by the Commissioner.

**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 Commissioner.

**3.17 REMOVAL OF RUBBISH AND SURPLUS MATERIALS:**

A. Of the waste that is generated during demolition, as many of the waste materials as economically feasible must be reused, salvaged, or recycled. Waste disposal in landfills must be minimized. Comply with requirements of Section 01 74 19, CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.

B. Rubbish: Rubbish must not be thrown from the windows or other parts of the Project. Mason's rubbish, dirt and other dust-producing material must be wetted down periodically.

C. Location: The Contractor must clean the Project Site and Work area daily, sweep up, and deposit at a location designated on each floor, all of its rubbish, debris, and waste materials as it accumulates or more frequently when directed by the Commissioner. Wood crating must be broken up, neatly bundled, tied, and stacked ready for removal and be deposited at a location designated on each floor.

1. Comply with requirements in NYC Fire Department for removal of combustible waste materials and debris.

2. Do not hold materials more than seven (7) Days during normal weather or three (3) Days if the temperature is expected to rise above 80 degrees F (27 degrees C).

3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

D. Laborers: Since the Contractor is responsible for the removal of all rubbish, etc., from the Site, the Contractor must employ and keep engaged for this purpose an adequate number of laborers.

E. Surplus Materials: The Contractor must remove from the Site all surplus materials when there is no further use for same.

F. Tools and Materials: At the conclusion of the Work, all erection plant, tools, temporary structures and materials belonging to the Contractor must be promptly removed.

G. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.

**3.18 CLEANING:**

A. The Contractor must thoroughly clean all equipment and materials furnished and installed, and must deliver such materials and equipment undamaged in a clean and new appearing condition up to date of Final Acceptance.

B. Site: Maintain Project Site free of waste materials and debris.

C. Installed Work: Keep installed Work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of the product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

D. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

E. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration up to date of Final Acceptance.

F. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration up to date of Final Acceptance.

**3.19 SECURITY AND PROTECTION OF WORK SITE**:

A. Provide protection of installed Work, including appropriate protective coverings, and maintain conditions that ensure installed Work is without damage or deterioration up to date of Final Acceptance.

B. Comply with manufacturer's written instructions for temperature and relative humidity.

C. Secure and protect Work and Work Site against damage, loss, injury, theft and/or vandalism.

D. Maintain daily sign-in sheets of workers and visitors and make the sheets available to the Commissioner.

**3.20 MAINTENANCE OF SITE AND ADJOINING PROPERTY:**

A. The Contractor must take over and maintain the Project Site, after order to start Work.

B. The Contractor must be responsible for the safety of the adjoining property, including sidewalks, paving, fences, sewers, water, gas, electric and other mains, pipes and conduits etc. until the date of Final Acceptance. The Contractor must, at its own expense, except as otherwise specified, protect same and maintain them in at least as good a condition as that in which the Contractor finds them.

C. All pavements, sidewalks, roads and approaches to fire hydrants must be kept clear at all times, maintained and repaired to serviceable condition with materials to match existing.

D. Provide and keep in good repair all bridging and decking necessary to maintain vehicular and pedestrian traffic.

E. The Contractor must also remove all snow and ice as it accumulates on the sidewalks within the Contract Limits Lines.

**3.21 MAINTENANCE OF PROJECT SITE:**

A. The Contractor must take over and maintain all Project areas, after order to start Work.

B. Until the date of Final Acceptance, the Contractor must be responsible for the safety of all Project areas, including water, gas, electric and other mains and pipes and conduits and must, at the Contractor’s own expense, except as otherwise specified, protect same and maintain them in at least as good condition as that in which the Contractor finds them.

C. All pavements, sidewalks, roads and approaches to fire hydrants must be kept clear at all times, maintained, and if damaged, repaired to serviceable conditions with materials to match existing.

D. The Contractor must keep the space for the Resident Engineer in a clean condition.

**3.22 SAFETY PRECAUTIONS FOR CONTROL CIRCUITS:**

A. Control circuits, the failure of which will cause a hazard to life and property, must comply with DOB Bureau of Electrical Control requirements.

**3.23 OBSTRUCTIONS IN DRAINAGE LINES:**

A. The Contractor must be responsible for all obstructions occurring in all drainage lines, fittings, and fixtures after the installations and cleaning of these drainage lines, fittings, and fixtures, as certified by the Resident Engineer. Roof drains must be kept clear of any and all debris. Any stoppage must be repaired immediately at the expense of the Contractor.

**3.24 CORRECTION OF THE WORK**

A. Subject to the terms of the Contract, the Contractor must complete repair and restoration operations before requesting inspection for determination of Substantial Completion.

B. Contractor must repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.

1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that that already show evidence of repair or restoration.
    a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.
3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

**END OF SECTION 01 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 ofconstruction waste and includes the following requirements:
   1. Waste Management Goals
   2. Waste Management Plan
   3. Progress Reports
   4. Progress Meetings
   5. Management Plan Implementation

B. This section includes:
   1. Definitions
   2. Waste Management Performance Requirements
   3. Reference Resources
   4. Submittals
   5. Quality Assurance
   6. Waste Plan Implementation
   7. Additional Demolition and Salvage Requirements
   8. Disposal

### 1.3 RELATED SECTIONS: Include without limitation the following:

A. Section 01 10 00 SUMMARY
B. Section 01 31 00 PROJECT MANAGEMENT AND COORDINATION
C. Section 01 32 00 CONSTRUCTION PROGRESS DOCUMENTATION
D. Section 01 73 00 EXECUTION
E. Section 01 77 00 CLOSEOUT PROCEDURES
F. Section 01 78 39 CONTRACT RECORD DOCUMENTS
G. Refer to the Addendum to identify whether this Project is designed to comply with a Certification Level according to the U.S. Green Building Council's LEED Rating System, as specified in Section 01 81 13.04 "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 GeneralConditions not otherwise defined herein.

| **Term** | **Definition** |
|---|---|
| Alternative Daily Cover (ADC) | Material other than earthen material placed on the surface of the active face of a municipal solid Waste landfill at the end of each Work Day to control vectors, fires, odors, blowing litter and scavenging. |
| Design Consultant | The entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the Design Consultant may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services. |
| Clean | Untreated and unpainted; not contaminated with oils, solvents, caulk or the like. |
| Construction and Demolition (C&D) Waste | Solid Wastes typically including building materials, trash debris and rubble resulting from remodeling, repair and demolition operations. Hazardous materials and land clearing Waste are not included. |
| Diversion from Landfill | Material removal from the Site for Recycling, Reuse or Salvage that might otherwise be sent to a landfill. |
| Off-site Sorting | Material types that are combined on the project site and hauled away for sorting. Measured weights only. Approximations of weight or volume based on visual inspection are not acceptable.<br>a. Off-site Sorting Method 1: Diversion Rate derived from the weight of the individual diverted material type divided by the weight of the commingled waste. Individual diverted material types handled through this sorting method are each counted as an individual diverted material type.<br>b. Off-site Sorting Method 2: Diversion Rate derived from the waste sorting facility average diversion rate, multiplied by the weight of the commingled waste. All diverted materials handled through this sorting method are counted as a single diverted material type. |
| On-site Sorting | Material types that have been sorted in segregated containers or project areas for removal as segregated diverted material types. Measured weights only. Approximations of weight or volume based on visual inspection are not acceptable.<br>a. On-site Sorting: Diversion Rate derived from the weight of the diverted material type. Material diverted through this sorting method are each counted as an individual diverted material type. |
| Recyclable | The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product. |
| Recycle (recycling) | To sort, separate, process, treat or reconstitute solid Waste and other discarded materials for the purpose of redirecting such materials into the manufacture of useful products. Recycling does not include burning, incinerating or thermally destroying Waste. |
| Return | To give back Reusable items or unused products to vendors. |

| | |
|---|---|
| Reuse | To reuse excess or discarded construction material in some manner on the Project Site. |
| Salvage | To remove a Waste material from the Project Site for resale or reuse. |
| Waste | Extra material or material that has reached the end of its useful life in its intended use. Waste includes Salvageable, Returnable, Recyclable and Reusable material. |
| Waste Management Plan | A Project-related plan for the collection, transportation and disposal of Waste generated at the construction Site. The purpose of the plan is to ultimately reduce the amount of material becoming landfill. |
| Waste-to-Energy | The conversion of non-Recyclable Waste materials into usable heat, electricity or fuel through a variety of processes, including combustion, gasification, pyrolization, anaerobic digestion and landfill gas recovery. |

**1.5 WASTE MANAGEMENT PERFORMANCE REQUIREMENTS:**

A. The City of New York has established that this Project must generate the least amount of Waste possible and employ processes that ensure the generation of as little Waste as possible due to error, inaccurate planning, breakage, mishandling, contamination, or other factors.

B. Of the Waste that is generated during demolition, as many of the Waste materials as economically feasible, and as stated here, must be Reused, Salvaged, or Recycled. Waste disposal in landfills must be minimized.

**REFER TO THE ADDENDUM FOR THE APPLICABILITY OF SUB-SECTION 1.5 C**

C. LEED CERTIFICATION: The City of New York will seek Leadership in Energy and Environmental Design (LEED) certification for this Project as indicated in the Addendum to the General Conditions from the U.S. Green Building Council. The documentation required here will be used for this purpose. LEED awards points for a variety of sustainable design measures on a project, one of which is the Reuse and Recycling of project Waste.

D. DIVERSION REQUIREMENTS. With the exception of LEED v4 projects with demolition ADC Waste, a minimum of seventy-five percent (75%) of total Project demolition and construction Waste (by weight) must be diverted from landfill through at least four (4) diverted material types. LEED v4 projects with demolition ADC Waste must divert a minimum of fifty percent (50%) of total Project demolition and construction Waste (by weight) from landfill through at least three (3) diverted material types. The following Waste categories are likely candidates to be included in the diversion plan as applicable for this Project:

1. Concrete;
2. Bricks;
3. Concrete masonry units (CMU);
4. Asphalt;
5. Metals (e.g. banding, stud trim, ceiling grid, ductwork, piping, rebar, roofing, other trim, steel, iron, galvanized, stainless steel, aluminum, copper, zinc, brass, bronze);
6. Clean dimensional wood;

7. Carpet and pad;
8. Drywall;
9. Ceiling tiles;
10. Cardboard, paper and packaging; and
11. Reuse items indicated on the Contract Drawings and/or elsewhere in the Specification.

E. All fluorescent lamps, High Intensity Discharge lamps and mercury-containing thermostats removed from the Site must be Recycled. Do not use bulb crusher on Site.

F. Recycling on the job, subject to the Commissioner's approval, is encouraged on the Site itself, such as the crushing and reuse of removed sound concrete and stone. Include these categories in the Waste Management Plan.

G. Land-clearing debris is not considered construction, demolition or renovation Waste and is not to be included as contribution to Waste diversion.

H. A minimum of five (5) material types, both structural and nonstructural, are to be identified in the Construction Waste Management Plan for diversion.

I. For LEED v4 projects, material to be used as ADC does not qualify as material diverted from disposal.

**1.6 REFERENCES, RESOURCES:**

A. DDC encourages its Contractors to seek information from websites and experts in Salvage or Recycling inorder 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 responsible for removal); there are also outlets that will pick up, and in some cases, buy Recyclable materials. Examples of information resources are as follows:

1. A standard Construction and Demolition (C&D) Waste Management Log form is available through DDC's Sustainable Design website: https://www1.nyc.gov/assets/ddc/downloads/Sustainable/forms-local-law-86/waste-tracking-form.pdf.
2. Web Resources (information only; no warranty or endorsement is implied):
    a. www1.nyc.gov/assets/donate/site/ – Website of donateNYC, a network of nonprofit organizations in New York City that accept and distribute second-hand and surplus goods.
    b. www.bignyc.org – Website of Build It Green NYC, a non-profit outlet for Salvaged and surplus building materials.
    c. www.usgbc.org – Website of the United States Green Building Council, with a description of the LEED certification process and requirements for C&D Waste Recycling.
    d. www.epa.gov/smm/sustainable-management-construction-and-demolition-materials– Website of the U.S. Environmental ProtectionAgency (EPA) that discusses C&D Waste issues, and links to other resources.
3. Waste-to-Energy Facilities that need to comply with European Standard (EN) for Waste management and emissions into air, soil, surface water and groundwater:
    a. www.ec.europa.eu/environment/waste/framework/index.htm – European Commission Waste Framework Directive 2008/98/EC.
    b. https://eur-lex.europa.eu/homepage.html - European Commission Waste

Incineration Directive 2000/76/EC.

c. www.cen.eu/cen/Products – EN Standards 303-1, 303-2, 303-3, 303-4, 303-5, 303-6, 303-7.

**1.7 SUBMITTALS:**

A. The Contractor must refer to Section 01 33 00 SUBMITTAL PROCEDURES for submittal requirements.

B. The Contractor must be responsible for the development and implementation of a Waste Management Plan for the Project. The Contractor's Subcontractors must assist in the development of that Plan, and collect and deposit their Waste and Recyclable materials in accordance with the approved Plan.

C. Draft Waste Management Plan: Within fifteen (15) Days after receipt of the Notice to Proceed (NTP), or prior to any Waste removal, whichever occurs sooner, the Contractor must submit to the Commissioner a Draft Waste Management Plan. Include separate sections for C&D Waste. The Plan must demonstrate how the performance goals will be met, and contain the following:

1. List of material types targeted for Reuse, Salvage, or Recycling, and names, addresses, and phone numbers of receiving facilities/companies that will be purchasing or accepting each material. Each material listed is to include estimated amount in tons and percentage of overall construction waste of each of the material steams.
2. Estimation of the percentage of overall construction waste that will be sent to landfill.
3. Description of on-Site and/or off-Site sorting methods for all materials to be removed from Site. Off-site sorting methods must be categorized as Off-site Sorting Method 1 or Off-site Sorting Method 2.
4. If mixed C&D Waste is to be sorted off-Site, provide a letter from the processor stating the average percentage of mixed C&D Waste they Recycle. Waste processor's average percentage of mixed C&D waste must not include Alternative Daily Cover as a recycled material for LEED v4 projects.
5. Landfill information: Names of landfills where non-Recyclable/reusable/salvageable Waste will be disposed, and list of applicable tipping fees.
6. Material handling procedures: Specify whether materials must be separated or commingled and describe the planned diversion strategies. Describe expected amount of each material type, where materials must be taken and how the Recycling facility must process the material. Provide a description of the means by which any Recyclable, Salvaged, or Reused materials will be protected from contamination and collected in a manner that will meet the requirements for acceptance by the designated Recycling processors.
7. Transportation: A description of the means of transportation and destination for Recycled materials.
8. Meetings: Regular meetings must be held monthly, or as directed by the Commissioner, and the Contractor must provide a description of these meetings to address Waste management.
9. Sample spreadsheet and description of how the implementation of the Plan will be documented and submitted on a monthly basis.

D. Final Waste Management Plan: Within fifteen (15) Days of Commissioner's approval of the Draft Waste Management Plan, the Contractor must submit a Final Waste Management Plan.

E. Progress Reports: The Contractor must submit a monthly Waste Management Progress Report, containing the following information:

1. Project title, name of company completing report, and dates of period covered by the report.
2. Report on the disposal of all Project Site Waste. A DDC C&D Waste Management Log form is included at the end of this section. For each shipment of material removed from the Site, provide the following:
    a. Date and ticket number of removal;
    b. Identity of material hauler;
    c. Material type;
    d. Waste sorting method;
    e. Total quantity of Waste, in tons/cubic yards, by type;
    f. Quantity of Waste Salvaged, Recycled and/or Reused, by type;
    g. Total quantity of Waste diverted from landfill (Recycled, Salvaged, Reused) as a percentage of total Waste; and
    h. Recipient of each material type.
3. Provide monthly and cumulative Project totals of Waste, quantity diverted, and percentage diverted.
4. Note that the unit of measurement may be either tons or cubic yards but must be consistent for all shipments and all materials throughout the Project. Reports with inconsistent or mixed units will not be reviewed and will be Returned for re-submission.
5. Include legible copies of on-Site logs, weight tickets and receipts. Receipts must be from charitable organizations, Recycling and/or disposal site operators who can legally accept the materials for the purpose of reuse, Recycling or disposal. Contractor must save such original documents for the life of the Project plus seven (7) years.

F. LEED Submittal: For LEED-designated projects, submit final LEED construction Waste report signed by the Contractor, tabulating total Waste material, quantities diverted and means by which it is diverted, and statement that requirements for the credit have been met. Waste report must include:
    1. At least four (4) material streams for diverted materials;
    2. Documentation of Recycling rates for commingled facilities; and
    3. For Waste-to-Energy strategy, submit documentation of facility adherence to relevant EN standards, and justification for the strategy.

G. Refrigerant Recovery: Where refrigerant is recovered, submit statement of refrigerant recovery, which must include:
    1. Name, address, qualification data and signature of the refrigerant recovery technician responsible for recovering refrigerant;
    2. Statement that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations; and
    3. Date refrigerant was recovered.

**1.8 QUALITY ASSURANCE:**

A. The Contractor must designate a Construction Waste Management Representative to ensure compliance with this section. The Representative must be present at the Project Site full-time and for the duration of the Project.

B. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.

C. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.

D. Waste Management Plans, documentation, and implementation must be discussed at the following meetings:

1. Pre-demolition kick-off meeting;
2. Pre-construction kick-off meeting;
3. Regular job-site meetings; and
4. Contractor toolbox meetings.

E. For LEED v4 projects, Waste-to-Energy Facilities: Comply with EN standards for Waste management and emissions into air, soil, surface water, and groundwater.

**PART II – PRODUCTS (Not Used)**

**PART III – EXECUTION**

**3.1 WASTE PLAN IMPLEMENTATION:**

A. Prior to the demolition and construction start, the Contractor must implement the Waste Management Plan, coordinate the Plan with all affected trades, and designate one individual as the Construction Waste Management Representative. The Representative will be responsible for communicating the progress of the Plan with the Commissioner on a regular basis and for assembling the required LEED documentation.

B. The Contractor must be responsible for the provision of containers and the removal of all Waste, non-Returned surplus materials and rubbish from the Site in accordance with the approved Waste Management Plan. The Contractor must oversee and document the results of the Plan. Monies received for Salvaged materials must remain with the Contractor, except the monies for those items specifically identified elsewhere in the specifications or indicated on the Contract Drawings as belonging to others.

C. Responsibilities of Subcontractors: Each Subcontractor must be responsible for collecting its Waste, non-Returned surplus materials and rubbish, in accordance with the Waste Management Plan.

D. Distribution: The Contractor must distribute copies of the Waste Management Plan to each Subcontractor,Resident Engineer, Construction Manager, and the Commissioner.

E. Instruction: The Contractor must provide on-Site instruction of proper Waste management procedures to be used by all parties at appropriate stages of the Project.

F. Procedures: Conduct Waste management operations to ensure minimum interference with Site vegetation, roads, streets, walkways and other adjacent, occupied, and used facilities. The waste management operations include, but are not limited to:

1. Collect commingled Waste and/or separate all Recyclable Waste in accordance with the Plan. Specific areas on the Project Site are to be designated, and appropriate containers and bins clearly marked with acceptable and unacceptable materials.
2. Inspect containers and bins for contamination and remove contaminated materials if found. Comply with requirements in the following General Conditions sections for controlling dust

and dirt, environmental protection, and noise control: Section 01 81 19 - INDOOR AIR QUALITY REQUIREMENTS FOR LEED BUILDINGS, Section 01 81 13.04 - SUSTAINABLE DESIGN REQUIREMENTS FOR LEED v4 BUILDINGS, Section 01 10 00 – SUMMARY, Section 01 35 26 - SAFETY REQUIREMENTS PROCEDURES, Section 01 50 00 - TEMPORARY FACILITIES, SERVICES AND CONTROLS, and Section 01 73 00 – EXECUTION..

**3.2 ADDITIONAL DEMOLITION AND SALVAGE REQUIREMENTS:**

A. Demolition and Salvage of additional items indicated in other sections of the Project Specifications require special attention as part of the overall seventy-five percent (75%) Diversion from Landfill. Specific requirements for special attention are designated in other sections of the Project Specifications.

**3.3 DISPOSAL:**

A. General: Except for items or material to be Salvaged, Recycled, or otherwise Reused, remove Waste material from the Project Site and legally dispose of them in a manner acceptable to authorities having jurisdiction.
   1. Except as otherwise specified, do not allow Waste materials that are to be disposed of to accumulate on Site.
   2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Burning: Do not burn Waste materials.

C. Disposal: Transport Waste materials off Project Site and legally dispose of them.

**END OF SECTION 01 74 19**

**Department of Design and Construction**

# CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT LOG

Project Name: _____
Project I.D.: _____

Contractor: _____
Prepared by: _____
For Month: _____

| Haul Date | Ticket # | Hauling Company | *Material Type[2] | Sorting Method[5] | Material Quantity (tons or cubic yards)[1] *Total Weight | Excluded Material[3] | *Diverted Material[4] | *Landfilled Material | *Material Recipient |
|---|---|---|---|---|---|---|---|---|---|
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| | | | | | *Total | | *Diverted | *Landfilled | |
| | | | Monthly Totals | | | | | | |
| | | | % Diverted this Month* | | | | | | |
| | | | Cumulative Totals | | | | | | |
| | | | % Diverted to Date | | | | | | |

Notes:

1. Volume (cubic yards) may be used instead of weight if used for ALL amounts and ALL materials.
2. Includes concrete; bricks; concrete masonry units (CMU); asphalt; metals; clean dimensional wood; carpet and pad; drywall; ceiling tiles; cardboard, paper, and packaging; and any other Reuse items indicated on the Contract Drawings and/or elsewhere in the Specifications.
3. Excluded material includes soil or land clearing debris and for LEED v4 projects, Alternative Daily Cover (ADC) such as screen fines and 6” minus.
4. Diverted material includes Recycled and Reused material diverted from landfill. Recycled material is reprocessed into new products. Reused material is reclaimed, Salvaged or otherwise used in its original form, either on-site or off-site.
5. Sorting Method must be classified as On-Site Sorted, Off-Site Sorted Method 1, or Off-Site Sorted Method 2.

* These items must be listed in order to receive LEED credit.

# SECTION 01 77 00
# CLOSEOUT PROCEDURES

## PART I – GENERAL

### 1.1 RELATED DOCUMENTS:

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

### 1.2 SUMMARY:

A. This section includes administrative and general procedural requirements for Closeout Procedures, including, without limitation, the following:

1. Definitions
2. Substantial Completion
3. Final Acceptance
4. Warranties
5. Final Cleaning

B. LEED: Refer to the Addendum to identify whether this Project is designed to comply with a Certification Level according to the U.S. Green Building Council's (USGBC) Leadership in Energy & Environmental Design (LEED) Rating System, as specified in Section 01 81 13.04 “SUSTAINABLE DESIGN REQUIREMENTS FOR LEED v4 BUILDINGS”.

C. COMMISSIONING: Refer to the Addendum to identify whether this Project will be commissioned by an independent third party under separate contract with the City of New York. Commissioning must be in accordance with ASHRAE and USGBC LEED- NC procedures, as described in Section 01 91 13 GENERAL COMMISSIONING REQUIREMENTS FOR MEP SYSTEMS and Section 01 91 15 GENERAL COMMISSIONING REQUIREMENTS FOR BUILDING ENCLOSURE. The Contractor must cooperate with the Commissioning Agent and provide whatever assistance is required.

### 1.3 RELATED SECTIONS: include without limitation the following:

A. Section 01 10 00 SUMMARY
B. Section 01 33 00 SUBMITTAL PROCEDURES
C. Section 01 74 19 CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL
D. Section 01 78 39 CONTRACT RECORD DOCUMENTS
E. Section 01 79 00 DEMONSTRATION AND OWNER’S PRE-ACCEPTANCE ORIENTATION

### 1.4 DEFINITIONS:

A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.

| Term | Definition |
|---|---|
| Design Consultant | The entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the Design Consultant may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services. |

**1.5 SUBSTANTIAL COMPLETION:**

A. Preliminary Procedures: Before requesting inspection to determine the date of Substantial Completion, the Contractor must complete and supply all items required by the Contract Specifications, General Conditions, Addendum to the General Conditions, change orders or other directives from the Commissioner's representatives. The required items will include all Contract requirements for Substantial Completion, including, but not limited to, items related to releases, regulatory approvals, warranties and guarantees, record documents, testing, demonstration and orientation, final clean up and repairs, and all specific checklist of items by the Resident Engineer. (See Attachment "A" at the end of this section for sample requirements for Substantial Completion).

B. The Contractor must prepare and submit a list to the Resident Engineer of incomplete items, the value of incomplete construction, and reasons the Work is not complete.

C. Inspection: The Contractor must submit to the Resident Engineer a written request for inspection for Substantial Completion. Within ten (10) Days of receipt of the request, the Resident Engineer will either proceed with inspection or notify Contractor of unfulfilled requirements. The Resident Engineer may request the services, as required, of the Design Consultant, client agency representative and/or other entities having involvement with the Work to assist in the inspection of the Work. If the Resident Engineer makes a determination that the Work is Substantially Complete and approves the Final Approved Punch List and the date for Final Acceptance, he/she will so advise the Commissioner and recommend issuance of the Certificate of Substantial Completion. If the Resident Engineer determines that the Work is not substantially complete, he/she will notify the Contractor of those items that must be completed or corrected before the Certificate of Substantial Completion will be issued.

1 Re-inspection: Contractor must request re-inspection when the Work identified in previous inspections as incomplete are completed or corrected.
2 Results of completed inspection will form the basis of the requirements for Final Acceptance.

**1.6 FINAL ACCEPTANCE:**

A. Preliminary Procedures: Before requesting final inspection for Final Acceptance of the Work, the Contractor must complete the following. (Note that the following are to be completed, submitted as appropriate, and approved by the Commissioner, as applicable, prior to the final inspection and are not to be submitted for approval or otherwise at the final inspection unless specifically indicated). List exceptions in the request.

1. Verify that all required submittals have been provided to the Commissioner including, but not limited to, the following:

   a. Manufacturer's cleaning instructions;

   b. Posted instructions;

   c. As-built Contract Documents (Drawings, Specifications, and product data) as described in Section 01 78 39 CONTRACT RECORD DOCUMENTS, incorporating any changes required

by the Commissioner as a result of the review of the submission prior to the pre-final inspection;

d. Operation and maintenance manuals, including preventive maintenance, special tools, repair requirements, parts list, spare parts list, and operating instructions;

e. Completion of required demonstration and orientation, as applicable, of designated personnel in operation and maintenance of systems, sub-systems and equipment;

f. Applicable LEED Building submittals as described in Section 01 81 13.04 SUSTAINABLE DESIGN REQUIREMENTS FOR LEED v4 BUILDINGS; and

g. Construction progress photographs as described in Section 01 32 33 PHOTOGRAPHIC DOCUMENTATION.

2. Submit a certified copy of the Final Approved Punch List of items to be completed or corrected. The certified copy of the Punch List must state that each item has been completed or otherwise resolved for acceptance, and must be endorsed and dated by the Contractor.

3. Submit pest-control final inspection report and survey as required in Section 01 50 00 TEMPORARY FACILITIES AND CONTROLS.

4. Submit record documents and similar final record information.

5. Deliver tools and similar items.

6. Complete final clean-up requirements including touch-up painting of marred surfaces.

7. Submit final meter readings for utilities, as applicable, a measured record of stored fuel, and similar data as of the date when the City took possession of and assumed responsibility for corresponding elements of the Work.

B. Final Inspection: The Contractor must submit to the Resident Engineer a written request for inspection for Final Acceptance of the Work. Within ten (10) Days of receipt of the request, the Resident Engineer will either proceed with inspection or notify the Contractor of unfulfilled requirements. The Resident Engineer may request the services, as required, of the Design Consultant, client agency representative and/or other entities having involvement with the Work to assist in the inspection of the Work. If the Resident Engineer finds that all items on the Final Approved Punch List are complete and no further Work remains to be done, he/she will so advise the Commissioner and recommend the issuance of the determination of Final Acceptance. If the Resident Engineer determines that the Work is not complete, the Resident Engineer will notify the Contractor of those items that must be completed or corrected before the determination of Final Acceptance will be issued.

C. Final Acceptance: The Work will be accepted as final and complete as of the date of the Resident Engineer’s inspection if, upon such inspection, the Resident Engineer finds that all items on the Final Approved Punch List are complete and no further Work remains to be done. The Commissioner will then issue a written determination of Final Acceptance.

**1.7 WARRANTIES:**

A. Schedule B of the Addendum lists the items of materials and/or equipment for which manufacturer warranties are required. For each item of material and/or equipment listed in Schedule B, the Contractor must obtain a written warranty from the manufacturer. Such warranty must provide that the material or equipment is free from defects for the period set forth in Schedule B and will be replaced or repaired within such specified period. The Contractor must deliver all required warranties to the Commissioner.

B. Unless indicated otherwise, warranties are to take effect on the date of Substantial Completion.

C. Submittal Time: Submit written warranties on request of the Commissioner for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.

D. Partial Occupancy: Submit properly executed warranties to the Commissioner within fifteen (15) Days of completion of designated portions of the Work that are completed and occupied or used by the City.

E. Organize the warranty documents into an orderly sequence based on the Project Specification Divisions and Section Numbers.

1. Bind warranties in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
2. Identify each binder on the front and spine with the typed or printed title "WARRANTIES"; name and location of Project; Capitol Budget Project Number (FMS ID); and Contractor's and applicable Subcontractor's name and address.
3. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation.
4. Provide a typed description of each product or installation being warranted, including the name of the product, and the name, address, and telephone number of the installer.

F. When warranted materials and/or equipment require operation and maintenance manuals, provide additional copies of each required warranty in each required manual. Refer to Section 01 78 39 CONTRACT RECORD DOCUMENTS, for requirements of operation and maintenance manuals.

**PART II – PRODUCTS**

**2.1 MATERIALS:**

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

**PART III – EXECUTION**

**3.1 FINAL CLEANING:**

A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations, as applicable, before requesting inspection for Final Acceptance of the Work for the entire Project or for a portion of the Project:

a. Clean Project Site, yard, and grounds in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.

b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.

c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.

d. Remove tools, construction equipment, machinery, and surplus material from Project Site.

e. Remove snow and ice to provide safe access to building.

f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.

g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.

h. Sweep concrete floors broom clean in unoccupied spaces.

i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.

j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.

k. Remove labels that are not permanent.

l. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.

1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.

m. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.

n. Replace parts subject to unusual operating conditions.

o. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.

p. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.

q. Clean ducts, blowers, and coils if units were operated without filters during construction.

r. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

s. Leave Project clean and ready for occupancy.

t. Construction Waste Disposal: Comply with waste disposal requirements in Section 01 74 19 CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.

C. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid Project of rodents, insects, and other pests, as required in Section 01 50 00 TEMPORARY FACILITIES, SERVICES AND CONTROLS. Prepare and submit a pest control report to the Commissioner.

D. Comply with all applicable safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on City's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project Site and dispose of lawfully.

**END OF SECTION 01 77 00**

**SECTION 01 77 00**

**ATTACHMENT 'A'**

**The following list is a general sample of Substantial Completion requirements, including, but not limited to:**

1. Prepare and submit a list to the Resident Engineer of incomplete items, the value of incomplete construction, and reasons the Work is not complete.
2. Obtain and submit any necessary releases enabling the City unrestricted use of the Project and access to services and utilities.
3. Regulatory Approvals: Submit all required documentation from applicable governing authorities, including, but not limited to, the New York City Department of Buildings (DOB); Department of Transportation (DOT); Department of Environmental Protection (DEP); Fire Department (FDNY); etc. Documentation includes, but is not limited to, the following:
    a. Building permits, applications and sign-offs;
    b. Permits and sign-off for construction fences; sidewalk bridges; scaffolds, cranes and derricks; utilities; etc.;
    c. Certificates of inspections and sign-offs;
    d. Required certificates and use permits; and
    e. Certificate of Occupancy (C.O.), Temporary Certificate of Occupancy (T.C.O.) or Letter of Completion as applicable.
4. Submit specific warranties required by the Specifications, final certifications, and similar documents.
5. Prepare and submit Contract Documents as described in Section 01 78 39, CONTRACT RECORD DOCUMENTS, including but not limited to:
    a. Approved documentation from governing authorities;
    b. As-built record drawings and Specifications; product data; operation and maintenance manuals;
    c. Final Completion construction photographs;
    d. Damage or settlement surveys;
    e. Final property surveys; and
    f. Similar final record information.
    g. The Resident Engineer will review the submission and provide appropriate comments. If comments are significant, the initial submission will be returned to the Contractor for correction and re-submission incorporating the comments prior to the Final Inspection.
6. Record Waste Management Progress Report: Submit Construction & Demolition (C&D) Waste Management logs, with legible copies of weight tickets and receipts required in accordance with Section 01 74 19 CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.
7. If applicable submit LEED letter template in accordance with the requirements of Section 01 81 13.04 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 and similar items to location designated by Resident Engineer. Label with manufacturer's name and model number where applicable.
10. Make final changeover of permanent locks and deliver keys to the Resident Engineer. Advise Commissioner of changeover in security provisions.
11. Complete startup testing of systems as applicable.
12. Submit approved test/adjust/balance records.
13. Terminate and remove temporary facilities from Project Site, along with mockups, construction tools, and similar elements as directed by the Resident Engineer.
14. If applicable, complete Commissioning requirements as defined in Section 01 91 13 GENERAL COMMISSIONING REQUIREMENTS FOR MEP SYSTEMS and/ or Section 01 91 15 BUILDING ENCLOSURE COMMISSIONNING REQUIREMENTS.
15. Complete final cleaning requirements, including touchup painting.
16. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

# SECTION 01 78 39
# CONTRACT RECORD DOCUMENTS

## PART I – GENERAL

### 1.1 RELATED DOCUMENTS:

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

### 1.2 SUMMARY:

A. This section includes administrative and general procedural requirements for Contract Record Documents, including:

1. Contract Record Drawings
2. Record Specifications, Addenda and Change Orders
3. Record Product Data
4. Record Sample Submittal
5. Construction Record Photographs
6. Operating and Maintenance Manuals
7. Final Site Survey
8. Demonstration and Orientation DVD
9. Guarantees and Warranties
10. Waste Disposal Documentation
11. LEED Materials and Matrix
12. Miscellaneous Record Submittals

B. The Department of Design and Construction (DDC), at the start of construction (kick-off meeting), will furnish to the Contractor, at no cost, a complete set of Contract Record Drawings (PDF set) 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 drawings, if necessary, such as Addenda Drawings and Supplementary Drawings as may be necessary to indicate all Work in detail as actually completed. <u>All professional seals must be blocked out</u>. Title box complete with Project title and Design Consultants' names will remain.

C. Maintenance of Documents and Samples: The Contractor must maintain, during the progress of the Work, an accurate record of the Work as actually installed, on Contract Record Drawings (PDF set). Store Contract Record Documents and samples in the field office apart from the Contract Documents used for construction. Do not use Contract Record Documents for construction purposes. Maintain Contract Record Documents in good order and in a clean, dry, legible condition. Make documents and samples available at all times for the Resident Engineer's inspections.

1. The Contractor's attention is particularly directed to the necessity of keeping accurate records of all subsurface and concealed Work, so that the Contract Record Drawings contain this information in exact detail and location. Contract Record Drawings must also show all connections, valves, gates, switches, cut-outs and similar operating equipment.

2. For projects designated to achieve a Leadership in Energy and Environmental Design (LEED) rating, the Contractor will receive a copy of the Project's LEED scorecard for the purpose of monitoring compliance with the target objectives and to facilitate coordination with the LEED Consultant. The Contractor will receive periodic updates of this scorecard and is required to submit the final version of the Scorecard at Substantial Completion with other Project Record Documents.

**1.3 RELATED SECTIONS: include without limitation the following:**

| | | |
|---|---|---|
| A. | Section 01 10 00 | SUMMARY |
| B. | Section 01 32 00 | CONSTRUCTION PROGRESS DOCUMENTATION |
| C. | Section 01 32 33 | PHOTOGRAPHIC DOCUMENTATION |
| D. | Section 01 33 00 | SUBMITTAL PROCEDURES |
| E. | Section 01 77 00 | PROJECT CLOSEOUT PROCEDURES |

**1.4 DEFINITIONS:**

A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.

| **Term** | **Definition** |
|---|---|
| Commissioning Authority / Commissioning Agent (CxA) | The entity responsible for providing commissioning services for the Project. The entity serving as the CxA may be either an employee(s) of the City or an entity engaged by the City to provide such services. |
| Design Consultant | The entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the Design Consultant may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services. |
| LEED Consultant | The entity responsible for providing LEED sustainability services for the Project. The entity serving as the LEED Consultant may be either an employee(s) of the City or an entity engaged by the City to provide such services. |

**1.5 SUBMITTALS:**

A. As-Built Contract Record Drawings: The Contractor must comply with the following:

1. Progress Submission: As directed by the Resident Engineer, submit progress as-built Contract Record Drawings at the fifty percent (50%) construction completion stage.

2. Final Submission: Before Substantial Completion payment, the Contractor must furnish to the Commissioner one (1) complete set of marked-up as-built Contract Record Drawings, in PDF indicating all of the Work and locations as actually installed.

3. As-built Contract Record Drawings must be of the same size as that of the Contract Drawings, with a one (1) inch margin on three (3) sides and a two (2) inch margin on the left side for binding.

4. Each as-built Contract Record Drawing must bear the legend "AS-BUILT CONTRACT RECORD DRAWING" in heavy block lettering, one half (l/2) inch high, and contain the following data:

AS-BUILT CONTRACT RECORD DRAWING
Contractor's Name _____
Contractor's Address _____
Subcontractor's Name (where applicable) _____
Subcontractor's Address _____
Made by: Date _____
Checked by: Date _____

Commissioner's Representatives
(Resident Engineer) DDC
(Plumbing Inspector) DDC
(Heating & Ventilating Inspector) DDC
(Electrical Inspector) DDC

5. Contract Record Drawing Title Sheet: The Contractor must prepare a title sheet, the same size as the Contract Record Drawings, which must contain the following:

   a. Heading:
      The City of New York
      Department of Design and Construction
      Division of Public Buildings
   b. Capital Budget Project Number (FMS ID)
   c. Name and Location of Project
   d. Contractor's Name and Address
   e. Subcontractor's Name and Address (where applicable)
   f. Record of changes (a caption description of work affected, and the date and number of change order or other authorization)
   g. List of Record Drawings

B. Record Specifications, Addenda and Change Order: Submit to the Commissioner two (2) copies each of marked-up Record Specifications, Addenda and change orders.

C. Record Product Data: Submit to the Commissioner two (2) sets of Record Product Data.

D. Record Construction Photographs: Submit to the Commissioner final as-built construction photographs and digital files of the completed Work as described in Section 01 32 33 PHOTOGRAPHIC DOCUMENTATION.

E. Operating and Maintenance Manuals:

1. Submit three (3) copies each of preliminary manuals to the Resident Engineer for review and approval. The Contractor must make such corrections, changes and/or additions to the manual until deemed satisfactory by the Resident Engineer. Deliver three (3) copies of the final approved manuals to the Resident Engineer for distribution.

2. Commissioning: Comply with the requirements of Section 01 91 13 GENERAL COMMISSIONING REQUIREMENTS FOR MEP SYSTEMS and 01 91 15 GENERAL COMMISSIONING REQUIREMENTS FOR BUILDING ENCLOSURE, as well as the requirements set forth in sections of the Project Specifications, for projects designated for commissioning. Submit four (4) copies each of data designated to be included in the commissioning operation and maintenance manual to the Resident Engineer. The Resident Engineer will forward such data to the Commissioning Authority/Agent (CxA) for review and comment. The Contractor must make such corrections, changes and/or additions to the data until deemed satisfactory and deliver four (4) copies of the final data to the Resident Engineer for use by the CxA to prepare the commissioning operation and maintenance manual.

a. Non-Commissioning Data: All remaining data not designated for commissioning and required as part of maintenance and operation manual must be prepared and assembled in accordance with the requirements of this section for operating and maintenance manuals.

F. Final Site Survey: Submit Final Site survey as described in Section 01 73 00, EXECUTION, in quantities requested by the Commissioner, signed and sealed by a Land Surveyor licensed in the State of New York.

G. Guarantees and Warranties.

H. Waste Disposal Documents and Miscellaneous Record Documents.

**PART II – PRODUCTS**

**2.1 CONTRACT RECORD DRAWINGS:**

A. Record Prints: The Contractor must maintain one (1) set of blue- or black-line white prints as applicable of the Contract Record Drawings and Shop Drawings. If applicable, the Contract Record Drawings and Shop Drawings must incorporate the arrangement of the Work based on the accepted master coordination drawing(s) as described in Section 01 33 00, SUBMITTAL PROCEDURES.

1. Preparation: The Contractor must mark record drawings to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is installer, Subcontractor, or similar entity, to prepare the marked-up Record Prints.

a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
b. Accurately record information in an understandable drawing technique.
c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.

2. Change Orders: All changes from Contract Drawings must be distinctly encircled and identified by change order number correlating to changes listed on the "Title Sheet." The Contractor must show within the encircled areas the work as actually installed.

B. Content: Types of items requiring marking include, but are not limited to, the following:

1. Dimensional changes to Contract Record Drawings;
2. Revisions to details shown on Contract Record Drawings;
3. Depths of foundations below first floor;
4. Locations and depths of underground utilities;
5. Revisions to routing of piping and conduits;
6. Revisions to electrical circuitry;
7. Actual equipment locations;
8. Duct size and routing;
9. Locations of concealed internal utilities;
10. Changes made by change order;
11. Changes made following Commissioner’s written orders;
12. Details not on the original Contract Drawings;
13. Field records for variable and concealed conditions; and
14. Record information on the Work that is shown only schematically.

C. Progress Record Prints: As directed by the Resident Engineer, at fifty percent (50%) construction completion, review marked-up Record Prints with the Resident Engineer and the Design Consultant. When directed by the Resident Engineer, transfer progress mark-ups to a PDF set and submit to the Resident Engineer.

D. Final Contract Record Prints: Immediately before final inspection for the Certificate of Substantial Completion, review marked-up record prints with the Resident Engineer and the Design Consultant. When authorized, complete mark-up of a full set of corrected PDF prints 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. Submit the as-built Contract Record Drawings and Shop Drawings for use as record prints as described in Sub-Section 1.5.

**2.2 RECORD SPECIFICATIONS, ADDENDA AND CHANGE ORDERS:**

A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, Addenda, and Contract modifications.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
3. Record the name of manufacturer, supplier, installer, and other information necessary to provide a record of selections made.
4. For each principal product, indicate whether record product data has been submitted in operation and maintenance manuals instead of submitted as record product data.
5. Note related change orders and Contract Record Drawings where applicable.
6. Upon completion of mark-up, submit two (2) complete copies of the marked-up record Specifications to the Commissioner.

**2.3 RECORD PRODUCT DATA:**

A. Preparation: Mark product data to indicate the actual product installation where installation varies substantially from that indicated in product data submittal.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Include significant changes in the product delivered to Project Site and changes in manufacturer's written instructions for installation.
3. If possible, a change order proposal should include resubmitting updated product data. This eliminates the need to mark up the previous submittal.
4. Note related change orders and Contract Record Drawings where applicable.
5. Upon completion of mark-up, submit to the Commissioner two (2) sets of the marked-up record product data.
6. Where record product data is required as part of maintenance manuals, submit marked-up product data as an insert in the manual instead of submittal as record product data.

**2.4 RECORD SAMPLE SUBMITTAL:**

A. Prior to the date of Substantial Completion, the Contractor must meet with the Resident Engineer at the Site to determine which of the samples maintained during the construction period must be transmitted to the Commissioner for record purposes.

B. Comply with the Resident Engineer's instructions for packaging, identification marking, and delivery to DDC. Dispose of other samples as specified for disposal of surplus and waste material.

**2.5 CONSTRUCTION RECORD PHOTOGRAPHS:**

A. The Contractor must submit the final completion construction photographs, in compliance with Section 01 32 33 PHOTOGRAPHIC DOCUMENTATION.

**2.6 OPERATING AND MAINTENANCE MANUALS:**

A. The Contractor must provide preliminary and final versions of operating and maintenance manuals required for those systems, equipment, and materials listed in other Sections of the Project Specifications.

B. Format: Prepare and assemble operation and maintenance manuals in heavy-duty, 3-ring, hardback loose leaf binders in the form of an instructional manual. All binders for each discipline must be the same color. When multiple binders are used, correlate data into related consistent groupings. Binder front must contain permanently attached labels displaying the following:

1. Heading:
   The City of New York
   Department of Design and Construction
   Division of Public Buildings
2. Capital Budget Project Number (FMS ID)
3. Name and Location of Project
4. Contractor's Name and Address
5. Subcontractor's Name and Address (where applicable)
6. Dates of the Work covered by the contents of the Project Manual.
7. Binder spine must display Project Number (FMS ID) and date of completion.

C. Organization: Include a section in the directory for each of the following:

1. List of documents
2. List of systems
3. List of equipment
4. Table of contents

D. Each manual must contain the following materials, in the order listed:

1. Title page
2. Table of contents
3. Manual contents

E. Arrange contents alphabetically by system, subsystem, and equipment. Cross-reference Specification Section numbers. Provide tabbed flyleaf for each separate product, equipment and/or system/subsystem with typed description of product and major component parts of equipment.

F. Safety warnings or cautions must be visibly highlighted within each maintenance procedure. Use of such highlights must be limited to only critical items and must not be used in an excessive manner which would reduce their effectiveness.

G. For each product or system, list names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts. Vendors and supplier listings are to include names, addresses and telephone numbers, including nearest field service telephone numbers.

H. Where contents of the manual include any manufacturer's catalog pages, clearly indicate the precise items and options included in the installation and delete all manufacturers' data regarding products not included in the installation.

I. All material within manuals must be new. Copies used for prior submittals or used in construction must not be used.

J. Submit preliminary and final manual editions to the Commissioner according to the approved progress schedule.

K. Manuals must present all technical material to the greatest extent possible, with respect to text, tabular matter and illustrations. Illustrations must preferably consist of line drawings. All applicable drawings must be included. If available, color photograph prints may be included.

L. Preliminary manual editions must be as technically complete as the final manual edition. All illustrations must be in final forms.

M. Final manual editions must be technically accurate and complete and must represent all "as-built" systems, pieces of equipment, or materials, which have been accepted by the Commissioner. All illustrations, text and tabular material must be in final form. All shop drawings must be included as specified in individual Specification Sections.

N. Building products, applied materials, and finishes: Include product data, with catalog number, size, composition, and color texture designations. Where applicable, provide information for re-ordering custom manufactured products.

O. Instructions for care and maintenance: Include manufacturers' recommendations for cleaning agents and methods, and recommended schedule for cleaning and maintenance.

P. Moisture protection and weather exposed products: Include product data listing applicable reference standards, chemical compositions, and details of installation. Provide recommendations for inspections, maintenance, and repair.

Q. Additional requirements: Specified in individual Specification Sections.

**2.7 FINAL SITE SURVEY**

A. The Contractor must submit the final certification and final survey in compliance with Section 01 73 00 EXECUTION.

**2.8 DEMONSTRATION AND ORIENTATION DVD:**

A. The Contractor must submit a final version of applicable demonstration and training electronic recordings in compliance with Section 01 79 00 DEMONSTRATION AND OWNER'S PRE-ACCEPTANCE ORIENTATION.

**2.9 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 guaranty requirements set forth in Schedule B, the Contractor must 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

**2.10 WASTE DISPOSAL DOCUMENTATION:**

A. Certify and deliver to the Commissioner all documentation including reports, receipts, certificates, records etc. for the collection, handling, storage, classification, testing, transportation, recycling and/or disposal of all Non-Hazardous Construction Waste as required by Section 01 74 19, CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL, and Hazardous Waste as required by other Project Specification Sections. Certify compliance with all applicable governing laws, codes, rules and regulations.

**2.11 MISCELLANEOUS RECORD DOCUMENTS:**

A. Refer to other Project Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Prior to Final Acceptance, complete miscellaneous records and place in good order, properly identified and bound or otherwise organized to allow for use and reference.

B. Submit three (3) copies of each document to the Commissioner or as otherwise directed by the Commissioner.

**PART III – EXECUTION**

**3.1 RECORDING AND MAINTENANCE:**

A. Recording: Maintain one (1) copy of each submittal during the construction period for Contract Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of the Project.

B. Maintenance of Record Documents and Samples: Store Contract Record Documents and samples in the field office apart from the Contract Documents used for construction. Do not use Contract Record Documents for construction purposes. Maintain Contract Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to the Contract Record Documents for the Resident Engineer's reference during normal working hours.

**END OF SECTION 01 78 39**

# SECTION 01 79 00
# DEMONSTRATION AND OWNER'S PRE-ACCEPTANCE ORIENTATION

**REFER TO THE ADDENDUM FOR APPLICABILITY OF THIS SECTION 01 79 00**

## PART I – GENERAL

### 1.1 RELATED DOCUMENTS:

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

### 1.2 SUMMARY:

A. This section includes administrative and procedural requirements, when set forth in sections of the Project Specifications, for instructing the facility's personnel, including the following:

1. Demonstration of operation of systems, subsystems, and equipment.
2. Owner's pre-acceptance orientation in operation and maintenance of systems, subsystems, and equipment.
3. Demonstration and orientation video recordings.

B. The Contractor must provide the services of orientation specialists from the Contractor's equipment manufacturers. The specialists must be experienced in the type of equipment to be demonstrated.

C. Separate orientation sessions must be conducted for mechanical operations and maintenance personnel and for electronic and electrical maintenance personnel.

D. Commissioning: Refer to the Addendum to identify whether this project is to be commissioned. For commissioned projects, the Contractor must provide demonstration and orientation as described in this section and cooperate with the Commissioning Authority/Agent (CxA) to implement commissioning requirements as described in Section 01 91 13, GENERAL COMMISSIONING REQUIREMENTS FOR MEP SYSTEMS, and/ or Section 01 91 15 BUILDING ENCLOSURE COMMISSIONNING REQUIREMENTS.

### 1.3 RELATED SECTIONS: include without limitation the following:

A. Section 01 10 00 SUMMARY
B. Section 01 33 00 SUBMITTAL PROCEDURES
C. Section 01 77 00 CLOSEOUT PROCEDURES
D. Section 01 78 39 CONTRACT RECORD DOCUMENTS
E. Section 01 91 13 GENERAL COMMISSIONING REQUIREMENTS FOR MEP SYSTEMS
F. Section 01 91 15 BUILDING ENCLOSURE COMMISSIONNING REQUIREMENTS
G. Specific requirements for demonstration and orientation indicated in other sections of the Project Specifications.

**1.4 DEFINITIONS:**

A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.

| Term | Definition |
|---|---|
| Commissioning Authority / Commissioning Agent (CxA) | The entity responsible for providing commissioning services for the Project. The entity serving as the CxA may be either an employee(s) of the City or an entity engaged by the City to provide such services. |
| Design Consultant | The entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the Design Consultant may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services. |

**1.5 SUBMITTALS:**

A. Instruction Program: Submit three (3) copies of an outline of the instructional program for demonstration and orientation, including a schedule of proposed dates, times, length of instruction time, and instructors' names for each orientation module to the Commissioner for approval no less than thirty (30) Days prior to the date the proposed orientation is to take place. Include learning objectives and outline for each orientation module.

1. At completion of orientation, submit three (3) complete training manual(s) and three (3) applicable video recording(s) to the Commissioner for the facility's and City's use.

B. Qualification Data: For facilitator, instructor and videographer.

C. Attendance Record: For each orientation module, submit a list of participants and length of instruction time.

D. Evaluations: For each participant and for each orientation module, submit results and documentation of performance-based test.

E. Submit all final orientation materials to the Resident Engineer a minimum of fourteen (14) Days prior to the scheduled orientation.

F. Demonstration and Orientation Recordings:

1. All Projects:

a. The Contractor must submit to the Commissioner three (3) copies of demonstration and orientation video recordings within seven (7) Days of end of each orientation module.

b. Identification: On each copy, provide an applied label with the following information:

1) Project Contract I.D. Number
2) Project Contract Name
3) Name of Contractor
4) Name of Subcontractor as applicable
5) Name of Design Consultant
6) Name of Construction Manager as applicable
7) Date recorded

8) Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.
9) Table of Contents including list of systems covered.

c. Transcript: Prepared on 8-1/2-by-11-inch paper, punched and bound in heavy-duty, 3-ring, vinyl-covered binders. Mark appropriate identification on front and spine of each binder. Include a cover sheet with same label information as the corresponding DVD recording. Include name of Project and date of recording on each page.

d. Commissioned Projects: The Contractor must submit one (1) additional copy of the demonstration and orientation video recording to the CxA through the Resident Engineer who will include the approved recording in the commissioning report.

**1.6 QUALITY ASSURANCE:**

A. Facilitator Qualifications: A firm or individual experienced in orientation or educating maintenance personnel in an orientation program similar in content and extent to that indicated for this Project.

B. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Section 01 40 00 QUALITY REQUIREMENTS, experienced in operation and maintenance procedures and orientation.

C. Videographer Qualifications: A professional videographer who has experience with orientation and construction projects.

D. Pre-Instruction Conference: Schedule with the Resident Engineer a conference at Project Site in accordance with Section 01 31 00 PROJECT MANAGEMENT AND COORDINATION. Review methods and procedures related to demonstration and orientation including, but not limited to, the following:

1. Inspect and discuss locations and other facilities required for instruction.
2. Review and finalize instruction schedule and verify availability of educational materials, instructors' personnel, audiovisual equipment, and facilities needed to avoid delays.
3. Review required content of instruction.
4. For instruction that must occur outside, review weather and forecasted weather conditions and procedures to follow if conditions are unfavorable.

**1.7 COORDINATION:**

A. Coordinate instruction schedule with the Resident Engineer and facility’s operations. Adjust schedule as required to minimize disrupting facility’s operations.

B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.

C. Coordinate content of orientation modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data has been reviewed and approved by the Commissioner.

**PART II – PRODUCTS**

**2.1 INSTRUCTION PROGRAM:**

A. Program Structure: Develop an instruction program that includes individual orientation modules for each system and equipment not part of a system, as specified and required by individual Specification Sections.

B. Orientation Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following:

1. For basis of system design, operational requirements, and criteria, include the following:
   a. System, subsystem, and equipment descriptions;
   b. Performance and design criteria if Contractor is delegated design responsibility;
   c. Operating standards;
   d. Regulatory requirements;
   e. Equipment function including auxiliary equipment and systems;
   f. Operating characteristics;
   g. Limiting conditions; and
   h. Performance curves.

2. For documentation, review the following items in detail:
   a. Emergency manuals;
   b. Operations manuals;
   c. Maintenance manuals;
   d. Project Record Documents;
   e. Identification systems; and
   f. Warranties.

3. For emergencies, include the following, as applicable:
   a. Instructions on meaning of warnings, trouble indications, and error messages;
   b. Instructions on stopping;
   c. Shutdown instructions for each type of emergency;
   d. Operating instructions for conditions outside of normal operating limits;
   e. Sequences for electric or electronic systems; and
   f. Special operating instructions and procedures.

4. For operations, include the following, as applicable:
   a. Startup procedures;
   b. Equipment or system break-in procedures;
   c. Routine and normal operating instructions;
   d. Regulation and control procedures;
   e. Control sequences;
   f. Safety procedures;
   g. Instructions on stopping;
   h. Normal shutdown instructions;
   i. Operating procedures for emergencies;
   j. Operating procedures for system, subsystem, or equipment failure;
   k. Seasonal and weekend operating instructions;
   l. Required sequences for electric or electronic systems; and
   m. Special operating instructions and procedures.

5. For adjustments, include the following:
   a. Alignments;
   b. Checking adjustments;
   c. Noise and vibration adjustments; and
   d. Economy and efficiency adjustments.

6. For troubleshooting, include the following:
   a. Diagnostic instructions; and
   b. Test and inspection procedures.
7. For maintenance, include the following:
   a. Inspection procedures;
   b. Types of cleaning agents to be used and methods of cleaning;
   c. List of cleaning agents and methods of cleaning detrimental to product;
   d. Procedures for routine cleaning;
   e. Procedures for preventive maintenance;
   f. Procedures for routine maintenance;
   g. Instruction on use of special tools; and
   h. Housekeeping practices.
8. For repairs, include the following:
   a. Diagnosis instructions;
   b. Repair instructions;
   c. Disassembly, component removal, repair, and replacement; and reassembly instructions;
   d. Instructions for identifying parts and components; and
   e. Review of spare parts needed for operation and maintenance.

**PART III – EXECUTION**

**3.1 INSTRUCTION:**

A. Facilitator: Engage a qualified facilitator to prepare the instruction program and orientation modules, to coordinate instructors, and to coordinate between Contractor and the Resident Engineer for the number of participants, instruction times, and location.

B. The Contractor must engage qualified instructors to instruct the facility's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.

C. Scheduling: Schedule instruction with the Resident Engineer at mutually agreed upon times. For equipment that requires seasonal operation, provide similar instruction at the start of each season.

   1. Schedule orientation with the Resident Engineer with at least fourteen (14) Days advance notice.

D. Evaluation: At the conclusion of each orientation module, assess and document each participant's mastery of module(s) by use of an oral or written demonstration performance-based test.

E. Cleanup: Collect and remove used and leftover educational materials from Project Site. Remove instructional equipment. Restore systems and equipment to condition existing before initial orientation use.

**3.2 DEMONSTRATION AND ORIENTATION VIDEO RECORDINGS:**

A. All projects:

   1. The Contractor must engage a qualified commercial videographer to video record demonstration and orientation sessions. Record each orientation module separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids, but not student practice.
   2. At the beginning of each orientation module, record each chart containing learning objective and lesson outline.
   3. All recordings must be close-captioned.

4. Recording Format: Provide high-quality video recording on USB drive or other electronic media as requested by the Commissioner.

5. Recording: Mount camera on tripod before starting recording, unless otherwise necessary to show area of demonstration and orientation. Display continuous running time.

6. Narration: Describe scenes on the recording by audio narration by microphone while recording or by dubbing audio narration off-site after. Include description of items being viewed. Describe vantage point, indicating location, direction (by compass point), and elevation or story of construction.

7. Transcript: Provide a typewritten transcript of the narration. Display images and running time captured from opposite the corresponding narration segment.

B. Commissioned Projects: Refer to the Addendum to determine if the project is to be commissioned.

1. The Commissioning Authority/Agent (CxA) under separate contract with the City of New York will assess and comment on the adequacy of the orientation instruction sessions by reviewing the orientation and instruction program and agenda provided by the Contractor. The provider of the orientation program will video record the sessions and provide a copy to the CxA for final review and comments. If necessary, Contractor must edit the recording per CxA comments.

**END OF SECTION 01 79 00**

# SECTION 01 81 13.04
# 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 must ensure that these requirements as defined in the sections below and in related sections of the Contract Documents, are implemented to the fullest extent. Substitutions, or other changes to the work proposed by the Contractor or their Subcontractors, will not be allowed if such changes compromise the stated LEED BUILDING criteria.

B. This Section includes:

1. Definitions
2. LEED Provisions
3. LEED Building Submittals
4. LEED Building Submittal Requirements
5. LEED Action Plan
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, must 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 will prevail.

**1.3 RELATED SECTIONS:** Include without limitation the following:

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| 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.

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| Adhesive | Any substance used to bond one surface to another by attachment. Includes adhesive primers and adhesive bonding primers. |
| Aerosol Adhesive | Any adhesive packaged as an aerosol with a spray mechanism permanently housed in a non-refillable can designed for hand-held application without the need for ancillary equipment |
| Agrifiber Products | Products derived from recovered agricultural waste fiber from sources such as cereal straw, sugarcane bagasse, sunflower husk, walnut shells, coconut husks and agricultural prunings, processed and mixed with resins to produce panels with characteristics similar to composite wood. |
| Bio-based materials | Composed in whole or in significant part of biological products, renewable agricultural materials or forestry materials, and must meet the Sustainable Agriculture Network's Sustainable Agriculture Standard. Bio-based raw materials must be tested using ASTM Test Method D6866 and be legally harvested, as defined by the exporting and receiving country. Exclude hide products, such as leather and other animal skin material. |
| Building Exterior | A structure's primary and secondary weatherproofing system, including waterproofing membranes and air- and water-resistant barrier materials, and all building elements outside that system. |
| Building Interior | Everything inside a structure's weatherproofing membrane. |
| Carcinogen | A chemical listed as a known, probable, reasonably anticipated, or possible human carcinogen by the International Agency for Research on Cancer |

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| | (IARC) (Groups 1, 2A, and 2B), the National Toxicology Program (NTP) (Groups 1 and 2), the U.S. Environmental Protection Agency (EPA) Integrated Risk Information System (IRIS) (weight-of-evidence classifications A, B1, B2, and C, carcinogenic, likely to be carcinogenic, and suggestive evidence of carcinogenicity or carcinogen potential), or the Occupational Safety and Health Administration (OSHA). |
| Certified Wood | See Forest Stewardship Council (FSC) Certified Wood. |
| Clear Wood Finish | Clear/semi-transparent coating applied to wood substrates to provide a transparent or translucent solid film. |
| Coating | Liquid, liquefiable or mastic composition that is converted to a solid adherent film after application to a substrate as a thin layer; and is used for decorating, protecting, identifying or to serve some functional purpose such as the filling or concealing of surface irregularities or the modification of light and heat radiation characteristics; and is intended for on-site application to interior or exterior surfaces of buildings. Does not include stains, clear finishes, recycled latex paint, specialty (industrial, marine or automotive) coatings or paint sold in aerosol cans. |
| Composite Wood | Products composed of wood or plant particles or fibers bonded by a synthetic resin or binder to produce panels such as plywood, particleboard, and medium density fiberboard (MDF). Does not include hardboard, structural panels, glued laminated timber, prefabricated wood I-joists or finger-jointed lumber. |
| Cradle-to-Gate Assessment | Analysis of a product's partial life cycle, from resource extraction to the factory gate, before it is transported for distribution and sale. |
| Design Consultant | The entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services. |

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| Enclosure | The exterior plus semi-exterior portions of the building. Exterior consists of the elements of a building that separate conditioned spaces from the outside (i.e., the wall assembly). Semi-exterior consists of the elements of a building that separate conditioned space from unconditioned space or that encloses semi-heated space through which thermal energy may be transferred to or from the exterior or conditioned or unconditioned spaces (e.g., attic, crawl space, basement). |
| Environmental Product Declaration (EPD) | A statement that the item meets the environmental requirements of, ISO 14025, 14040 and EN 15804, or ISO 21930 and have at least a cradle-to-gate scope. |
| Extended Producer Responsibility | A waste management strategy, also known as closed-loop program or product take-back, where the manufacturer's responsibility for a product is extended to the post-consumer stage of the product's life-cycle. |
| Floor Coating | Opaque coating applied to flooring. Excludes industrial maintenance coatings. |
| Forest Stewardship Council (FSC) Certified Wood | Wood-based materials and products certified in accordance with the Forest Stewardship Council's principles and criteria. |
| Hazardous Air Pollutant | Any compound listed by the U.S. EPA in the Clean Air Act Section 112(b)(1) as a hazardous air pollutant. |
| Inherently Non-Emitting Materials | Products that are inherently non-emitting sources of VOCs, including stone, ceramic, powder-coated metals, plated or anodized metals, lass, concrete, clay brick, unfinished solid wood, untreated solid wood. These materials are considered compliant without VOC testing if they do not include integral organic-based surface coatings, binders or sealants. |
| Lacquer | Clear/semi-transparent coating formulated with cellulosic or synthetic resins to dry by evaporation without chemical reaction and provide a solid, protective film. |

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| LEED | The Leadership in Energy & Environmental Design rating system developed by the United States Green Building Council (USGBC). |
| Life-Cycle Assessment | An evaluation of the environmental effects of a product from cradle to grave, as defined by ISO 14040-2006 and ISO 14044-2006. |
| Mutagen | A chemical that meets the criteria for category 1, chemicals known to induce heritable mutations or to be regarding as if they induce heritable mutations in the germ cells of humans, under the Harmonized System for the Classification of Chemicals Which Cause Mutations in Germ Cells (United Nations Economic Commission for Europe, Globally Harmonized System of Classification and Labeling of Chemicals). |
| Ozone-Depleting Compounds | A compound with an ozone-depletion potential greater than 0.1 (CFC 11=1) according to the U.S. EPA list of Class I and Class II Ozone-Depleting Substances. |
| Paint | A pigmented coating. For the purposes of this specification, paint primers are considered to be paints.<br>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).<br>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).<br>C. Non-Flat High-Gloss Coating or Paint: Has a gloss of greater than or equal to 70 (using a 60-degree meter).<br>Anti-Corrosive / Rust Preventative Paint: Coating formulated and recommended for use in preventing the corrosion of ferrous metal substrates. |
| Permanently Installed Building Product | See Product. |
| Primer | 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 |

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| | substrate; or to provide a smooth surface for application of a subsequent coating. |
| 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 will each contribute as a separate product. |
| 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. |
| 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).<br><br>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.<br>Discarded materials from one manufacturing process that are used as constituents in another manufacturing process are pre-consumer recycled materials.<br>“Pre-consumer” may also be referred to as “post-industrial”. |

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| Regionally Manufactured Materials | Materials that are manufactured, distributed and purchased within a radius of 100 miles from the Project location. Manufacturing refers to all points of manufacture for an assembly of components. |
| Regionally Extracted, Harvested, or Recovered Materials | Materials which are extracted, harvested or recovered, manufactured, distributed and purchased within a radius of 100 miles from the Project site. |
| Reproductive Toxin | A chemical listed as a reproductive toxin (including developmental, female, and male toxins) by the State of California under the Safe Drinking Water and Toxic Enforcement Act of 1986 (California Code of Regulations, Title 22, Division 2, Subdivision 1, Chapter 3, Sections 1200, et. Seq.). |
| Sanding Sealer | Clear/semi-transparent coating formulated to seal bare wood. Can be abraded to create a smooth surface for subsequent coatings. Does not include sanding sealers that are lacquers (see Clear Wood Finish above). |
| Sealant | Any material with adhesive properties, formulated primarily to fill, seal, or waterproof gaps or joints between surfaces. Includes sealant primers and caulks. |
| Shellac | Clear or pigmented coating formulated solely with the resinous secretions of the lac beetle, thinned with alcohol and formulated to dry by evaporation without chemical reaction. Excludes floor applications. |
| Solar Reflectance Index (SRI) | A measure of a material's ability to reflect solar heat, as shown by a small temperature rise. It is defined so that a standard black (reflectance 0.05, emittance 0.90) is equal to 0, and a standard white (reflectance 0.80, emittance of 0.90) is equal to 100. |
| Stain | Clear semi-transparent/opaque coating formulated to change the color but not conceal the grain pattern or texture of the substrate. |
| Varnish | Clear/semi-transparent coating, excluding lacquers and shellacs, formulated to dry by chemical reaction on exposure to air. May contain small amounts of pigment. |

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| Volatile Aromatic Compound | Any hydrocarbon compound containing one or more 6-carbone benzene rings, and having an initial boiling point less than or equal to 280 degrees Celsius measured at standard conditions of temperature and pressure. |
| Volatile Organic Compound (VOC) | Any compound of carbon (excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates and ammonium carbonate) which vaporizes (becomes a gas) and participates in atmospheric photochemical reactions, as specified in Part 51.00 of Chapter 40 of the U.S. Code of Federal Regulations, at normal room temperatures. For the purposes of this specification, formaldehyde and acetaldehyde are considered to be VOCs.Waterproofing Sealer: A coating that prevents the penetration of water into porous substrates. |

**1.5 LEED PROVISIONS:**

A. Refer to the Addendum for the LEED rating to be achieved for this Project. The provisions to achieve this LEED rating are integrated within the Project construction documents and specifications. Additional LEED requirements are met through aspects of the Project design, including material and equipment selections, which may not be specifically identified as LEED Building requirements. Compliance with the requirements needed to obtain LEED prerequisites and credits will be used as one criterion to evaluate substitution requests.

1.**6 LEED BUILDING SUBMITTALS:**

A. Scope: LEED Building Submittals are required for all permanently installed materials included in General Construction work. For Plumbing, Mechanical and Electrical work, LEED Building Submittals are only required for field-applied adhesives, sealants, paints and coatings. Voluntary inclusion of system components such as piping, pipe insulation, ducts, conduits, plumbing fixtures, faucets and lamp housings must 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 is responsible for the completion of the

Disclosure and Optimization Calculator, which can be found on USGBC's website. The Contractor must 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 will 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 Subcontractor's scope of work. Cost reporting must include itemized material costs (excluding the Contractor's labor, equipment, overhead and profit).

c. The percentages (by weight) of post-consumer and/or post-industrial recycled content in the supplied product(s).
   1) For each product with recycled content, also indicate the total recycled content value (1/2 x pre-consumer percentage x product value + 1 x post-consumer percentage x product value = total recycled content value).
   2) See additional requirements for concrete in section 1.6.C.1.d below.

d. The percentage (by weight), relative to the total weight of cementitious materials, of supplementary cementitious materials or pozzolans such as fly ash used in each concrete mix used in the Project.
   1) For each concrete mix, submit a complete breakdown of all components, by weight and by cost.

e. Identification (Yes/No) of materials manufactured, distributed and purchased within 100 miles of the Project site AND containing raw materials harvested or extracted within 100 miles of the Project site, if used in the Project, as well as the following information:
   1) Indicate the percentage by weight, relative to the total weight of the product that meets these criteria.
   2) Indicate the point of harvest/extraction/recovery of regional raw materials, the point of final assembly of regional manufactured products, and the distance from each point to the Project site.

f. The percentage (by cost) of "Forest Stewardship Council (FSC) Certified" wood products, if used in the Project.
   1) Record all new wood products, indicating which are FSC-certified. Do not record reclaimed, salvaged, or recycled FSC-certified wood products.
   2) Reclaimed, salvaged, or recycled FSC-certified wood may be recorded as post-consumer recycled content.

g. The number or percentage of products with Environmental Product Declarations (EPD), with fractional or multiplied values as indicated below. If a product used in the Project has an EPD Declaration, submit one of the following:
   1) EPD:
      i. Product-Specific Declaration: Valued as one quarter (1/4) of a product
      ii. Industry-Wide (Generic) EPD: Valued as one half (1/2) of a product
      iii. Product-Specific Type III EPD: Valued as one whole product
   2) Documentation of third-party certification of impact reduction below industry average for at least three of the following categories, valued at 100%:
      i. Global warming potential (greenhouse gases), in $CO_2e$;
      ii. Depletion of the stratospheric ozone layer, in kg CFC-11;
      iii. Acidification of land and water sources, in moles H+ or kg $SO_2$;
      iv. Eutrophication, in kg nitrogen or kg phosphate;
      v. Formation of tropospheric ozone, in kg NOx or kg ethene; and depletion of nonrenewable energy resources, in MJ.

3) For 1) and 2) above, if a product is also sourced (extracted, manufactured, purchased) within 100 miles of the site, it is valued as two times the whole product.

4) For 1) and 2) above, structure and enclosure materials may not constitute more than 30% of the value of compliant building products.

h. The number or percentage of products for which Sourcing of Raw Materials has been documented, with fractional or multiplied values as indicated below. If a product used in the Project has documented Sourcing of Raw Materials, submit one of the following:

1) Corporate sustainability report (CSR). Submit one of the following:
   i. Manufacturer's self-declared report: valued as half of a product
   ii. Third-party verified CSR which include environmental impacts of extraction operations and activities associated with the manufacturer's product and the product's supply chain: valued as one whole product:
      1. Global Reporting Initiative (GRI) Sustainability Report
      2. Organisation for Economic Co-operation and Development (OECD) Guidelines for Multinational Enterprises
      3. U.N. Global Compact: Communication of Progress
      4. ISO 26000: 2010 Guidance on Social Responsibility
      5. Other USGBC approved programs meeting the CSR criteria

2) Documentation of at least one of the responsible extraction criteria below:
   i. Extended producer responsibility program, valued as half of a product
   ii. Bio-based materials, valued as one whole product
   iii. Certified Wood: Wood-based materials include all materials made from wood, including engineered wood products and wood-based panel products, valued as one whole product
   iv. Material Reuse: Materials may be salvaged, refurbished, or reused, valued as one whole product.
   v. Recycled content. The sum of post-consumer recycled content plus one-half the pre-consumer recycled content, based on cost, valued as one whole product.
   vi. Other USGBC approved programs meeting leadership extraction criteria

3) For 1) and 2) above, if a product is also sourced (extracted, manufactured, purchased) within 100 miles of the site: valued as two times the whole product.

4) For 1) and 2) above, structure and enclosure materials may not constitute more than 30% of the value of compliant building products. Products meeting multiple criteria may only be counted once.

i. The number or percentage of products for which Material Ingredients have been disclosed, with fractional or multiplied values as indicated below. If a product used in the Project discloses its Material Ingredients, submit one of the following:

1) Chemical inventory of the product to at least 0.1% (1000 ppm), documented by one of the following:
   i. Manufacturer Inventory
   ii. Health Product Declarations (HPDs)
   iii. Cradle to Cradle (C2C) certifications
   iv. Declare product labels
   v. ANSI/BIFMA e3 Furniture Sustainability Standard (Furniture may be included, providing it is included consistently in all MR Credits.)

2) Documentation of compliance with one of the following material ingredient optimization criteria programs:
   i. GreenScreen benchmarks
   ii. Cradle to Cradle certifications
   iii. REACH optimizations
   iv. Other USGBC approved programs meeting building product optimization criteria

3) Documentation that the product is sourced from a manufacturer that meets all of the below supply chain optimization criteria:
   i. Manufacturer engages in validated and robust safety, health, hazard and risk programs which at a minimum document at least 99% (by weight) of the ingredients used to make the building product or building material
   ii. Manufacturer provides independent third party verification of the following conditions for their supply chain, at a minimum:
      1. Processes are in place to communicate and transparently prioritize chemical ingredients along the supply chain according to available hazard, exposure and use information to identify those that require more detailed evaluation
      2. Processes are in place to identify, document, and communicate information on health, safety and environmental characteristics of chemical ingredients
      3. Processes are in place to implement measures to manage the health, safety and environmental hazard and risk of chemical ingredients
      4. Processes are in place to optimize health, safety and environmental impacts when designing and improving chemical ingredients
      5. Processes are in place to communicate, receive and evaluate chemical ingredient safety and stewardship information along the supply chain
      6. Safety and stewardship information about the chemical ingredients is publicly available from all points along the supply chain

4) For 2) and 3) above, if a product is also sourced (extracted, manufactured, purchased) within 100 miles of the site: valued as two times the whole product. Products compliant with both 2) and 3) may only be counted once.

5) For 1), 2), and 3) above, structure and enclosure materials may not constitute more than 30% of the value of compliant building products.

2. LEED v4 Indoor Environmental Quality Credit Low-Emitting Materials Calculator (EQ Calculator). With each relevant product submittal, the Contractor is responsible for the completion of the EQ Calculator, which can be found on USGBC's website. The Contractor must 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 must record information for all relevant products as outlined below. Include the following documentation. Detailed requirements are listed in b. – j. below.
      1) Volume used of all field applied interior adhesives, sealants, paints & coatings.
      2) VOC content of all field-applied interior adhesives, sealants, paints, and coatings, listed in grams/liter or lbs./gallon, less water.
      3) 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.
      4) Composite Wood Evaluation for all composite wood not covered by other categories.
      5) Furniture Evaluation for 90% of all furniture, by cost.

6) For schools/healthcare only: Exterior-Applied Products Evaluation for 90% of all exterior applied materials, measured by volume. All batt insulation products must 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 must 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 or v1.2-2017, 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 may contain any ingredients that are carcinogens, mutagens, reproductive toxins, persistent bioacculmulative compounds, hazardous air pollutants, or ozone-depleting compounds. An exception will be made for titanium dioxide and, for products that are pre-tinted by the manufacturer, carbon black, which must be less than or equal to 1% by weight of the product.
3) No product may 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 may 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 |

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| 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, must 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 |

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| 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 must 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 must 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 must 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 must be made with no added formaldehyde.
g. LOW-EMITTING MATERIALS, CEILINGS, WALLS, THERMAL, AND ACOUSTIC INSULATION: Ceilings, walls, and thermal and acoustic insulation must 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, will 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,

must 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. INSTALLATION ON LOCATION: Submit indication of the installation location of products other than adhesives, sealants, paints and coatings. Installation locations should be categorized as one of the following:
   1) Ceiling
   2) Wall
   3) Floor
   4) Subfloor
   5) Built-In Cabinetry
   6) Free-Standing Cabinetry
   7) Vertical Structural Elements
   8) Overhead Structural Elements

b. 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.

c. 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.

d. 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.

e. 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 must

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 must 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 must 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 will be measured according to ASTM E 903, ASTM E 1918, or ASTM C 1549. Emittance will be measured according to ASTM E 408 or ASTM C 1371. Vegetated roof surfaces are exempt from the SRI criteria.
   a. 82 for initial SRI, or 64 for 3-year aged SRI for low-sloped roofing applications (slope ≤ 2:12)
   b. 39 for initial SRI or 32 for 3-year aged SRI for steep-sloped roofing applications (slope > 2:12)

8. LOW MERCURY LAMPS: For all fluorescent, compact fluorescent and HID lamps installed in the Project, submit the total number of each lamp type and submit published product literature or letter from the manufacturer (on the manufacturer's letterhead) verifying the following information. Preheat, T-9, T-10 and T-12 fluorescents or mercury vapor high-intensity discharge (HID) lamps must not be installed in the Project. For healthcare projects only, probe-start metal halide HID lamps must 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 must not contain mercury, and must 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 must be assembled into one package per contract specification section(s) (or per Subcontractor), and submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES. Incomplete or inaccurate LEED Building Submittals may be used as the basis for the rejection of products or assemblies.

B. All final LEED Building Submittal information with back-up documentation must 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 must 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 must 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 must 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 will 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 is responsible for the provision, maintenance, and repair of all ESC measures. Any problems identified in site inspections must be resolved in a timely manner.
   c. Demonstration. The Contractor must provide on-site instruction of proper construction practices required to prevent erosion and sedimentation.
   d. All Subcontractors must promptly notify the ESC Representative if damage to an ESC measure is observed.
   e. Meetings. Urgent or ongoing ESC issues must 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 must save such original documents for the life of the Project plus seven (7) years.

**1.9 QUALITY ASSURANCE:**

A. The Contractor must implement all LEED Action Plans, coordinate the Plans and LEED Building Submittals with all affected trades, and designate one individual as the Sustainable Construction Representative at no additional cost to the City of New York, who will be responsible for communicating the progress of LEED activities with the Commissioner monthly, and for assembling the required LEED documentation. The Contractor must facilitate measurements taken by authorized parties on site for LEED compliance verification purposes.

B. Responsibilities of Contractor’s Subcontractors: The Contractor is responsible for its Subcontractors complying with the LEED Action Plans and for providing required LEED documentation as required for the Project.

C. Distribution and Compilation: The Contractor is responsible for distributing the 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 is also 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 must 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): www.iso.org

L. ISO 14025–2006, Environmental labels and declarations (Type III Environmental Labeling): www.iso.org

M. ISO 14040–2006, Environmental management, Life cycle assessment principles, and frameworks: www.iso.org

N. ISO 14044–2006, Environmental management, Life cycle assessment requirements, and guidelines: www.iso.org

O. International Standard ISO 21930–2007 Sustainability in building construction—Environmental declaration of building products: www.iso.org

P. Federal Trade Commission, Guides for the Use of Environmental Marketing Claims, 16 CFR 260.7 (e): www.ftc.gov/bcp/grnrule/guides980427.htm

Q. Global Reporting Initiative (GRI) Sustainability Report: www.globalreporting.org/

R. Organisation for Economic Co-operation and Development (OECD) Guidelines for Multinational Enterprises: www.oecd.org/daf/internationalinvestment/guidelinesformultinationalenterprises/

S. U.N. Global Compact, Communication on Progress: www.unglobalcompact.org/participation/report/cop

T. ISO 26000—2010 Guidance on Social Responsibility: www.iso.org/iso/home/standards/iso26000.htm

U. Forest Stewardship Council: www.ic.fsc.org

V. Sustainable Agriculture Network: www.sanstandards.org

W. The Rainforest Alliance: www.rainforest-alliance.org/

X. ASTM Test Method D6866: www.astm.org/Standards/D6866.htm

Y. Chemical Abstracts Service: www.cas.org/

Z. Health Product Declaration: www.hpd-collaborative.org/

AA. Cradle-to-Cradle CertifiedCM Product Standard: www.c2ccertified.org/product_certification

BB. Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH): www.echa.europa.eu/support/guidance-on-reach-and-clp-implementation

CC. GreenScreen: www.greenscreenchemicals.org/method/greenscreen-list-translator

**PART II – PRODUCTS (Not Used)**

**PART III – EXECUTION (Not Used)**

**END OF SECTION 01 81 13.04**

# SECTION 01 81 13.10
# ENVIRONMENTALLY PREFERABLE PURCHASING (EPP) COMPLIANCE

**REFER TO THE ADDENDUM FOR APPLICABILITY OF THIS SECTION 01 81 13.10**

## 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 all equipment, material and product purchasing to comply with the requirements of New York City Environmentally Preferable Purchasing (EPP) "Minimum Standards for Construction Products", as established by the Mayor's Office of Contract Services (MOCS). Refer to their website for further guidance.

B. All sections in the Project Specifications with applicable equipment, materials and products will follow all requirements of this section. In the event of any conflict or inconsistency between this section and the Specifications, the more stringent requirements will prevail.

C. This Section includes:

1. Definitions
2. Administrative Requirements
3. Action Submittals
4. Informational Submittals
5. Products, Materials

### 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 78 39 CONTRACT RECORD DOCUMENTS

### 1.4 DEFINITIONS:

A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.

| Term | Definition |
|---|---|
| Environmentally Preferable Purchasing (EPP) Minimum Standards for Construction Products | The standard that refers to a list of equipment, materials and products that may be specified in construction contracts covered by the EPP laws and provides the applicable minimum standards referenced in the laws.<br><br>See EPP Minimum Standards for Constructions Products available on MOCS' website for a comprehensive list of all applicable definitions. |

**1.5 ADMINISTRATIVE REQUIREMENTS:**

A. At no additional cost to the City of New York, designate an individual who will be responsible for the communication of progress of EPP activities with the Commissioner on a regular basis and for the quality of all EPP-related materials and preparation, coordination and assembly of the supporting documentation.

B. Scope and Applicability: Action submittals and informational submittals are required for all installed equipment, materials and products that require EPP compliance. Provide all required submittals in accordance with Section 01 33 00 SUBMITTAL PROCEDURES.

C. Distribution and Compilation: The Contractor must coordinate with all affected trades and is responsible for its Subcontractors complying with the EPP requirements and for providing required EPP documentation as required for the project. The Contractor is responsible for distributing the forms or templates required for the Subcontractors to record EPP documentation. The Contractor is also responsible for collecting and compiling information into packages as described in Section 01 33 00 SUBMITTAL PROCEDURES.

D. The Contractor must respond in a timely manner to questions and requests from the Commissioner, Design Consultant and MOCS regarding EPP requirements that are the responsibility of the Contractor. Document responses as informational submittals.

**1.6 ACTION SUBMITTALS:**

A. General Requirements:

1. EPP Documentation Submittals for applicable and compliant product data, as stated in the EPP Minimum Standards for Construction Products, is to be documented in the form of a Vendor Survey and supporting manufacturer’s data sheets highlighting EPP compliance-related data. Include in the Vendor Survey the anticipated quantity of product purchased and cost per unit data. See attached sample Vendor Survey form.

2. Compliance with EPP requirements will be used as one criterion to evaluate product selection. Assemble EPP Documentation Submittal information into one package per contract specification section(s) (or per Subcontractor). Incomplete or inaccurate EPP Documentation submittals may be used as the basis for the rejection of products or assemblies.

3. Update the quantities and costs in the Vendor Survey once products are approved and purchased and document as information submittal.

**1.7 INFORMATIONAL SUBMITTALS**

A. For each registered contract, the Contractor must maintain a Master Vendor Survey, an updated tracking log of all equipment, materials and products purchased on a contract that are required to comply with EPP. Submit the Master Vendor Survey on a monthly basis and update the costs once products are purchased.

1. Upon request by MOCS, submit the Master Vendor Survey and supporting documents.

B. EPP Progress Reports: Concurrent with each Application for Payment, submit reports of purchasing activities for each of the EPP-applicable equipment, materials and products listed in Sub-section C below.

C. Project Materials Cost Data: For Vendor Survey and EPP Progress Reports, include breakout of costs for the following categories of items:

1. Appliances.
2. Architectural Coatings.
3. HVAC Equipment.
4. Lighting Products.
5. Miscellaneous Products – Construction.
6. Plumbing Fixtures.

**PART II – PRODUCTS**

**2.1 MATERIALS:**

A. Detailed Requirements. This sub-section defines the information and documents to be provided for each EPP-applicable equipment, material and product type, as identified in each specification section:

1. Appliances – Residential:

   All energy-using products for which the United States Environmental Protection Agency and the United States Department of Energy have developed energy efficiency standards for compliance with the Energy Star program shall be ENERGY STAR labeled. The following residential appliances shall comply with this requirement:

   a. Clothes Washers
   b. Dehumidifiers
   c. Dishwashers, Standard-Sized
   d. Freezers, Upright, Chest and Compact
   e. Refrigerators and Refrigerator-Freezers, Standard-Sized and Compact

   Microwave Ovens shall comply with the following requirements:

   a. Recommended Standby Levels: 2 watts or less
   b. Best Available Standby Level: 2 watts or less

2. Architectural Coatings:

   a. For the products listed below, the maximum content of Volatile Organic Compounds (VOCs) shall be determined according to the American Society for Testing and Materials test method D 5116 (Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions from Indoor Materials/Products).

| **Architectural Coating** | **Maximum Concentration of VOC in Grams per Liter** |
|---|---|
| Clear Wood Coating – Clear-Brushing lacquers | 275 |
| Clear Wood Coating – Sanding Sealers (Other than Lacquers) | 275 |
| Clear Wood Coating –Varnishes | 275 |
| Floor Coatings | 100 |
| Lacquers - Pigmented | 275 |
| Primers for Flat Paint | 100 |
| Primers for Non-Flat Paint | 150 |
| Rust Preventative/Anti-Corrosive Paint | 250 |

b. Any product listed below that is compliant with Part 205 of Title Six of the New York Codes, Rules and Regulations meets the standard required under EPP Minimum Standards for Construction Products. The maximum content of VOCs for these products shall be determined according to the test method required under part 205.6 of such part.

| **Architectural Coating** | **Maximum Concentration of VOC in Grams per Liter** |
|---|---|
| Clear Wood Coating – Conversion Varnishes | 725 |
| Clear Wood Coating – Lacquers (Including Lacquer Sanding Sealers) | 550 |
| Concrete Bond Breakers | 350 |
| Concrete Curing Compounds | 350 |
| Concrete Surface Retarders | 780 |
| Dry Fog Coatings | 400 |
| Faux Finishing Coatings | 350 |
| Fire-Resistive Coatings | 350 |
| Fire-Retardant Coatings | 650 |
| Fire-Retardant Coatings - Opaque | 350 |
| Flat Paint | 100 |
| Form Release Compounds | 250 |
| Graphic Arts Coatings (Sign Paints) | 500 |
| High Temperature Coatings | 420 |
| Industrial Maintenance (IM) Coatings | 340 |
| Low Solids Coatings | 120 |
| Magnesite Cement Coatings | 450 |
| Mastic Texture Coatings | 300 |
| Metallic Pigmented Coatings | 500 |
| Multi-Color Coatings | 500 |
| Nonflat High-Gloss Coatings | 250 |
| Nonflat Paint | 150 |
| Pre-Treatment Wash Primers | 420 |
| Primers, Sealers, and Undercoaters | 200 |
| Quick-Dry Enamels | 250 |
| Quick-Dry Primers, Sealers, and Undercoaters | 200 |
| Recycled Coatings | 250 |
| Roof Coatings | 250 |
| Roof Coatings (Bituminous) | 300 |
| Roof Primers (Bituminous) | 350 |
| Shellacs – Clear | 730 |
| Shellacs – Opaque | 550 |
| Specialty Primers, Sealers and Undercoaters | 350 |
| Stains | 250 |
| Swimming Pool Coatings and Swimming Pool Repair and Maintenance Coatings | 340 |
| Thermoplastic Rubber Coatings and Mastics | 550 |
| Waterproofing Concrete / Masonry Sealers | 400 |
| Waterproofing Sealers | 250 |
| Wood Preservatives | 350 |

c. The products listed below shall be recovered material and comply with the Post-consumer Content and Total Recovered Materials Content requirements.

| Architectural Coating | Post-consumer Content (%) | Total Recovered Materials Content (%) |
|---|---|---|
| Latex Paint – Consolidated | 100 | 100 |
| Latex Paint – Reprocessed White, Off-White and Pastel Colors | 20 | 20 |
| Latex Paint – Reprocessed Grey, Brown, Earthtones and Other Dark Colors | 50-99 | 50-99 |

3. HVAC Equipment: Commercial and Residential

a. Commercial

All energy-using products for which the United States Environmental Protection Agency and the United States Department of Energy have developed energy efficiency standards for compliance with the Energy Star program shall be ENERGY STAR labeled. The following Commercial HVAC Equipment shall comply with this requirement:

1. Air Conditioners, Air-Cooled
2. Air Conditioners, Gas/Electric Package Units
3. Heat Pumps, Air Source

Chillers shall comply with the following Part Load Optimized Chillers IPLV and Full Load Optimized Chillers IPLV requirements:

| Type | Compressor Type and Capacity | Part Load Optimized Chillers IPLV (kW/ton) Required | Full Load Optimized Chillers IPLV (kW/ton) Required |
|---|---|---|---|
| Air-Cooled | Scroll (30 – 60 tons) | 0.86 or less | 1.23 or less 1.1 |
| Air-Cooled | Reciprocating (30 – 150 tons) | 0.90 or less | 1.23 or less 1 |
| Air-Cooled | Screw (70 – 200 tons) | 0.98 or less | 1.23 or less 0.94 |
| Water-Cooled | Centrifugal (150 – 299 tons) | 0.52 or less | 0.59 or less |
| Water-Cooled | Centrifugal (300 – 2,000 tons) | 0.45 or less | 0.56 or less |
| Water-Cooled | Rotary Screw (>150 tons) | 0.49 or less | 0.64 or less |

b. Residential

All energy-using products for which the United States Environmental Protection Agency and the United States Department of Energy have developed energy efficiency standards for compliance with the Energy Star program shall be ENERGY STAR labeled. The following Residential HVAC Equipment shall comply with this requirement:

1. Air Conditioners, Central (<65,000 Btu/h)

2. Air Conditioners, Central, Gas/Electric Package Units (<65,000 Btu/h)
3. Air Source Heat Pumps (<65,000 Btu/h)
4. Boilers and Boiler/Hot Water Heaters (<300,000 Btu/h)
5. Ceiling Fans
6. Furnaces and Furnace/Hot Water Heaters (<340,000 Btu/h)
7. Ground Source Heat Pumps (Geothermal)
8. In-Line Ventilating Fan
9. Programmable Thermostats
10. Range Hood and Bathroom /Utility Room Ventilating Fans
11. Room Air Cleaners
12. Room Air Conditioners

4. Lighting Products

a. The following lighting products shall comply with the corresponding BEF requirement:

| **Product Type** | **Number of Lamps** | **Required BEF** |
|---|---|---|
| Ballast, Fluorescent, Four-Foot, Linear T12, 34-Watts | 1 | 2.64 or higher |
| Ballast, Fluorescent, Four-Foot, Linear T12, 34-Watts | 2 | 1.41 or higher |
| Ballast, Fluorescent, Four-Foot, Linear T12, 34-Watts | 3 | 0.93 or higher |
| Ballast, Fluorescent, Eight-Foot, Linear T12, 60-Watts | 2 | 0.80 or higher |
| Ballast, Fluorescent, Four-Foot, Linear T8, 32-Watts | 1 | 2.54 or higher |
| Ballast, Fluorescent, Four-Foot, Linear T8, 32-Watts | 2 | 1.44 or higher |
| Ballast, Fluorescent, Four-Foot, Linear T8, 32-Watts | 3 | 1.44 or higher |
| Ballast, Fluorescent, Four-Foot, Linear T8, 32-Watts | 4 | 0.73 or higher |
| Ballast, Fluorescent, Eight-Foot, Linear T8, 59-Watts | 2 | 0.80 or higher |
| Ballast, Fluorescent, Four-Foot, U-Bent T12, 34-Watts | 1 | 2.64 or higher |
| Ballast, Fluorescent, Four-Foot, U-Bent T12, 34-Watts | 2 | 1.41 or higher |
| Ballast, Fluorescent, Four-Foot, U-Bent T12, 34-Watts | 3 | 0.93 or higher |
| Ballast, Fluorescent, U-Tube, U-Bent T8, 32-Watts | 1 | 2.54 or higher |
| Ballast, Fluorescent, U-Tube, U-Bent T8, 32-Watts | 2 | 1.44 or higher |
| Ballast, Fluorescent, U-Tube, U-Bent T8, 32-Watts | 3 | 0.93 or higher |
| Ballast, Fluorescent, U-Tube, U-Bent T8, 32-Watts | 4 | 0.73 or higher |

b. All energy-using products for which the United States Environmental Protection Agency and the United States Department of Energy have developed energy efficiency standards for compliance with the Energy Star program shall be ENERGY STAR labeled. The following Lighting Products shall comply with this requirement:

1. Exit Signs
2. Luminaires, Residential

c. Luminaires, Downlight, With Compact Fluorescent Lamps (13-32 Lamp Wattage) shall comply with the following LER requirements:

| Luminaire Type (NEMA Designation) | Required LER |
|---|---|
| Open Optics | 29 or higher |
| Baffled Optics | 21 or higher |
| Lensed Optics | 24 or higher |

d. Luminaires, Downlight, With Metal Halide Lamps (<150 Watts) shall comply with the following LER requirements:

| Luminaire Type (NEMA Designation) | Required LER |
|---|---|
| Open Optics | 35 or higher |
| Lensed Optics | 30 or higher |

e. Luminaires, Fluorescent shall comply with the following LER requirements:

| Luminaire Type (NEMA Designation) | Number of Lamps | Required LER |
|---|---|---|
| Lensed (FL) | 2 | 62 or higher |
| Lensed (FL) | 3 | 61 or higher |
| Lensed (FL) | 4 | 61 or higher |
| VDT-Preferred Louvered (FP) | 2 | 50 or higher |
| VDT-Preferred Louvered (FP) | 3 | 51 or higher |
| VDT-Preferred Louvered (FP) | 4 | 54 or higher |
| Four-Foot (FW) | 2 | 63 or higher |
| Four-Foot (FW) | 4 | 62 or higher |
| Four-Foot (FS) | 1 | 70 or higher |
| Four-Foot (FS) | 2 | 70 or higher |
| Four-Foot (FI) | 1 | 67 or higher |
| Eight-Foot (FI) | 2 | 68 or higher |

f. Luminaires, Industrial HID, With High Pressure Sodium Lamps (<150 Lamp Wattage) shall comply with the following LER requirements:

| Upward Efficiency | Lamp Wattage | Closed Fixture (HR) LER Required | Open Fixture (HR) LER Required |
|---|---|---|---|
| 0% | 150-399 | 58 or higher | 68 or higher |
| 0% | 400-999 | 63 or higher | 84 or higher |
| 0% | >1000 | N/A | N/A |
| 1%-10% | 150-399 | 64 or higher | 63 or higher |
| 1%-10% | 400-999 | 82 or higher | 89 or higher |
| 1%-10% | >1000 | N/A | 109 or higher |
| 11%-20% | 150-399 | N/A | 78 or higher |

| | | | |
|---|---|---|---|
| 11%-20% | 400-999 | N/A | 94 or higher |
| 11%-20% | >1000 | N/A | N/A |
| >20% | 150-399 | 75 or higher | 77 or higher |
| >20% | 400-999 | N/A | N/A |
| >20% | >1000 | N/A | N/A |

5. Miscellaneous Products – Construction

   a. For the products listed below, the maximum content of Volatile Organic Compounds (VOCs) shall be determined according to the American Society for Testing and Materials test method D 5116 (Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions from Indoor Materials/Products). The products may not contain any volatile organic compound in any concentration exceeding that specified below. Products that are compliant with the Green Label Plus program of the Carpet and Rug Institute are also compliant with this standard.

| **Carpet Adhesives** | | |
|---|---|---|
| **Volatile Organic Compound** | **24-Hour Testing Maximum Emission Factor (µg/m2•hr)** | **14-Day Testing Maximum Emission Factor (µg/m2•hr)** |
| Formaldehyde | 50 | 31 |
| 2-ethyl-1-hexanol | 300 | 300 |
| Total Volatile Organic Compounds | 800 | N/A |
| **Carpet Cushions** | | |
| **Volatile Organic Compound** | **24-Hour Testing Maximum Emission Factor (µg/m2•hr)** | **14-Day Testing Maximum Emission Factor (µg/m2•hr)** |
| Butylated Hydroxytoluene | 300 | N/A |
| Formaldehyde | 50 | N/A |
| 4-Phenylcyclohexene (4PCH) | 50 | N/A |
| Total Volatile Organic Compounds | 1000 | N/A |
| **Carpets** | | |
| **Volatile Organic Compound** | **24-Hour Testing Maximum Emission Factor (µg/m2•hr)** | **14-Day Testing Maximum Emission Factor (µg/m2•hr)** |
| Formaldehyde | 50 | 30 |
| 4-Phenylcyclohexene | 50 | 17 |
| Styrene | 410 | 410 |
| Total Volatile Organic Compounds | 500 | N/A |

b. The products listed below shall comply with the Recycled Post-consumer Content and Total Recovered Materials Content requirements.

| **Carpet Cushion – Bonded Polyurethane** | | |
|---|---|---|
| **Material** | **Recovered Post-consumer Content (%)** | **Total Recovered Materials Content (%)** |
| Old Carpet Cushion | 15-50 | 15-50 |
| **Carpet Cushion – Jute** | | |
| **Material** | **Recovered Post-consumer Content (%)** | **Total Recovered Materials Content (%)** |
| Burlap | 40 | 40 |
| **Carpet Cushion – Rubber** | | |
| **Material** | **Recovered Post-consumer Content (%)** | **Total Recovered Materials Content (%)** |
| Tire Rubber | 60-90 | 60-90 |
| **Carpet Cushion – Synthetic Fibers** | | |
| **Material** | **Recovered Post-consumer Content (%)** | **Total Recovered Materials Content (%)** |
| Carpet Fabrication Scrape | No Range Recommended | 100 |
| **Cement and Concrete** | | |
| **Material** | **Recovered Post-consumer Content (%)** | **Total Recovered Materials Content (%)** |
| Cenospheres | No Range Recommended | Minimum 10% (by volume) |
| Coal fly Ash | No Range Recommended | No Range Recommended |
| GGBF Slag | No Range Recommended | No Range Recommended |
| Silica Fume | No Range Recommended | 5-10% of cementitious material (dry weight basis) |
| **Channelizers** | | |
| **Material** | **Recovered Post-consumer Content (%)** | **Total Recovered Materials Content (%)** |
| Plastic | 25-90 | No Range Recommended |
| Rubber (base only) | 100 | No Range Recommended |
| **Delineators – Fixed** | | |
| **Material** | **Recovered Post-consumer Content (%)** | **Total Recovered Materials Content (%)** |
| Plastic | 25-90 | No Range Recommended |
| Rubber (base only) | 100 | No Range Recommended |
| Steel (BOF, base only) | 16 | 25-30 |
| Steel (BOF, base only) | 67 | 100 |
| **Delineators – Flexible** | | |
| **Material** | **Recovered Post-consumer Content (%)** | **Total Recovered Materials Content (%)** |
| Plastic PET | 25-85 | No Range Recommended |
| Floor Tiles | | |
| Material | Recovered Post-consumer Content (%) | Total Recovered Materials Content (%) |
| Rubber | 90-100 | No Range Recommended |
| Plastic | No Range Recommended | 90-100 |
| **Insulation - Cellulose** | | |

| **Material** | **Recovered Post-consumer Content (%)** | **Total Recovered Materials Content (%)** |
|---|---|---|
| Post-consumer Paper | 75 | 75 |
| **Insulation - Foam-In-Place** | | |
| **Material** | **Recovered Post-consumer Content (%)** | **Total Recovered Materials Content (%)** |
| Recovered Material | No Range Recommended | 5 |
| **Insulation - Glass Fiber Reinforced** | | |
| **Material** | **Recovered Post-consumer Content (%)** | **Total Recovered Materials Content (%)** |
| Recovered Material | No Range Recommended | 6 |
| **Insulation - Laminated Paperboard** | | |
| **Material** | **Recovered Post-consumer Content (%)** | **Total Recovered Materials Content (%)** |
| Post-consumer Paper | 100 | 100 |
| **Insulation - Perlite Composition Board** | | |
| **Material** | **Recovered Post-consumer Content (%)** | **Total Recovered Materials Content (%)** |
| Post-consumer Paper | 23 | 23 |
| **Insulation - Phenolic Rigid Foam** | **Insulation - Phenolic Rigid Foam** | **Insulation - Phenolic Rigid Foam** |
| **Material** | **Material** | **Material** |
| Recovered Material | Recovered Material | Recovered Material |
| **Insulation - Plastic, Non-woven Batt** | **Insulation - Plastic, Non-woven Batt** | **Insulation - Plastic, Non-woven Batt** |
| **Material** | **Material** | **Material** |
| Recovered and/or Post-consumer Plastic | Recovered and/or Post-consumer Plastic | Recovered and/or Post-consumer Plastic |
| **Insulation - Plastic Rigid Foam, Polyisocyanurate/Polyurethane: Rigid Foam** | **Insulation - Plastic Rigid Foam, Polyisocyanurate/Polyurethane: Rigid Foam** | **Insulation - Plastic Rigid Foam, Polyisocyanurate/Polyurethane: Rigid Foam** |
| **Material** | **Material** | **Material** |
| Recovered Material | Recovered Material | Recovered Material |
| **Insulation - Structural Fiberboard** | **Insulation - Structural Fiberboard** | **Insulation - Structural Fiberboard** |
| **Material** | **Material** | **Material** |
| Recovered Material | Recovered Material | Recovered Material |
| **Modular Threshold Ramps** | **Modular Threshold Ramps** | **Modular Threshold Ramps** |
| **Material** | **Material** | **Material** |
| Steel (BOF) | Steel (BOF) | Steel (BOF) |
| Steel (EAF) | Steel (EAF) | Steel (EAF) |
| Aluminum | Aluminum | Aluminum |
| Rubber | Rubber | Rubber |

| **Nonpressure Pipe** | | |
|---|---|---|
| **Material** | **Recovered Post-consumer Content (%)** | **Total Recovered Materials Content (%)** |
| Steel (BOF) | 16 | 25-30 |
| Steel (EAF) | 67 | 100 |
| Plastic (HDPE) | 100 | 100 |
| Plastic (PVC) | 5-15 | 25-100 |
| Cement | No Range Recommended | No Range Recommended |
| **Playground Equipment** | | |
| **Material** | **Recovered Post-consumer Content (%)** | **Total Recovered Materials Content (%)** |
| Plastic | 90-100 | 100 |
| Plastic Composite | 50-75 | 95-100 |
| Steel (BOF) | 16 | 95 |
| Steel (EAF) | 50-100 | 95-100 |
| **Restroom Dividers/Partitions, Steel** | | |
| **Material** | **Recovered Post-consumer Content (%)** | **Total Recovered Materials Content (%)** |
| Steel (from BOF) | 16 | 25-30 |
| Steel (from EAF) | 67 | 100 |
| **Roofing Materials** | | |
| **Material** | **Recovered Post-consumer Content (%)** | **Total Recovered Materials Content (%)** |
| Steel (BOF) | 16 | 25-30 |
| Steel (EAF) | 67 | 100 |
| Aluminum | 20-95 | 20-95 |
| Fiber (felt) or Fiber Composite | 50-100 | 50-100 |
| Rubber | 12-100 | 100 |
| Plastic or Plastic/Rubber Composite | 100 | 100 |
| Wood/Plastic Composite | No Range Recommended | 100 |
| Cement | No Range Recommended | No Range Recommended |
| **Shower Dividers/Partitions, Steel** | | |
| **Material** | **Recovered Post-consumer Content (%)** | **Total Recovered Materials Content (%)** |
| Steel (from BOF) | 16 | 25-30 |
| Steel (from EAF) | 67 | 100 |
| **Traffic Barricades** | | |
| **Material** | **Recovered Post-consumer Content (%)** | **Total Recovered Materials Content (%)** |
| Plastic (High Density Polyethylene [HDPE], Low-Density Polyethylene [LDPE], Polyethylene terephthalate [PET]) | 80-100 | 100 |
| Steel (BOF) | 16 | 25-30 |
| Steel (EAF) | 67 | 100 |
| Fiberglass | No Range Recommended | No Range Recommended |

c. All energy-using products for which the United States Environmental Protection Agency and the United States Department of Energy have developed energy efficiency standards for compliance with the Energy Star program shall be ENERGY STAR labeled. The following Construction Products shall comply with this requirement:

1. Entry or Patio Doors, Residential
2. Residential Skylights
3. Residential Windows & Tubular Daylighting Devices
4. Roof Products

d. Electric Motors shall comply with the following Nominal Efficiencies requirements:

| **Nominal Efficiencies for Induction Motors Rated 600 Volts or Less (Random Wound)** | | | | | | |
|---|---|---|---|---|---|---|
| **Motor Size (HP)** | | **Open Drip-Proof (ODP)** | | **Totally Enclosed Fan-Cooled (TEFC)** | | |
| **6-pole (1200 rpm)** | **4-pole (1200 rpm)** | **2-pole (1200 rpm)** | **6-pole (1200 rpm)** | **4-pole (1200 rpm)** | **2-pole (1200 rpm)** | |
| 1 | 82.5 | 85.5 | 77.0 | 82.5 | 85.5 | 77.0 |
| 1.5 | 86.5 | 86.5 | 84.0 | 87.5 | 86.5 | 84.0 |
| 2 | 87.5 | 86.5 | 85.5 | 88.5 | 86.5 | 85.5 |
| 3 | 88.5 | 89.5 | 85.5 | 89.5 | 89.5 | 86.5 |
| 5 | 89.5 | 89.5 | 86.5 | 89.5 | 89.5 | 88.5 |
| 7.5 | 90.2 | 91.0 | 88.5 | 91.0 | 91.7 | 89.5 |
| 10 | 91.7 | 91.7 | 89.5 | 91.0 | 91.7 | 90.2 |
| 15 | 91.7 | 93.0 | 90.2 | 91.7 | 92.4 | 91.0 |
| 20 | 92.4 | 93.0 | 91.0 | 91.7 | 93.0 | 91.0 |
| 25 | 93.0 | 93.6 | 91.7 | 93.0 | 93.6 | 91.7 |
| 30 | 93.6 | 94.1 | 91.7 | 93.0 | 93.6 | 91.7 |
| 40 | 94.1 | 94.1 | 92.4 | 94.1 | 94.1 | 92.4 |
| 50 | 94.1 | 94.5 | 93.0 | 94.1 | 94.5 | 93.0 |
| 60 | 94.5 | 95.0 | 93.6 | 94.5 | 95.0 | 93.6 |
| 75 | 94.5 | 95.0 | 93.6 | 94.5 | 95.4 | 93.6 |
| 100 | 95.0 | 95.4 | 93.6 | 95.0 | 95.4 | 94.1 |
| | | | | | | |
| 125 | 95.0 | 95.4 | 94.1 | 95.0 | 95.4 | 95.0 |
| 150 | 95.4 | 95.8 | 94.1 | 95.8 | 95.8 | 95.0 |
| 200 | 95.4 | 95.8 | 95.0 | 95.8 | 96.2 | 95.4 |
| 250 | 95.4 | 95.8 | 95.0 | 95.8 | 96.2 | 95.8 |
| 300 | 95.4 | 95.8 | 95.4 | 95.8 | 96.2 | 95.8 |
| 350 | 95.4 | 95.8 | 95.4 | 95.8 | 96.2 | 95.8 |
| 400 | 95.8 | 95.8 | 95.8 | 95.8 | 96.2 | 95.8 |
| 450 | 96.2 | 96.2 | 95.8 | 95.8 | 96.2 | 95.8 |
| 500 | 96.2 | 96.2 | 95.8 | 95.8 | 96.2 | 95.8 |

| Nominal Efficiencies for Induction Motors Rated Medium Voltage or Less (Form Wound) | | | | | | |
|---|---|---|---|---|---|---|
| **Motor Size (HP)** | | **Open Drip-Proof (ODP)** | | **Totally Enclosed Fan-Cooled (TEFC)** | | |
| **6-pole (1200 rpm)** | **4-pole (1200 rpm)** | **2-pole (1200 rpm)** | **6-pole (1200 rpm)** | **4-pole (1200 rpm)** | **2-pole (1200 rpm)** | |
| 250-500 | 95.0 | 95.0 | 94.5 | 95.0 | 95.0 | 95.0 |

6. Plumbing Fixtures.

   a. The plumbing fixtures shall comply with the following Water Efficiency requirements:

| **Plumbing Fixture** | **Water Efficiency Requirement** |
|---|---|
| Lavatory Faucets | < 2.0 gallons per minute |
| Showerheads, Residential and Commercial | < 2.2 gallons per minute |
| Toilets, Residential and Commercial | < 1.6 gallons per flush |
| Urinals, Residential and Commercial | < 1.0 gallons per flush |

**PART III – EXECUTION (Not Used)**

**END OF SECTION 01 81 13.10**

## EPP VENDOR SURVEY FORM

**Instructions:** In the space provided, indicate the following: (1.) Choose Construction for the EPP Book Used (2.) Choose the product type from the drop-down menu; (3.) Choose the product detail from the drop-down menu; (4.) Identify the specific item under Product Description; (5.) Enter the number of products per unit; (6.) Enter the cost per unit; (7.) Enter the units purchased; (8.) Enter the total cost.

Return completed spreadsheet to the contracting agency in the accompanying letter. Thank you.

| Agency Acronym | Environmental Preferable Purchasing Information | | | | Quantity and Cost Information | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | EPP Book Used | Product Type | Product Details | Product Description | Products Per Unit | Cost Per Unit | Units Purchased | Total Cost | Comments |
| DDC | | | | | | | | $0.00 | |
| DDC | | | | | | | | $0.00 | |
| DDC | | | | | | | | $0.00 | |
| DDC | | | | | | | | $0.00 | |
| DDC | | | | | | | | $0.00 | |
| DDC | | | | | | | | $0.00 | |
| DDC | | | | | | | | $0.00 | |
| DDC | | | | | | | | $0.00 | |
| DDC | | | | | | | | $0.00 | |
| DDC | | | | | | | | $0.00 | |
| DDC | | | | | | | | $0.00 | |
| DDC | | | | | | | | $0.00 | |
| TOTAL | | | | | 0.00 | $0.00 | 0.00 | $0.00 | |

# SECTION 01 81 19
# INDOOR AIR QUALITY REQUIREMENTS FOR LEED BUILDINGS

**REFER TO THE ADDENDUM FOR APPLICABILITY OF THIS SECTION 01 81 19**

## PART I – GENERAL

### 1.1 RELATED DOCUMENTS:

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

### 1.2 CONSTRUCTION IAQ MANAGEMENT GOALS FOR THE PROJECT:

A. The City of New York has determined that this Project must minimize the detrimental impacts on Indoor Air Quality (IAQ) resulting from construction Subcontractor activities. Factors that contaminate indoor air, such as dust entering HVAC systems and ductwork, improper storage of materials on-site, and poor housekeeping, must be minimized.

### 1.3 RELATED SECTIONS:

A. All sections of the Specifications related to interior construction, MEP systems and items affecting indoor air quality.

B. Division 9 (of the Specifications): Finishes.

C. Refer to the Addendum to identify whether this project is designed to comply with a Certification Level according to the U.S. Green Building Council's LEED Rating System, as specified in Section 01 81 13.04 SUSTAINABLE DESIGN REQUIREMENTS FOR LEED v4 BUILDINGS.

D. Section 01 91 13 GENERAL COMMISSIONING REQUIREMENTS FOR MEP SYSTEMS.

### 1.4 DEFINITIONS:

A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.

| | |
|---|---|
| Design Consultant | The entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services. |
| Volatile Organic Compounds (VOCs) | Chemical compounds common in and emitted by many building products, including solvents in paints, coatings, adhesives and sealants, wood preservatives, composite wood binder, and foam insulations. Not all VOCs are harmful, but many of those contained within building products contribute to the formation of smog and may irritate building occupants by their smell or health impact. |
| Materials that act as "sinks" for VOC contamination | Absorptive materials, typically dry and soft materials (such as textiles, carpeting, acoustical ceiling tiles and gypsum board) that readily absorb VOCs emitted by "source" materials and release them over a prolonged period of time. |

| | |
|---|---|
| Materials that act as “sources” for VOC contamination | Products with high VOC contents that emit VOCs either rapidly during application and curing (typically "wet" products, such as paints, sealants, adhesives, caulks and sealers) or over a prolonged period (typically “dry” products such as flooring coverings with plasticizers and engineered wood with formaldehyde). |

**1.5 REFERENCES, RESOURCES:**

A. “IAQ Guidelines for Occupied Buildings Under Construction”, Second Edition, 2007, The Sheet Metal and Air Conditioner Contractors National Association (SMACNA). (703) 803-2980, www.smacna.org.

B. ANSI/ASHRAE 52.2-2007, “Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size”, www.ashrae.org.

**1.6 LEED BUILDING GENERAL REQUIREMENTS:**

A. Implement practices and procedures as necessary to meet the Project’s environmental performance goals as set forth in the specific requirements of this section. Specific Project goals that may impact this area of work include: use of recycled-content materials; use of low-emitting materials; construction waste recycling; and the implementation of a construction indoor air quality management plan. Ensure that the requirements related to these goals, as defined in this section, are implemented to the fullest extent. Substitutions or other changes to the work will not be allowed if such changes compromise the stated LEED building performance criteria.

**1.7 CONSTRUCTION IAQ MANAGEMENT PLAN:**

A. The Contractor must prepare a Construction IAQ Management Plan in coordination with each Subcontractor and submit the Construction IAQ Management Plan to the Commissioner for approval in accordance with Section 01 33 00 SUBMITTAL PROCEDURES. The Construction IAQ Management Plan must meet the following criteria:

1. Construction activities must be planned to meet or exceed the minimum requirements of SMACNA’s “IAQ Guidelines for Occupied Buildings under Construction”, Second Edition, 2007.
2. Absorptive materials must be protected from moisture damage when stored on-site and after installation.
3. The planned operation of air handlers during construction must be described. If air handlers are to be used during construction, filtration media with a Minimum Efficiency Reporting Value (MERV) of 8 must be used at each return air grille and return or transfer duct inlet opening, such that there is no bypass around the filtration media, as determined by ASHRAE 52.2-2007.
4. Filtration media must be replaced immediately prior to occupancy. Filtration media must have a MERV of 13 as determined by ASHRAE 52.2-2007.
5. A sequence of finish installation plan “Plan” must be developed, highlighting measures to reduce the absorption of VOCs by materials that act as “sinks”.
6. The use of tobacco products is prohibited inside the building and within 25 feet of the building entrance during construction.
7. A flush-out or air testing must be performed.
8. Upon approval of the finish installation plan by the Commissioner, it must be implemented by the Contractor through the duration of the construction process, and documented in accordance with the Submittal Requirements of Sub-Section 1.8 herein.

B. Detailed requirements of the Construction IAQ Management Plan are as follows:

1. SMACNA Guidelines: Chapter 3 of the referenced “IAQ Guidelines for Occupied Buildings Under Construction”, outline IAQ measures in five categories as listed below. The Construction IAQ Management Plan must be organized in accordance with the SMACNA format, and must address measures to be implemented in each of the five categories (including subsections). All subsections must be listed in the Plan; items that are not applicable for this Project should be listed as such.

   a. HVAC Protection

      1) Protect air handling, distribution equipment and air supply, and return ducting during construction.

      2) All ductwork arriving on site will be sealed with plastic sheeting and stored on pallets or dunnage until installed.

      3) Cover and protect all exposed air inlets and outlets, openings, grilles, ducts, plenums, etc. to prevent water, moisture, dust and other contaminant intrusion.

      4) Apply protection immediately after ducting.

      5) Protect ducting runs at the end of day’s work.

      6) Inspect temporary filtration weekly and replace as required to maintain the proper ventilation rates in the building.

      7) To reduce debris and contamination to mechanical systems, do not store materials in mechanical rooms.

   b. Source Control

      1) Protect stored on-site or installed absorptive or porous materials. Store materials in dry conditions indoors, under cover, and off the ground or floor.

      2) Do not use wet or damaged porous materials in the building. Materials which become contaminated through direct exposure to moisture from precipitation, plumbing leaks, or condensation must be replaced by the Contractor, at no additional cost to the City of New York.

      3) Use low-toxicity and low-VOC materials to the greatest extent possible.

      4) Recover, isolate, and ventilate containers housing toxic materials and materials with VOC levels above the limits for interior adhesives, sealants, paints, and coatings described in these Specifications.

      5) Prevent exhaust fumes from idling vehicles, equipment and fossil-fueled tools from entering the building.

      6) Containers housing toxic materials and materials with VOC levels above the limits for interior adhesives, sealants, paints, and coatings described in these Specifications, must be closed when not in use.

      7) Enforce the no-smoking job site policy.

   c. Pathway Interruption

      1) Depressurize work areas which contain dust and odors.

      2) Pressurize occupied spaces to prevent intrusion of dust and odors.

      3) Erect barriers to contain construction areas.

      4) Relocate pollutant sources.

      5) Temporarily seal the building and provide 100% outside air for ventilation.

6) Provide walk-off mats at entryways to reduce introduced dirt and pollutants.

7) Use dust guards and collectors on saws and other tools.

d. Housekeeping

1) Store materials on elevated platforms under cover, in a designated dry, clean location, prior to unpacking for installation.

2) If materials are not stored in an enclosed location, cover tops and sides of material with waterproof sheeting, securely tied.

3) Institute cleaning activities to remove contaminants from the building prior to occupancy. Clean all coils, air filters and ductwork prior to performing testing, adjusting and balancing of HVAC systems.

4) Sweep the work area on a daily basis. Use an efficient and effective dust collecting method such as damp cloth, wet mop, or vacuum with high-efficiency particulate filters. Activities which produce high levels of dust must be cleaned up immediately upon completion.

5) Spills or excess applications of products containing solvents, or with VOC levels above the limits for interior adhesives, sealants, paints and coatings described in these Specifications, must be removed immediately.

6) Dust all walls prior to application of finishes.

7) Vacuum all stud tracks prior to application of insulation.

8) Keep materials organized to improve job safety as well as indoor air quality.

e. Scheduling

1) Phase construction such that absorptive materials are installed only in areas that are weathertight.

2) Schedule activities that utilize “sources” of VOC contamination to take place prior to installing high absorbent materials that will act as “sinks” for contaminants.

3) Review of the appropriate components of the Construction IAQ Management Plan must be a regular action topic at weekly site coordination meetings. Implementation of the Plan must be documented in the meeting minutes.

2. Protection of Materials from Moisture Damage: As part of the “Source Control” section of the Construction IAQ Management Plan, measures to prevent installed materials or material stored on-site from moisture damage must be described. This section must also describe corrective measures to be taken if moisture damage does occur to absorptive materials during the course of construction (see Section 1.7 B.1.b).

3. Replacement of Filtration Media: Under the “HVAC Protection” section of the Construction IAQ Management Plan, a description of the filtration media in all ventilation equipment must be provided. The description must include replacement criteria for filtration media during construction, and confirmation of filtration media replacement for all equipment immediately prior to occupancy.

4. Sequence of Finish Installation for Materials: Where feasible, absorptive materials must be installed after the installation of materials or finishes which have high short-term emissions of VOCs, formaldehyde, particulates, or other air-borne compounds. Absorptive materials include, but are not limited to: carpets; acoustical ceiling panels; fabric wall coverings; insulations (exposed to the airstream); upholstered furnishings; and other woven, fibrous or porous materials. Materials with high short-term emissions include, but are not limited to: adhesives, sealants and glazing compounds (specifically those with petrochemical vehicles or carriers); paints, wood preservatives and finishes;

control and/or expansion joint fillers; hard finishes requiring adhesive installation; gypsum board (with associated finish processes and products); and composite or engineered wood products with formaldehyde binders.

5. Pre-Occupancy Phase: Perform either a flush-out or air sample testing (Options 1 or 2, respectively), as follows:

   a. OPTION 1 — Flush-Out

      1) Perform flush-out using either Path 1 or Path 2.

         i. Path 1: After construction ends, prior to occupancy and with all interior finishes installed, install new filtration media and perform a building flush-out by supplying a total air volume of 14,000 cu.ft. of outdoor air per sq.ft. of floor area while maintaining an internal temperature of at least 60 degrees F and no higher than 80 degrees F and relative humidity no higher than 60%.

         ii. Path 2: If occupancy is desired prior to completion of the flush-out, the space may be occupied following delivery of a minimum of 3,500 cu.ft. of outdoor air per sq.ft. of floor area to the space. Once a space is occupied, it must be ventilated at a minimum rate of 0.30 cfm/sq.ft. of outside air or the design minimum outside air rate determined in IEQ Prerequisite: Minimum Indoor Air Quality Performance, whichever is greater. During each day of the flush-out period, ventilation must begin a minimum of three hours prior to occupancy and continue during occupancy. These conditions must be maintained until a total of 14,000 cu.ft./sq.ft. of outside air has been delivered to the space.

      2) Commissioning can occur during flush-out, at the discretion of the Commissioner, provided none of the commissioning procedures introduce contaminants into the space and none of the flush-out procedures circumvent the commissioning process. Complete testing and balancing of the HVAC system after the flush-out is complete. Refer to Section 01 91 13 GENERAL COMMISSIONING REQUIREMENTS FOR MEP SYSTEMS.

      3) If even partial construction work occurs during the flush-out, the flush-out must be started again from the beginning for that space. If multiple, discrete HVAC systems operate independently, flush-out may be completed in portions of the building as work is completed in each area served by a given system.

   OR

   b. OPTION 2 — Air Testing

      1) Conduct baseline IAQ testing, after construction ends and prior to occupancy, using testing protocols consistent with current versions of the United States Environmental Protection Agency “Compendium of Methods for the Determination of Air Pollutants in Indoor Air” or ISO methods, as additionally detailed in the USGBC “LEED BD+C Reference Guide.”

      2) Demonstrate that the contaminant maximum concentrations listed below are not exceeded.

| CONTAMINANT | MAXIMUM CONCENTRATION |
|---|---|
| Formaldehyde | 27 parts per billion |
| Particulates (PM10 for all buildings; PM25 for buildings in EPA nonattainment areas, or local equivalent) | PM10: 50 micrograms per cubic meter<br>PM25: 15 micrograms per cubic meter |

| | |
|---|---|
| Ozone (for buildings in EPA nonattainment areas) | 0.075 parts per million |
| Total Volatile Organic Compounds (TVOC) | 500 micrograms per cubic meter |
| Target chemicals listed in the California Department of Public Health (CDPH) Standard Method c1.1, Table 4-1, except formaldehyde | CDPH Standard Method v1.1-2010, Allowable Concentrations, Table 4-1 |
| Carbon Monoxide (CO) | 9 part per million and no greater than 2 parts per million above outdoor levels |

3) The air sample testing must be conducted as follows:

i. All measurements must be conducted prior to occupancy, but during normal occupied hours and with the building ventilation system starting at the normal daily start time and operated at the minimum outside air flow rate for the occupied mode throughout the duration of the air testing.

ii. The building must have all interior finishes installed, including but not limited to millwork, doors, paint, carpet and acoustic tiles. Non-fixed furnishings such as workstations and partitions are required to be in place for the testing.

iii. Prior to air sample testing, all punch-list items that would generate VOCs or other contaminants, the testing and balancing of the HVAC system and finalization of all cleaning must be completed. Use low-emitting cleaning products and vacuum cleaners with HEPA filtration.

iv. The number of sampling locations will vary depending upon the size of the building and number of ventilation systems. For each portion of the building served by a separate ventilation system, the number of sampling points must not be less than one per 25,000 sq.ft., or for each contiguous floor area, whichever is larger, and include areas with the least ventilation and greatest presumed source strength.

v. Air samples must be collected between 3 feet and 6 feet from the floor to represent the breathing zone of occupants, and over a minimum 4-hour period.

vi. For each sampling point where the maximum concentration limits are exceeded, conduct additional flush-out with outside air and retest the specific parameter(s) exceeded to indicate the requirements are achieved. Repeat procedure until all requirements have been met. When retesting non-complying building areas, take samples from the same locations as in the first test.

6. Implementation and Coordination: Before Demolition and/or Construction begins, the Contractor must implement the Construction IAQ Management Plan, coordinate the Construction IAQ Management Plan with all affected trades, and designate one individual as the Construction IAQ Representative at no additional cost to the City of New York, who will be responsible for communicating the progress of the Construction IAQ Management Plan with the Commissioner monthly and for assembling the required LEED documentation. Include provisions in the Construction IAQ Management Plan for addressing conditions in the field that do not adhere to the Plan, including provisions to implement a stop work order or to rectify non-compliant conditions.

a. Distribution: The Contractor must distribute copies of the Construction IAQ Management Plan in accordance with Section 01 33 00 SUBMITTAL PROCEDURES.

b. Instruction: The Contractor must provide on-site instruction of appropriate site management to all Contractor's Subcontractors.

c. Monitoring: The Construction IAQ Representative must monitor the implementation of the Construction IAQ Management Plan.

**1.8 SUBMITTALS:**

A. Submit the following LEED-required records and documents in accordance with Section 01 33 00 SUBMITTAL PROCEDURES and, Section 01 81 13.04 SUSTAINABLE DESIGN REQUIREMENTS FOR LEED v4 BUILDINGS.

B. A copy of the Construction IAQ Management Plan as defined in Sub-Section 1.7 herein.

C. IAQ Tracking Log
   1. Note date of observed major Construction IAQ issues, describe any damage, describe any repairs or maintenance of specific control measures performed and note responsible party.
   2. Note date and findings of weekly site review, describe any repairs or maintenance performed, and note responsible party. Provide date-stamped photographs, inspection reports or other recording processes.
   3. Submit log monthly.

D. Product cut-sheets for all filtration media used during construction and installed immediately prior to occupancy, with MERV values highlighted. Cut sheets must be submitted with the Contactor's or Subcontractor's "approved" stamp as confirmation that the products are the products installed on the Project.

E. PHOTOGRAPHS: Submit to the Commissioner a minimum of 18 photographs as required under the provision for special photographs, in accordance with Section 01 32 33 PHOTOGRAPHIC DOCUMENTATION, comprised of at least six photographs taken on three different occasions during construction of each IAQ measure. The photographs must document the implementation of the Construction IAQ Management Plan throughout the course of the Project construction. Examples include photographs of ductwork sealing and protection, temporary ventilation measures, and conditions of on-site materials storage (to prevent moisture damage). Photographs must include integral date stamping, and must be submitted with brief descriptions of the Construction IAQ Management Plan measure documented, or be referenced to Project meeting minutes or similar Project documents which reference to the Construction IAQ Management Plan measure documented.

F. A copy of the Project's "Testing, Adjusting and Balancing" (TAB) report, if applicable.

**1.9 QUALITY ASSURANCE:**

A. The Contractor will be responsible for preparing and implementing the Construction IAQ Management Plan and must coordinate and incorporate the work of its Subcontractors in the IAQ Management Plan. Include the Construction IAQ Management Plan requirements in contract agreements with Subcontractors. Familiarize Subcontractors with the Construction IAQ Management Plan and how the Construction IAQ Management Plan will affect their daily activities. Hold a Subcontractors' orientation meeting to review the Construction IAQ Management Plan requirements.

B. Responsibility of Subcontractors: Subcontractors for this Project will be responsible for cooperating with the Contractor in the preparation and implementation of the Construction IAQ Management Plan.

C. Include construction IAQ progress check-ins as a regular item in weekly Subcontractor meetings and safety meetings. Provide a copy of the plan on site, posted in an easily accessible area.

**PART II – PRODUCTS (Not Used)**

**PART III – EXECUTION (Not Used)**

**END OF SECTION 01 81 19**

# SECTION 01 81 21

# SUSTAINABLE CONSTRUCTION REQUIREMENTS

## PART I - GENERAL

### 1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

### 1.2 SUMMARY

A. Section includes general requirements for sustainable construction.

### 1.3 DEFINITIONS

A. Embodied carbon: The greenhouse gas emissions arising from the manufacturing, transportation, installation, maintenance, and disposal of building materials.

B. Environmental Product Declaration (EPD): A third-party-verified International Organization for Standardization (ISO) Series 14025 Type III declaration that quantifies environmental information on the life cycle of a product to enable comparisons between products fulfilling the same function.

### 1.4 SUBMITTALS

A. EPDs: The Contractor must submit to the Commissioner copies of all EPD's submitted to the Building Transparency database per Subsection 1.5.C.

B. Low emission vehicles and equipment: The Contractor must submit to the Commissioner a log of all internal combustion engine (ICE) powered equipment used on the Project. The log must be submitted at Substantial Completion, and include:

a. The type of equipment (generator, excavator, crane, light tower, air compressor, etc.),
b. The fuel used by the ICE,
c. The engine size in horsepower (HP), and
d. If the equipment was provided by a Subcontractor, which one.

### 1.5 ENVIRONMENTAL PRODUCT DECLARATIONS

A. EPDs are required for the following materials, if used:

1. Steel materials:

a. 05 12 00 STRUCTURAL STEEL FRAMING

b. 05 12 13 ARCHITECTURALLY EXPOSED STRUCTURAL STEEL FRAMING

c. 05 21 00 STEEL JOIST FRAMING

d. 05 31 00 STEEL DECKING

e. 05 40 00 COLD-FORMED METAL FRAMING

f. 05 44 00 COLD FORMED METAL TRUSSES

2. Concrete materials:

a. 03 30 00 CAST-IN-PLACE CONCRETE

b. 03 38 16 UNBONDED POST-TENSIONED CONCRETE

c. 03 41 00 PRECAST STRUCTURAL CONCRETE

d. 03 45 00 PRECAST ARCHITECTURAL CONCRETE

e. 03 47 13 TILT-UP CONCRETE

B. If EPDs are available for materials not listed in subsection 1.5.A, they must be submitted.

C. EPDs must be submitted to the Building Transparency database, using the OpenEPD format, at https://buildingtransparency.org/ec3

## 1.6 LOW-EMISSION VEHICLES AND EQUIPMENT

A. The Contractor must endeavor to minimize the greenhouse gas emissions from the Contractor's equipment. To achieve this goal, the following is required:

1. Electric powered equipment is to be used where practical instead of internal combustion engine (ICE) powered equipment. The Contractor may refer to the NYC Department of Citywide Administrative Services (NYC DCAS) bi-annual publication, the Clean Fleet Transition Plan (https://www1.nyc.gov/site/dcas/agencies/fleet-sustainability.page), in order to determine what equipment is available.

2. Where ICE powered equipment is necessary, efforts should be taken to ensure the most efficient ICE engines are used. This may include:

a. The use of larger efficient ICE generators to power multiple pieces of electric equipment,
b. Reductions in the use of less than 50HP engines,
c. Use of lower emission or renewable fuels, such as biodiesel or CNG,
d. Use of hybrid electric equipment, and
e. Other innovative methods proposed by the Contractor.

3. The Contractor is required to coordinate between all Subcontractors and trades in order to reduce the number of ICE equipment and generators in use.

**PART II - PRODUCTS (Not Used)**

**PART III - EXECUTION (Not Used)**

**END OF SECTION 01 81 21**

# SECTION 01 91 13
# GENERAL COMMISSIONING REQUIREMENTS FOR MEP SYSTEMS

**REFER TO THE ADDENDUM FOR APPLICABILITY OF THIS SECTION 01 91 13**

## PART I – GENERAL

### 1.1 RELATED DOCUMENTS:

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

B. The OPR and BOD documents are included by reference for information only.

C. The Commissioning Plan, prepared by the Commissioning Agent (CxA) under separate contract with the City of New York, contains requirements that apply to this section.

### 1.2 SUMMARY:

A. 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.

B. 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. Test Equipment
10. Commissioning Process
11. Commissioning Plan and Schedule
12. General Testing Requirements
13. Testing Procedures
14. Deficiencies
15. Operation & Maintenance Manuals
16. Demonstration and Instruction
17. Guaranty Review / Seasonal Testing
18. Record Drawings

### 1.3 RELATED SECTIONS:

A. System-Specific Commissioning requirements indicated in other sections of the Project Specifications for specific requirements for commissioning systems.

B. This Project will be commissioned by an independent third party under separate contract with the City of New York. Commissioning must be in accordance with ASHRAE and USGBC LEED procedures, and specific commissioning requirements of the Project Specifications, whichever is more stringent. The Contractor must cooperate with the CxA and provide whatever assistance is required.

C. Related sections include, without limitation, the following:

| | | |
|---|---|---|
| 1. | Section 01 10 00 | SUMMARY |
| 2. | Section 01 31 00 | PROJECT MANAGEMENT AND COORDINATION |
| 3. | Section 01 32 00 | CONSTRUCTION PROGRESS DOCUMENTATION |
| 4. | Section 01 78 39 | CONTRACT RECORD DOCUMENTS |
| 5. | Section 01 79 00 | DEMONSTRATION AND OWNER'S PRE-ACCEPTANCE ORIENTATION |
| 6. | Section 01 81 13.04 | SUSTAINABLE DESIGN REQUIREMENTS FOR LEED v4 BUILDINGS |
| 7. | Section 01 91 15 | GENERAL COMMISSIONING REQUIREMENTS FOR BUILDING ENCLOSURE |

**1.4 DEFINITIONS:**

A. Refer to Article 2 of the Contract for definition of terms, words and expressions used in the General Conditions not otherwise defined herein.

| | |
|---|---|
| Basis of Design (BOD) | A document, prepared by the Design Consultant, that records concepts, calculations, decisions, and product selections used to meet the OPR and to satisfy applicable regulatory requirements, standards, and guidelines. The document includes both narrative descriptions and lists of individual items that support the design process. |
| Checklists | Forms that outline the step-by-step process that must be executed to fulfill the test requirements and to verify that materials, equipment, assemblies and systems are installed in accordance with the Contract Documents. The CxA must develop the checklists; the Contractor must complete them. |
| Construction Checklist | Form used by Contractor and the CxA to verify that appropriate work components for the Project are on-site, ready for installation, correctly installed, and functional. |
| Commissioning | Commissioning is a systematic process of ensuring and documenting that the building 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 Subcontractors to provide a finished product. |
| Commissioning Agent (Aka Commissioning Authority) (CxA) | Consultant under separate contract with the City of New York to provide Commissioning services for this Project. The CxA must not be an employee of the Contractor, nor will the CxA have any interest in the Contract. |
| Commissioning Plan | A document developed by the CxA that outlines the organization, schedule, roles and responsibilities, allocation of resources, and documentation requirements of the commissioning process. |
| Deferred Performance Tests | Performance tests that are performed, at the discretion of the CxA, after substantial completion, due to partial occupancy, equipment, seasonal requirements, design, or other site conditions that disallow the test from being performed. |
| Design Consultant | The entity responsible for providing design services for the Project, including without limitation, preparing the construction documents (drawings and Specifications) and providing services in connection with such documents during construction. The entity serving as the "Design Consultant" may be a corporation, firm, partnership, joint venture, individual or combination thereof. Such entity may be either an employee(s) of the City or an entity engaged by the City to provide such services. |
| Factory Testing | Testing of equipment on-site or at the factory, by factory personnel, with or without the City's representative. |

| | |
|---|---|
| Functional Performance Test (FPT) | Functional performance testing includes the dynamic functions and operations of equipment and systems using manual or monitoring methods under various levels of operation. Systems are tested under various modes, such as during low cooling loads, high loads, component failures, unoccupied, varying outside air temperatures, fire alarms, power failure, etc. The systems are run through all the control system's sequences of operation and components are verified to respond as the sequences state. Such tests must be performed as per the protocol written by the CxA which defines the methods, personnel and expectations. |
| Issue (or Deficiency) | A condition in the installation or function of a component, piece of equipment, or system that is not in compliance with the Contract Documents. |
| Issues Log | A formal and ongoing record of problems, deficiencies or concerns that have been raised by members of the Commissioning Team during the course of commissioning. The Issues Log is the primary tracking tool to address all Commissioning Issues by concerned parties. All Issues must be addressed and resolved by the concerned parties before the closeout of the Project. This log tracks the resolution performed and date of closure of each Issue. |
| Master Equipment List (MEL) | A complete listing of all commissioned building equipment, including details such as make, model, location, ID Tag number, etc. that is taken from submittals and is the basis from which checklists will be generated. The MEL is a spreadsheet which is also used as a tracking tool for all milestones of the commissioning process, such as the creation and performance of checklists, startup of equipment, TAB work, etc. |
| Monitoring | The recording of parameters (flow, current, status, pressure, etc.) of equipment operation using data loggers or the trending capabilities of control systems. |
| Owner (City of New York) Contracted Tests | Tests paid for by the City of New York outside of the Contractor's Contract and for which the CxA does not provide oversight. These tests will not be repeated during functional testing if properly documented. |
| Owner's Project Requirements (OPR) | A document, prepared by the Design Consultant that details the functional requirements of a Project and the expectations of how it will be used and operated. These include Project goals, measurable performance criteria, cost considerations, benchmarks, success criteria, and supporting information. |
| Pre-functional (Installation) Checklists | A list of items to inspect and elementary component tests to conduct to verify proper installation of equipment, provided by the CxA to the Contractor. Installation checklists are primarily static inspections and procedures to prepare equipment or systems for initial operation. Pre-functional (Installation) checklists augment, and are combined with, the manufacturer's startup checklist. The Checklists are filled out by the Contractor and reviewed by the CxA. |
| Sampling | Functional testing for a percentage of the total number of identical or near-identical pieces of equipment. |
| Seasonal Performance Tests | Functional tests that are deferred until, or performed again when, the system(s) will experience climate conditions close to their design conditions. |
| Startup | The initial starting or activating of equipment, including executing construction checklists. |
| Systems, Subsystems, Equipment, and Components | Where these terms are used together or separately, they mean "as-built" systems, subsystems, equipment, and components. |

| | |
|---|---|
| Systems Manual | A system-focused composite document that includes the Operation and Maintenance Manual, and additional information of use to the owner during the occupancy and operations phase. |
| Testing, Adjusting and Balancing (TAB) | Testing, adjusting, and balancing of the Heating Hot Water (HHW), Chilled Water (CHW) and Heating, Cooling, and Ventilation Airflow distribution system flows and pressures as specified in Contract Documents by a Subcontractor certified to perform such work. |
| Test Requirements | Requirements specifying what modes and functions, etc. must be tested on any given piece of equipment or any given system (integrated or standalone). The test requirements are not the detailed test procedures. The test requirements for each system are specified in the respective Contract Documents. |
| Trending | Monitoring using the building controls system, and analysis of the data gathered over a period of time. |

**1.5 COMMISSIONING TEAM:**

A. Members Appointed by the Contractor and its Subcontractors: Individuals, each having authority to act on behalf of the entity he or she represents, explicitly organized to implement the Commissioning process through coordinated actions. The Commissioning Team will consist of, but not be limited to, representatives of the Contractor, including Project superintendent and Subcontractors, installers, suppliers and specialists deemed appropriate by the CxA.

B. Members Appointed by the City:

1. Commissioning Authority/Agent (CxA): The designated person, company, or entity under separate Contract with the City that plans, schedules and coordinates the Commissioning Team to implement the commissioning process.

2. Representatives of the facility user and operation and maintenance personnel.

3. Design Consultant and other concerned entities.

**1.6 CITY'S RESPONSIBILITIES:**

A. Provide the OPR and BOD documentation to the CxA for use in developing the Commissioning Plan; systems manual; operation and maintenance orientation plan; and testing plans and checklists.

B. Assign operation and maintenance personnel to participate in Commissioning Team activities.

C. Provide full details and results of any Owner- contracted tests relevant to the current Project.

**1.7 CONTRACTOR'S RESPONSIBILITIES:**

A. The Contractor must provide utility services required for the commissioning process.

B. As a member of the Commissioning Team, the Contractor and Subcontractors must assign representatives with expertise and authority to act on behalf of the Contractor and its Subcontractor and schedule them to participate in and perform Commissioning Team activities including, but not limited to, the following:

1. Participate in scheduled construction-phase coordination and Commissioning Team meetings.

2. Integrate and coordinate commissioning process activities with the construction schedule.

3. Provide all factory acceptance test reports to the CxA through the Commissioner.

4. Respond to any additional specific information requests from the CxA. CxA may request additional documentation necessary for the commissioning process. Requests by CxA may precede, be concurrent with, or follow normal submittals.

5. Ensure the cooperation and participation of all Subcontractors and manufacturers of equipment to be commissioned.
6. Verify and confirm that components, equipment, and system are functioning as per design prior to CxA witnessing testing.
7. Perform testing required in the Commissioning schedule as per the Commissioning process test procedures provided by the CxA, providing no less than 48 hours' notice to the CxA through the Commissioner.
8. Coordinate schedule with, and perform Cx activities at the direction of, CxA.
9. Provide technicians, instrumentation, tools, and equipment to perform and document the following:
   a. Cx Construction Checklist verification tests.
   b. Cx Construction Checklist verification test demonstrations.
10. Complete installation checklists as Work is completed and return to CxA through the Commissioner.
11. Provide written responses to the CxA through the Commissioner for resolution of Issues recorded in the Issues Log within five (5) business days.
12. Evaluate performance deficiencies identified in test reports and, in collaboration with entity responsible for system and equipment installation, recommend corrective action.
13. Submit operation and maintenance manuals for systems and subsystems, and equipment in accordance with Section 01 78 39 CONTRACT RECORD DOCUMENTS. Such documents must be submitted prior to functional testing.
14. Submit As-Built documents in accordance with Section 01 78 39 CONTRACT RECORD DOCUMENTS.
15. Provide orientation sessions for operations and maintenance personnel (sessions will be witnessed by the CxA) in accordance with Section 01 79 00 DEMONSTRATION AND OWNER'S PRE-ACCEPTANCE ORIENTATION. Provide no less than 48 hours' notice to the CxA, through the Commissioner. Video record and edit orientation sessions and provide an electronic recording to the CxA and Commissioner no later than two (2) weeks after the orientation session occurs. Edit as requested by the Commissioner.
16. Provide information requested by the CxA for final commissioning documentation.
17. Provide measuring instruments and logging devices to record test data and provide data acquisition equipment to record data for the complete range of testing for the required test period.
18. Provide detailed startup procedures.
19. Provide a written list of all user adjustable set-points and reset schedules with a brief discussion of the purpose of each and the range of reasonable adjustments with energy implications.
20. Provide a written schedule frequency to review the various set-points and reset schedules to ensure they are current relevant and efficient values.
21. Respond to provided new deficiencies and/or responses within five (5) business days.
22. Gather operation and maintenance literature on all equipment, and assemble in binders as required by the Contract Documents. Submit to CxA 45 days after submittal acceptance.
23. Coordinate with the CxA to provide 48-hour advance notice so that the witnessing of equipment and system start-up and testing can begin.

24. Notify the CxA a minimum of two weeks in advance of the time for start of the testing and balancing work. Attend the initial testing and balancing meeting for review of the official testing and balancing procedures.

25. Provide written notification to the Commissioner and CxA that the following work has been completed in accordance with the Contract Documents, and that the equipment, systems, and sub-system are operating as required.

26. The equipment suppliers will document the performance of their equipment.

27. Provide a complete set of record drawings to the CxA prior to the start of Functional Performance Testing.

28. Contractor responsibilities to be completed by Equipment Suppliers:

    a. Provide all requested submittal data, including detailed start-up procedures and specific responsibilities of the City of New York's personnel, to keep warranties in force.

    b. Assist in equipment testing.

    c. Provide information requested by CxA regarding equipment sequence of operation and testing procedures.

**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 Contractor and with Subcontractors to develop test and inspection procedures. Include design changes and coordinate Commissioning activities with the overall Project schedule. Identify Commissioning Team member responsibilities, by name, firm, and trade specialty, for performance of each commissioning task. Update the Commissioning Plan during construction as required.

C. Review and comment in accordance with Section 01 33 00 SUBMITTAL PROCEDURES, on submittals from the Contractor for compliance with the OPR, BOD, Contract Documents, and construction-phase Commissioning Plan. Review and comment on performance expectations of systems and equipment and interface between systems relating to the OPR and BOD.

D. Coordinate with the Commissioner, in accordance with Section 01 31 00 PROJECT MANAGEMENT AND COORDINATION, to convene Commissioning Team meetings for the purpose of coordination, communication and conflict resolution; discuss progress of the commissioning processes.

E. At the beginning of the construction phase, coordinate with the Commissioner's kick-off meeting schedule to conduct an initial construction-phase coordination meeting for the purpose of reviewing the Commissioning activities and establishing tentative schedules for operation and maintenance submittals, operation and maintenance orientation sessions, TAB Work, testing, and Project completion.

F. Perform site visits to observe and inspect construction as described in the Commissioning Plan. Report progress and deficiencies to the Commissioner. In addition to compliance with the OPR, BOD, and Contract Documents, inspect systems and equipment installation for adequate accessibility required for component maintenance replacement and repair.

G. Prepare and distribute project-specific test and inspection procedures and checklists and maintain MEL.

H. Verify air and water systems balancing by sampling, reviewing completed reports and selected site observation. Coordinate submittal reviews with the Commissioner so that the comments are combined into a single review and submitted to the Contractor.

I. Coordinate with the Commissioner to witness and document tests, inspections and systems startup, as per the Commissioning Plan.

J. Maintain an Issues Log and a record of functional testing. Report all Issues as they occur to the Commissioner.

K. Compile test data, inspection reports and certificates, and include them in the systems manual and Commissioning Report.

L. Certify date of acceptance and startup for each item of equipment for start of warranty periods.

M. Review and comment on operation and maintenance documentation and systems manual outline for compliance with the OPR, BOD, and Contract Documents. Operation and maintenance documentation requirements are specified in other sections of the Project Specifications and described in Section 01 78 39 CONTRACT RECORD DOCUMENTS.

N. Review agenda for orientation; witness and confirm orientation session conforms with agenda and Contract Documents; review recording of demonstration and orientation sessions provided by the Contractor on USB drive or other electronic media as requested by the Commissioner and provide appropriate comments for editing.

O. Return to the site ten (10) months into the twelve (12)-month guaranty period, to review with facility staff the current building operation and the condition of outstanding Issues related to the original and seasonal commissioning. Interview facility staff and identify problems or concerns they have with operating the building as originally intended.

P. Prepare Commissioning Reports.

Q. Assemble the final commissioning documentation, including the Commissioning Report and Systems Manual.

R. Perform all CxA tasks as defined by LEED and the NYC Energy Conservation Code; prepare LEED submittal documents and preliminary and final Commissioning Reports as required by the NYC Energy Conservation Code.

**1.9 COMMISSIONING DOCUMENTATION:**

The Contractor must assist the CxA in the development and compiling of the following Commissioning Documentation:

A. Index of Commissioning Documents: The CxA will prepare an index including the storage location of each document.

B. Commissioning Plan: A document prepared by the CxA that outlines the schedule, allocation of resources, roles and responsibilities, and documentation requirements of the Commissioning process. Within 30 days of receipt of the Commissioning Plan, the Contractor must review the plan and document any issues or concerns with RFIs in compliance with Section 01 31 00 PROJECT MANAGEMENT AND COORDINATION.

C. Test Checklists: The CxA will develop test checklists for each system, subsystem, or equipment including interfaces and interlocks, and include a separate entry, with space for comments, for each item to be tested. The CxA will prepare separate checklists for each mode of operation and provide space to indicate whether the mode under test responded as required. Space will be provided for testing personnel to sign off on each checklist. Specific checklist content requirements are specified in other sections of the Project Specifications, but must include without limitation:

1. Identification of tested item
2. Date of test
3. Indication of whether the record is for a first test or retest following correction of a problem or Issue
4. Dated signatures of the person performing the test and of the witness if applicable

5. Deficiencies and Issues, if any, generated as a result of the test

D. Inspection Checklists will be signed by the Contractor, Subcontractor(s), Installer(s), and CxA certifying that systems, subsystems, equipment, and associated controls are ready for testing.

E. Test and Inspection Reports: The CxA will record test data, observations, and measurements on test checklists. Photographs, forms, and other means appropriate for the application will be included with data. CxA must compile test and inspection reports and test and inspection certificates and include them in systems manual and Commissioning Report.

F. Corrective Action Documents: The CxA will document corrective action taken for systems and equipment that fail tests and include required modifications to systems and equipment and revisions to test procedures, if any. The Contractor must retest systems and equipment requiring corrective action. The CxA will document retest results.

G. Issues Log: The CxA will prepare and maintain an Issues Log that describes design, installation, and performance Issues that are at variance with the OPR, BOD, and Contract Documents. The log will identify and track Issues as they are encountered, documenting the status of unresolved and resolved Issues. The Issues Log will identify, at a minimum:

1. The party responsible for correcting the Issue,
2. The person documenting the Issue resolution,
3. The exact location of the Issue (floor and room),
4. The applicable system component,
5. A detailed description of the Issue,
6. The Issue status, and
7. The date the Issue was discovered and the date the Issue was resolved.

H. Commissioning Report: The CxA will document results of the commissioning process including unresolved Issues and performance of systems, subsystems, and equipment. The Commissioning Report will indicate whether systems, subsystems, and equipment have been completed and are performing according to the OPR, BOD, and Contract Documents. The Commissioning Report must include:

1. An executive summary, including participants and their roles, a brief building description, an overview of the commissioning and testing scope, and a general description of testing and verification methods,
2. Installation/Pre-Functional Checklists,
3. Start-up reports,
4. Functional Test documentation,
5. Trend Log Analysis,
6. The final Issues Log, with all Issues identified through the commissioning process, identifying which, if any, Issues remain unresolved,
7. The Commissioning Plan,
8. Commissioning progress and field reports,
9. Commissioning review documents, and
10. Record of owner’s orientation.

I. Systems Manual: The CxA will gather required information and compile systems manual as specified in other sections of the Project Specifications and described in Section 01 78 39 CONTRACT RECORD DOCUMENTS.

**1.10 SUBMITTALS:**

A. Submittal of shop drawings, product data, samples, etc., relevant to commissioning must be provided to the CxA as requested. Such submittals must be in compliance with Section 01 33 00 SUBMITTAL PROCEDURES.

B. As-Built Contract Record Drawings and Operating and Maintenance Manuals relevant to commissioning must be provided to the CxA as requested. Such submittals must be in compliance with Section 01 78 39 CONTRACT RECORD DOCUMENTS.

C. All demonstration and orientation submittals relevant to commissioning must be provided to the CxA as requested. Such submittals must be in compliance with Section 01 79 00 DEMONSTRATION AND OWNER'S PREACCEPTANCE ORIENTATION.

D. Completed Prefunctional (Installation) Checklists must be provided to the CxA prior to equipment startup.

**1.11 COORDINATION:**

A. Coordination of Commissioning is the responsibility of all Commissioning Team members.

B. Coordinating Meetings: The CxA will coordinate with the Commissioner's regularly scheduled construction progress meetings to conduct coordination meetings of the Commissioning Team to review progress on the Commissioning Plan, to discuss scheduling conflicts, and to discuss upcoming commissioning process activities. Commissioner and Contractor must ensure that all required Commissioning Team members attend.

C. Commissioning Kick-Off Meeting – Construction Team: The Contractor will attend a meeting of the Commissioning Team, chaired by the CxA, to review the scope of commissioning process activities and the Commissioning Plan with discussions on milestones, activities, and assignments of responsibilities. The flow and type of documents and the amount of submittal data given to the CxA will be determined. Meeting minutes will then be distributed to all parties by the CxA.

D. Commissioning Meetings: The Contractor will attend coordination meetings with the Commissioning Team, chaired by the CxA, to review progress on the Commissioning Plan, construction deficiencies, scheduling conflicts, and to discuss strategies and processes for upcoming commissioning process activities.

E. Miscellaneous Construction Meetings: The CxA attends selected planning and job-site meetings in order to remain informed on construction progress and to update parties involved in the commissioning process. This will not include 100% meeting attendance, but the CxA will be provided with the subsequent meeting minutes for review.

F. 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.

G. 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. The Commissioner, Contractor, and all required Commissioning Team members will attend pretest meetings.

H. Testing Coordination: The Contractor will coordinate with testing personnel and agencies for timing and access for CxA to witness test. 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.

I. Manufacturers' Field Services: The Contractor must coordinate manufacturers' field services, as per the Commissioning Plan.

J. The CxA will regularly apprise the Commissioner of progress, pending problems and/or disputes, as well as provide regular status reports on progress with each system.

**PART II – PRODUCTS**

**2.1 TEST EQUIPMENT:**

A. All industry standard test equipment required for performing the specific tests must be provided by the Contractor responsible for testing. Any proprietary Vendor-specific test equipment must be provided by that Vendor or Manufacturer.

B. Special equipment, tools, instruments, software, and equipment communication network access hardware and software (only available from Vendor, specific to the piece of equipment) required for testing equipment according to the Contract Documents must be included at no extra cost to the City and must be turned over to the City at Project close-out, except for stand-alone data logging equipment that may be used by the CxA.

C. Any portable or handheld setup and/or calibration devices required to initialize the control system must be made available by the control vendor for use by the CxA at no additional cost to the City.

D. The instrumentation used in the commissioning process must comply with the following:

1. Be of sufficient quality and accuracy to test and/or measure system performance within the tolerances required

2. Be calibrated at the manufacturer’s recommended intervals with calibration tags permanently affixed to the instrument

3. Be maintained in good repair and operating condition throughout use duration on this Project

4. Be immediately recalibrated or repaired if dropped and/or damaged in any way during this Project.

**PART III – EXECUTION**

**3.1 COMMISSIONING PROCESS:**

A. The following provides an overview of the Commissioning tasks during Project construction and the general order in which they occur.

1. Construction-phase Commissioning begins with a Commissioning Kickoff Meeting, conducted by the CxA through the Commissioner in accordance with section 01 31 00 PROJECT MANAGEMENT AND COORDINATION, where the Commissioning process is reviewed with all the Commissioning Team Members.

2. Additional meetings may be required throughout construction, scheduled by the CxA through the Commissioner in accordance with 01 31 00 PROJECT MANAGEMENT AND COORDINATION with necessary parties attending, to plan, scope, coordinate and schedule future activities and resolve open Issues.

3. The CxA will review the Contractor submittals concurrent with the Commissioner and provide comments to the Commissioner for inclusion in their review. The reviewed submittals will include all commissioned equipment information, including detailed startup procedures, and coordination drawings that include commissioned equipment and systems, control drawings and sequences, and interfaces and interlocks between systems.

4. The CxA works with the Commissioner and Contractor in developing Pre-functional and Functional Test documentation formats.

5. Periodically throughout the construction process, the CxA will perform site visits to observe component and system installations.

6. The checkout and performance verification generally proceeds from component level to equipment to systems and intersystem levels. Pre-functional (Installation) Checklists are to be completed before equipment startup. Equipment startup must be completed before TAB. TAB must be completed before the Functional Performance Checklists.

7. The Contractor must, with guidance from the CxA, execute and document the Pre-Functional (Installation) Checklists and perform startup and initial checkout of equipment and systems. The CxA documents that the checklists and startup are completed according to the approved plans. This will include the CxA witnessing selected assembly markups, portions of the startup of selected equipment, and spot checking the Pre-Functional (Installation) Checklists.

8. The CxA develops specific equipment and system Functional Checklists. The Contractor receives a copy of the procedure through the Commissioner. The CxA may request additional design narrative from the Commissioner and Controls Subcontractor, 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 and any seasonal testing at the written direction of the Commissioner, must be completed prior to Substantial Completion.

13. The CxA reviews the orientation documentation. The orientation schedules and agenda are provided by the Subcontractors. The CxA verifies that orientation is completed, attended by the appropriate City of New York personnel, is thorough and provides all necessary information required to operate and service the equipment or system.

14. Deferred testing/checkouts are conducted, as specified or required in the Contract Documents.

**3.2 COMMISSIONING PLAN AND SCHEDULE:**

A. Commissioning Plan: The Commissioning Plan provides guidance in the execution of the commissioning process. After the initial construction phase Commissioning kickoff meeting, the CxA will update the plan. This plan is a living document that must evolve and expand as the Project progresses. The Commissioning Plan must include:

1. Description of the facility and Project.

2. Description of the commissioning process and associated deliverable documents.

3. Description of equipment and systems to be commissioned.

4. Description of schedules for testing procedures along with identification of parties involved in performing and verifying tests.

5. Sample rates for equipment to be tested.

6. Identification of task items that must be completed before the next operation can proceed.

7. Description of responsibilities of Commissioning Team members.

8. Description of observations to be made and reported on during testing and witnessing of testing by all parties involved in the Project.

B. Commissioning Schedule: Contractor must provide construction schedules to the CxA, in accordance with Section 01 31 00 PROJECT MANAGEMENT AND COORDINATION. The CxA will develop and submit a schedule identifying the commissioning process and provide commissioning scheduling information to the Commissioner and Contractor for review and planning activities. The Contractor must incorporate the CxA's activities into the Project schedule.

**3.3 GENERAL TESTING REQUIREMENTS:**

A. Provide technicians, instrumentation, and tools to perform commissioning test at the direction of the CxA.

B. Tests will be performed using design conditions whenever possible.

C. Simulated conditions may need to be imposed using an artificial load when it is not practical to test under design conditions. Before simulating conditions, calibrate testing instruments. Provide equipment to simulate loads. Set simulated conditions as directed by the CxA and document simulated conditions and methods of simulation. After tests, return settings to normal operating conditions.

D. The CxA may direct that set points be altered when simulating conditions are not practical.

E. The CxA may direct that sensor values be altered with a signal generator when design or simulating conditions and altering set points are not practical.

F. If tests cannot be completed because of a deficiency outside the scope of the HVAC system, document the deficiency and report it to the Commissioner. After deficiencies are resolved, reschedule tests.

G. If the testing plan indicates specific seasonal testing, complete appropriate initial performance tests and documentation and schedule seasonal tests.

H. Refer to individual Commissioning specification sections for additional testing requirements.

**3.4 TESTING PROCEDURES:**

A. The CxA will determine and document the acceptance procedures for each system within disciplines. The acceptance procedures must incorporate the commissioning standards and successful testing results as referred to throughout the Specifications.

B. The CxA will provide performance checklists and performance checkout data sheets for each system based on actual system configuration. Special emphasis must be placed on checkout procedures that must conclusively determine actual system performance and compliance with the OPR and BoD.

C. The Contractor and appropriate Vendor(s) must be informed of what tests are to be performed and the expected results. The Commissioning Plan must address the test requirements and be distributed to all parties involved with that system.

D. Prior to Functional Testing, the Contractor must provide the following:

1. Contractor must certify in writing that commissioned systems, subsystems, and equipment have been installed, calibrated and started, and are operating according to the Contract Documents and approved submittals.

2. Contractor must certify in writing that all relevant instrumentation and control systems have been completed and calibrated,

3. Contractor must certify point-to-point checkout has been successfully completed, and that systems are operating in accordance with their design sequence of operation, Contract Documents, and approved submittals.

4. Contractor must certify that all sensors are operating within specified accuracy and all systems are set to and maintaining set points as required by the Contract Documents.

5. Contractor must certify in writing that TAB procedures have been completed, and that the TAB report has been submitted, discrepancies corrected, and corrective work approved.

6. Contractor must perform tests for system and intersystem performance only after CxA and Commissioner have approved the completed testing checklists for systems, subsystems, and equipment.

7. Contractor must inspect and verify the position of each device and interlock identified on checklists.

8. Contractor must check safety cutouts, alarms, and interlocks with smoke control and life-safety systems during each mode of operation.

9. Set systems, subsystems, and equipment into operating mode to be tested in accordance with approved test procedures (e.g., normal shutdown, normal auto position, normal manual position, unoccupied cycle, emergency power, and alarm conditions).

10. Contractor must install measuring instruments and logging devices to record test data as directed by the CxA.

E. The Functional Performance tests must be performed by the Contractor and Vendor(s) with oversight by the CxA. The CxA must witness, verify, and document these tests.

1. Functional Performance Tests must include operating the systems and components through each of the written sequences of operation, other significant modes of miscellaneous alarms, power failure, and security alarm when impacted by and interlocked with commissioned equipment, as detailed in the Commissioning Plan.

2. Checklists must be completed comprehensively and to the extent necessary to enable the CxA to assure the Commissioner that the systems perform as per the OPR, BOD, and Contract Documents.

3. If a test is failed for any reason and retesting is required, the Contractor must provide retesting at no additional cost to the City.

4. If a test must be witnessed more than twice by the Commissioning Agent due to repeated failure to perform as per the design documents, the Contractor must be responsible for the Commissioning Agent’s fee for witnessing repeated tests beyond the second incidence. Such fee will be negotiated between the Commissioning Agent and the Commissioner.

5. After testing, Contractor must return settings to normal operating conditions.

**3.5 DEFICIENCIES:**

A. Deficiencies/Non-Conformance.

1. The CxA will record the results of the functional test on the test form. All deficiencies or non-conformance items must be noted and reported to the Commissioner and the Contractor on a standardized form.

2. The Contractor must respond to new deficiencies within five (5) business days. The response must either indicate the issue will be corrected with anticipated date of completion indicated or the response should clearly indicate why the Contractor disputes the claim while referencing the Contract Documents in dispute or requesting further information to clarify the concern.

3. Corrections of minor deficiencies identified may be made during the tests at the discretion of the CxA.

4. Every effort must be made to expedite the testing process and minimize unnecessary delays, while not compromising the integrity of the procedures.

5. As tests progress and a deficiency is identified, the CxA discusses the issue with the Contractor.

6. When there is no dispute on the deficiency and the Contractor accepts responsibility to correct it, the CxA documents the deficiency and the Contractor's response and intentions or corrections. The CxA and Contractor then proceed to another test or sequence. Once the Contractor corrects the deficiency, the test is rescheduled and repeated in the anticipation of correct operation or function.

7. When there is a dispute about a deficiency, regarding whether it is a deficiency or who is responsible, the CxA documents the deficiency and the Contractor's response. The deficiency is then forwarded to parties assumed to be responsible for the deficiency. Resolutions are made at the lowest management level possible. Other parties are brought into the discussion as needed. Final interpretive authority is with the Commissioner. Final acceptance authority is with the Commissioner and CxA. The CxA will then document the resolution process. Once the interpretation and resolution have been decided, the appropriate party corrects the deficiency. The CxA then reschedules the test as stated in the section above.

8. Deficiencies that are not corrected at the time of documentation, must be completed by the affected subcontractor and photo evidence of the deficiency resolution must be sent by the Contractor to both the Commissioner and the CxA.

B. Failure due to Manufacturer Defect.

1. The CxA and Commissioner will determine the equipment to be tested. If 10% of the equipment being tested, or three identical pieces of the equipment tested (irrespective of equipment unit size), whichever is greater, fail to perform due to manufacturing defect (mechanically or substantively), not allowing it to meet its submitted performance requirements, all identical pieces of equipment may be considered unacceptable by the CxA and the Commissioner. In such case, the Contractor must provide the Commissioner with the following:

   a. Within one week of notification from the Contractor, the manufacturer's representative will examine all other identical units making a record of the findings. The findings must be provided to the Commissioner within two weeks of the original notice.

b. Within two weeks of the original notification, the Contractor or manufacturer will provide a signed and dated written explanation of the problem, cause of failures, etc., and all proposed solutions which shall include full equipment submittals. The proposed solutions must not significantly exceed the specification requirements of the original installation.

c. Commissioner will determine whether a replacement of all identical units or a repair is acceptable.

d. Two examples of the proposed solution will be installed by the Contractor and the Contractor will be allowed to test the installations for up to one week, upon which the Commissioner will decide whether to accept the solution.

e. Upon acceptance, the Contractor and/or manufacturer must replace or repair all identical items, at their expense, and extend the manufacturer's warranty accordingly, if the original equipment warranty had begun. The replacement/repair work must proceed with reasonable speed beginning within one week from when parts can be obtained.

**3.6 OPERATION & MAINTENANCE MANUALS:**

A. General

1. The CxA must review the operation & maintenance manuals provided by the Contractor for completeness of the document. The review process will verify that operation & maintenance instructions meet Specifications and are included for all commissioned equipment furnished by the Contractor.

2. The CxA will communicate deficiencies in the manuals to the Contractor, or Commissioner, as requested. Upon a successful review of the corrections, the CxA recommends approval and acceptance of these sections of the operation & maintenance manuals to the Commissioner. The CxA also reviews each equipment warranty and verifies that all requirements to keep the warranty valid are clearly stated.

3. Published literature will be specifically oriented to the provided equipment, indicating required operation and maintenance procedures, parts lists, assembly / disassembly diagrams and related information.

4. The Contractor must incorporate the standard technical literature into system-specific formats for this facility as designed and as actually installed. The resulting operation & maintenance information must be system-specific, concise, to the point and tailored specifically to this facility. The CxA must review these documents as necessary for final corrections by the Contractor.

5. Contractor must submit operations & maintenance manuals for each piece of equipment for review no later than 45 days after submittal approval.

B. The operation & maintenance manual review and coordination efforts must be completed prior to Owner orientation sessions, as these documents are to be utilized in the orientation sessions.

C. System Operations Manual

1. The CxA must prepare and deliver these documents with inputs from the Contractor. The Contractor must provide all required documents to the CxA, through the Commissioner. The required documents must be described in the Commissioning Plan and Contract Documents. Typically, the manual includes the following:

a. System, subsystem, and equipment descriptions.

b. Commissioned systems single line diagrams (to be provided by Mechanical, Electrical, Plumbing, and Building Management System (BMS) Subcontractors).

c. As built sequences of operations, control drawings and original set points (to be provided by Design Consultant and BMS Subcontractor).

d. Operating instructions for integrated building systems (to be provided by Mechanical and BMS Subcontractors).

e. Recommended schedule of maintenance requirements and frequency (to be provided by Subcontractors).

f. Recommended schedule for calibrating sensors and actuators (to be provided by BMS Subcontractor).

**3.7 DEMONSTRATION AND INSTRUCTION:**

A. The Contractor must schedule and coordinate instruction sessions for the facility's staff for each commissioned system. Demonstrations must be held per Contract Documents, along with the appropriate schematics, handouts and visual / audio orientation aids onsite with equipment.

B. The equipment vendors must provide instruction on the specifics of each major equipment item including philosophy, troubleshooting and repair techniques.

C. The Contractor must record and edit demonstration and orientation sessions, and provide these records to the CxA, through the Commissioner.

D. For additional direction pertinent to instruction, refer to other specific specification sections for demonstration and instruction requirements.

E. The Contractor will be responsible for instruction coordination, scheduling, and completion of demonstrations and instructions.

F. The CxA will oversee the instruction of the City of New York's personnel for commissioned equipment and systems.

1. The CxA will interview the City of New York's personnel to determine the special needs and areas where instruction will be most valuable. The Commissioner and CxA will decide how rigorous the instruction should be for each piece of commissioned equipment. The CxA will communicate the results to the Contractor who will ensure participation by the Subcontractors.

2. In addition to these general requirements, the specific instruction requirements of the City of New York's personnel by the Contractor are specified in the DDC's General Conditions Section 017900 "Demonstration and Owners' Pre-Acceptance Orientation."

3. The Contractor must ensure that each Subcontractor and vendor responsible for instruction will submit a written instruction plan to the Contractor for review and approval prior to instruction. The Contractor will submit one comprehensive instruction plan to the CxA and the Commissioner.

4. The plan will be reviewed by the CxA and the Commissioner. Comments pertaining to its deficiencies will be forwarded to the Contractor. The instruction plan will be rewritten until approved by the CxA and the Commissioner. The final approved instruction plan will cover the following elements:

a. Equipment (included in instruction)

b. Intended audience

c. Location of instruction

d. Objectives

e. Subjects covered (description, duration of discussion, special methods, etc.)

f. Duration of instruction on each subject

g. Qualified instructor for each subject

h. Instructor qualifications

i. Methods (classroom lecture, video, site walk-through, actual operational demonstrations, written handouts, etc.)

5. Instruction documentation must include the following items:

a. Copy of the instruction plan, including schedule, syllabus, and agenda.

b. Copy of the Owner's Project Requirements.

c. Compiled operations manuals.

d. Compiled maintenance manuals.

e. Completed manufacturer instruction manuals.

f. Record drawings.

6. The CxA develops criteria for determining that the instruction was satisfactorily completed, including attending the instruction, etc. The CxA recommends approval of the instruction to the Commissioner using a standard form. The Commissioner signs the approval form/letter template.

7. At one of the instruction sessions, the CxA presents a presentation discussing the use of the blank functional test forms for re-commissioning equipment.

8. Video recording of the instruction sessions will be verified by the CxA in electronic format, at the discretion of the Commissioner.

## 3.8 GUARANTY REVIEW / SEASONAL TESTING

A. Seasonal Testing – During the twelve (12)-month guaranty period, seasonal testing (tests delayed until weather conditions are closer to the system's design) must be completed as part of this Contract. The CxA will coordinate this activity. Tests will be executed and documented, and deficiencies will be corrected by the Contractor, with facilities staff and the CxA witnessing. Any final adjustments to the operation & maintenance manuals and record documents due to seasonal testing will be made by the Contractor.

B. The CxA will return upon the start of the new season (cooling or heating) after Project completion to conduct performance tests that could not be performed due to ambient conditions. The seasonal testing will only be performed if suitable loads / conditions were unavailable during the performance testing stages (in other words; the requirement for testing is warranted), and at the written direction of the Commissioner.

C. The CxA will return to the site approximately ten (10) months into the twelve (12)-month guaranty period and interview the occupants and maintenance staff, review the operation of the building, provide recommendations for installation and operational problems and document guaranty and operational issues in the Issues database.

**3.9 RECORD DRAWINGS**

A. The CxA must review the as built Contract Documents to verify incorporation of both design changes and as-built construction details. Discrepancies noted must be corrected by the appropriate party.

**END OF SECTION 01 91 13**

# SECTION 01 91 15
# GENERAL COMMISSIONING REQUIREMENTS FOR BUILDING ENCLOSURE

**REFER TO THE ADDENDUM FOR APPLICABILITY OF THIS SECTION 01 91 15**

## PART I – GENERAL

### 1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum, and (5) the Contract [City of New York Standard Construction Contract].

B. The Owner's Project Requirements (OPR) and Basis of Design (BOD) documents are included by reference for information only.

C. The Commissioning Plan, prepared by the Commissioning Agent (CxA) under separate contract with the City of New York, contains requirements that apply to this section.

### 1.2 SECTION INCLUDES

A. This section includes the commissioning requirements for the Building Enclosure systems. Refer to "Exterior Enclosure Commissioning" 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 its Suppliers, Subcontractors, Vendors, etc., are required to participate in both commissioning processes as required.

### 1.3 DESCRIPTION

A. Building Enclosure Commissioning (BECx) is a systematic process of ensuring all building enclosure systems responsible for environmental separation perform as per the OPR and BOD. The BECx process is intended to verify and document proper installation and performance of building enclosure materials and systems in accordance with the Contract Documents.

B. Commissioning does not take away from, or reduce, the Contractor's responsibility to provide a finished and fully functioning product and installation.

C. This section will in no way diminish the responsibility of the Contractor in performing all aspects of work and testing as outlined in the Contract Documents. Any requirements outlined in this section are in addition to requirements outlined in the Contract Drawings and Specifications.

### 1.4 RELATED WORK

A. Specific BECx requirements are given in this Section. The following Project Specification sections are related to the commissioning work specified in this section:

1. Basic Concrete Requirements: Refer to Division 03
2. Basic Metal Requirements: Refer to Division 05
3. Basic Waterproofing, Roofing, Air Barrier and Insulation Requirements: Refer to Division 07
4. Basic Fenestrations Requirements: Refer to Division 08
5. Basic Finishing Requirements: Refer to Division 09

## 1.5 DEFINITIONS AND ABBREVIATIONS

A. Refer to Article 2 of the Contract and Section 01 91 13 GENERAL COMMISSIONING REQUIREMENTS FOR MEP SYSTEMS for terms, words, and expressions not otherwise defined herein.

| | |
|---|---|
| Approval | Acceptance that a material or system has been properly installed and is functioning in tested modes according to the Contract Documents. |
| Building Enclosure Commissioning Agent (BECA) | BECA directs and coordinates day-to-day BECx commissioning activities. |
| Building Enclosure Testing Agency (BETA) | Building Enclosure Testing Agency whom is an independent agency retained by the Contractor and approved by the Commissioner, fully accredited by the appropriate governing body for each of the materials, components or systems to be tested or evaluated for compliance with requirements of the Contract Documents and as directed by the BECA. Documentation of such certification must be submitted to and approved by the Commissioner prior to the start of any work by the BETA. |
| Commissioning | Commissioning is a systematic process of ensuring and documenting that the building systems 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 Subcontractors to provide a finished product. |
| Commissioning Agent (CxA) | Refer to Section 01 91 13 GENERAL COMMISSIONING REQUIREMENTS FOR MEP SYSTEMS for Definition. |
| Commissioning Plan | Refer to Section 01 91 13 GENERAL COMMISSIONING REQUIREMENTS FOR MEP SYSTEMS for Definition. |
| Deficiency | Condition of a building enclosure material or system that is not in compliance with Contract Documents (that is, does not perform properly or does not comply with design intent). |
| Design Consultant | Refer to Section 01 91 13 GENERAL COMMISSIONING REQUIREMENTS FOR MEP SYSTEMS for Definition. |
| Simulated Condition | Condition created for testing component or system (e.g., applying pressure differential across the building enclosure concurrent with water spray to simulate a wind driven rain). |
| Mock-up | The activities where systems or materials are initially constructed and tested. |

## 1.6 COORDINATION

A. Building Enclosure Commissioning Team: Members of the Building Enclosure Commissioning Team will consist of:

1. CxA
2. BECA
3. BETA
4. Commissioner
5. Contractor, and all Building Enclosure Subcontractors
6. Design Consultant

B. Management: City of New York will contract services of the BECA through a separate contract. The BECA will direct and coordinate commissioning activities and report to the Commissioner. All members of the

Building Enclosure Commissioning Team must cooperate to fulfill contracted responsibilities and objectives of the Contract Documents.

C. Scheduling: BECA must work with the Building Enclosure Commissioning Team to establish required commissioning activities to incorporate into the preliminary commissioning schedule. The Contractor must integrate commissioning activities into master construction schedule, in accordance with Section 01 32 00 CONSTRUCTION PROGRESS DOCUMENTATION. Necessary notifications are to be made in a timely manner in order to expedite commissioning.

### 1.7 SUBMITTALS

A. Contractor must provide documentation required for commissioning work in accordance with Section 01 33 00 SUBMITTAL PROCEDURES. At minimum, documentation must include, but not be limited to:

1. Submittal of shop drawings, product data, samples, etc., relevant to BECx and as requested by the BECA. Such submittals must be in compliance with Section 01 78 39 CONTRACT RECORD DOCUMENTS.
2. As-Built Record Drawings and Operation and Maintenance Information relevant to BECx and as required by the BECA. Such submittals must be in compliance with Section 01 78 39 CONTRACT RECORD DOCUMENTS.
3. All demonstration and orientation submittals relevant to BECx and as requested by the BECA. Such submittals must be in compliance with Section 01 79 00 DEMONSTRATION AND OWNER'S PREACCEPTANCE ORIENTATION.
4. Performance data, any performance test procedures, and installation and checkout materials.

B. The Contractor must provide all submittals to the Design Consultant, as per Section 01 33 00 SUBMITTAL PROCEDURES. The Design Consultant will transmit all building enclosure related submittals to the BECA for concurrent review.

## PART II – PRODUCTS (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, Roof waterproofing, including garden roof systems, all penetrations, and transitions; skylights and other sloped glazing; exterior walls, including the air barrier system, water management systems, and thermal insulation; punched windows, window walls, curtain walls, storefronts, glazed entries, doors, and louvers; sealants, expansion joints, and control joints; flashings, including all transitions and end-dams; terrace, balcony, and deck waterproofing; below-grade waterproofing, including drainage, waterproofing and damp proofing; below slab floor barriers; interface and transition conditions between exterior enclosure components and systems; smoke controls and fire separation and stopping; and any other special building enclosure systems, equipment, and controls. Refer to the Contract Documents for clarity.

### 3.2 RESPONSIBILITIES OF COMMISSIONING TEAM MEMBERS DURING CONSTRUCTION PHASE

A. Responsibilities of the Design Consultant include without limitation the following:

1. Review BECA comments on construction documents and shop drawings.
2. Assist in dispute resolution regarding building enclosure items.
3. Review BECA reports.
4. Incorporate BECA Submittal Review Comments into response on submittals.

B. Responsibilities of the BECA include the following without limitation:

1. Review and comment on Mock-up construction and testing plan as provided by Contractor.
2. Development of BECx Plan.
3. Review of building enclosure shop drawings and submittals, including “approved equal” requests, through the Commissioner in accordance with Section 01 33 00 SUBMITTAL PROCEDURES.
4. Attend combined pre-construction and BECx kick-off meeting.
5. Develop construction checklists for the building enclosure for the Contractor’s use.
6. Observe the construction of a building enclosure Mock-up.
7. Witness the testing of a building enclosure Mock-up.
8. Project meetings / conference calls / coordination.
9. Field monitor installation of exterior enclosure components.
10. Update field report log.
11. Update BECx Plan.
12. Advise on Requests for Information.
13. Assist with the preparation of LEED paperwork.
14. Prepare systems manual, with required inputs and documentation from the Contractor in accordance with Section 01 78 39 CONTRACT RECORD DOCUMENTS.
15. Complete Maintenance Plan, with required inputs and documentation from the Contractor in accordance with Section 01 78 39 CONTRACT RECORD DOCUMENTS.
16. Prepare training manual, with required inputs and documentation from the Contractor in accordance with Section 01 78 39 CONTRACT RECORD DOCUMENTS.
17. Prepare final BECx record and enclosure commissioning close-out documents.
18. Develop on-going BECx Plan.

C. Responsibilities of the Contractor and Building Enclosure Subcontractors include without limitation the following:

1. Review BECx Plan and FPT specification.
2. Attend commissioning kick-off meeting and other Building Enclosure Commissioning Team meetings.
3. Incorporate commissioning activities into the construction schedule.
4. Periodically update Commissioning activities in the construction schedule.
5. Notify Commissioner and BECA of work completion.
6. Verify building enclosure materials and assemblies are ready for functional testing.
7. Retain the services of an approved independent BETA; submit qualifications of independent BETA to Commissioner for approval; coordinate all activities and deliverables of this BETA; ensure all BETA deliverables are provided to the Building Enclosure Commissioning Team.
8. Attend all required material and systems testing.
9. Execute all periodic maintenance or repairs required on started systems from initial Mock-up of equipment to Final Acceptance by Commissioner to prevent material warranties from being voided.
10. Submit maintenance logs of all interim maintenance or repair tasks performed by Contractor.

11. Ensure installation work is complete, is in compliance with Contract Documents, and is ready for Functional Performance Testing. FPT test results will be documented by BECA.
12. Ensure resolution of non-compliance and deficiencies in construction or test results. Obtain written documentation of completion from the appropriate subcontractors.
13. Provide letters of compatibility for adjacent building enclosure materials and assemblies.
14. Facilitate all repairs and retesting of failed condition at no additional cost to the City of New York.
15. Provide all warranty information to BECA.

D. Responsibilities of the BETA include without limitation the following:

1. Attend Commissioning kick-off meeting and other Building Enclosure Commissioning Team meetings.
2. Provide on-site technician and equipment to complete Mock-up and field Functional Performance Testing.
3. Prepare and submit reports to the Commissioner at the conclusion of all testing.
4. Perform retesting and prepare corresponding reports.

## 3.3 BUILDING ENCLOSURE COMMISSIONING TEAM (BECx) MEETINGS

A. BECx meetings will be held periodically, as determined by the Commissioner and recommended by BECA.

B. Discussions held in BECx meetings must include, but not be limited to: system/materials, mock-up/field, progress, scheduling, testing, documentation, deficiencies, and problem resolution.

C. The Contractor must attend BECx meetings, and must ensure the attendance of required subcontractors, as requested.

## 3.4 REPORTING

A. BECA will provide status reports to the Commissioner. The Commissioner will provide such status reports to the Contactor, CxA, Design Consultant, and other entities as needed.

B. BECA will submit non-compliance and deficiency reports to Commissioner. The Commissioner will provide such reports to the Contractor, CxA, Design Consultant, and other entities as needed.

C. BECA will provide a final summary report to Commissioner and CxA.

## 3.5 MOCK-UP AND FINAL CONSTRUCTION

A. Prior to Functional Performance Testing or concealment of functional performance layers within the building enclosure, the Contractor must verify that all assemblies are complete, including deficiency long items, and all Contract requirements are met.

## 3.6 FUNCTIONAL PERFORMANCE TESTING

A. Objectives and Scope

1. The objective of Functional Performance Testing is to demonstrate that the building enclosure is performing according to documented design intent and Contract Documents. Functional Performance Testing ensures and documents that the building enclosure systems are fully operational. Additionally, during Functional Performance Testing, areas of deficient performance are identified and corrected, improving building enclosure system performance.

B. Development of Test Procedures

1. The purpose of a specific test is to verify and document compliance of the installed enclosure systems with the OPR. Building Enclosure Functional Performance Test Protocols are provided in other sections of the Project Specifications for specific requirements regarding BECx.

C. Coordination and Scheduling

1. Contractor must provide sufficient notice to BECA, through the Commissioner, regarding completion schedule for materials and systems. Testing to be performed in conjunction with site visits. Contractor must schedule Functional Performance Tests with Commissioning Team. BECA must witness and document functional testing of equipment and systems. BETA, as retained by the Contractor, must execute tests under direction of BECA.

2. Successful completion of Mock-up functional performance testing must occur prior to full production installation of building enclosure materials and systems.

## 3.7 DOCUMENTATION, NON-CONFORMANCE, AND APPROVAL OF TESTS

A. Documentation

1. BECA must witness and document results of FPT.

B. Non-Conformance

1. BECA must record results of functional testing. Deficiency or non-conformance issues must be noted and reported to the Commissioner. The Commissioner must provide such non-conformance reports to the CxA, Design Consultant, Contractor, and other entities, as needed.

2. Corrections of minor deficiencies identified may be made during tests at the discretion of the Commissioner and as recommended by the BECA. In such cases, deficiency and resolution must be documented.

3. Every effort must be made to expedite testing and minimize unnecessary delays, while not compromising integrity of tests.

4. Deficiencies are handled in the following manner:
   a) BECA documents deficiencies and notes Contractor's response and intentions. A finding of deficiency will not end the testing process.
   b) BECA submits deficiency report to the Commissioner. The Commissioner will provide such deficiency report to the CxA, Contractor, Design Consultant, and other entities as required.
   c) Contractor corrects deficiency and certifies that material or assembly is ready to be retested.
   d) Contractor informs Commissioner of retesting schedule for coordination with the BECA.
   e) Contractor reschedules test with the Commissioner and BETA at no additional cost to the City of New York.
   f) If a test must be witnessed more than twice by the BECA due to repeated failure to perform as per the design documents, the Contractor must be responsible for the BECA's fee for witnessing repeated tests beyond the second incidence. Such fee will be negotiated between the BECA and the Commissioner.

C. Testing

1. Costs for all testing and retesting required for the Project will be the responsibility of the Contractor. The Contractor is to provide access to the test specimens to the Commissioning Team, through the Commissioner.

## 3.8 COMMISSIONING DOCUMENTATION

A. Final Report Details

1. Final BECx Report must include an executive summary, list of participants and roles, brief building description, overview of Commissioning and testing scope, and general description of testing and verification methods. Report must contain evaluation regarding:
   a) Conformance to Specifications and design intent.
   b) Material/system installation.
   c) Functional performance.
2. All outstanding non-compliance items must be specifically listed.
3. Recommendations for improvement to system or operations, future actions, etc. must also be listed.

**END OF SECTION 01 91 15**

FMS ID: **CO294RF**

**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/ddc

Department of Design and Construction

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

**CONTRACT NO. 1 GENERAL CONSTRUCTION WORK**

# Bronx Family Criminal Courthouse Roof Upgrade

**LOCATION:** **215 East 161 Street**
**BOROUGH:** **Bronx, New York 10451**
**CITY OF NEW YORK**

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:** **CO294RF**

**THE CITY OF NEW YORK**
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## VOLUME 3 OF 3

# ADDENDUM TO THE GENERAL CONDITIONS

# SPECIFICATIONS

FOR FURNISHING ALL LABOR AND MATERIALS
NECESSARY AND REQUIRED FOR:

# Bronx Family Criminal Courthouse Roof Upgrade

**LOCATION:** **215 East 161 Street**
**BOROUGH:** **Bronx, New York 10451**
**CITY OF NEW YORK**

**CONTRACT NO. 1** **GENERAL CONSTRUCTION WORK**

**DCAS**

**Ivan Brice Architecture**

**Date:** **April 13, 2026**

**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 #: CO294RF

PROJECT NAME: Bronx Family Criminal Courthouse Roof Upgrade

PROJECT DESCRIPTION: This project consists of fully replacing the existing roofing systems at all roof levels to provide a system with an associated long-term warranty and complying with current energy efficiency standards. A total of 45,300SF roof area, in 26 separate roofs at nine different floor levels will receive a new roofing system of two types: cold-applied liquid roofing and paver-protected cold-applied liquid roofing. The concrete deck cracks, delamination, and any other form of deterioration will be repaired from the exterior and interior sides. A new roof rail guard will be installed, and all existing roof guard rails will be reinforced. All existing roof drains will be retrofitted with new retrofit roof drains. The limited mechanical work scope includes replacing two existing RTUs with two new similar units. Electrical scope includes reconnection of the two new RT units and replacement of exterior light fixtures at the Cooling Tower Courtyard.

PROJECT LOCATION: 215 East 161 Street
BOROUGH: Bronx
CITY OF NEW YORK
ZIP CODE: 10451
COMMUNITY BOARD #: 4

LANDMARK STATUS: None

DESIGNATED LANDMARK STRUCTURE OR SITE: **NO**
*If this is a Designated Landmark Structure or Site, Section 01 3591, Historic Treatment Procedures applies to this project.*
LANDMARK QUALITY STRUCTURE: **NO**
*If this is a Landmark Quality Structure, Section 01 3591, Historic Treatment Procedures applies to this project.*

## II. LEED GREEN BUILDING REQUIREMENTS

Not Used

## III. COMMISSIONING REQUIREMENTS

Not Used

## IV. PROJECT MANAGEMENT

☐ DDC will publicly bid and enter into all contracts for the Project. DDC will manage the Project using its own personnel.

☒ DDC will publicly bid and enter into all contracts for the Project. A Construction Management firm (the "CM") hired by DDC will manage the Project. The Contractor is advised that the CM will serve as the representative of the Commissioner at the site and will, 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 E are attached to, and incorporated as part of, this Addendum to the General Conditions. These schedules contain important information that is specific to this Project. The Contractor is advised to carefully review these schedules.

## VII. APPLICABILITY OF SECTIONS/SUB-SECTIONS AND AMENDED SUB-SECTIONS

The Contractor is advised that various Sections/Sub-Sections in the General Conditions may not apply to this Project or may apply as amended. Such Sections/Sub-Sections advise the Contractor to "Refer to the Addendum for the applicability of this Section/Sub-Section." Such Sections/Sub-Sections are set forth below. A check mark indicates whether the Section/Sub-Section (1) applies to the Project, (2) does not apply to the Project, or (3) applies to the Project as amended. If no box is checked, the Section/Sub-Section, as set forth in the General Conditions, applies to the Project. Amended Sections/Sub-Sections, if any, are set forth following this list of Sections.

| Section | Sub-Section | Sub-Section | Applies | | Does not Apply | | Applies as Amended |
|---|---|---|---|---|---|---|---|
| **01 1000** | 1.4 (B) | Scope and Intent / LEED | | | X | | |
| | 1.4(C) | Scope and Intent / Commissioning | | | X | | |
| **01 2100.10** | | Price Adjustment Allowance | | | X | | |
| **01 2100.20** | | Expanded Work Allowance | X | | | | |
| **01 2100.30** | | Project Work Acceleration Allowance | X | | | | |
| **01 3216.10** | | Project Schedules (Method A) | | | X | | |
| **01 3216.20** | | Project Schedules (Method B) | X | | | | |
| **01 3216.30** | | Project Schedules (Method C) | | | X | | |
| | 1.7 Q | Cost Loaded Schedule | | | X | | |
| **01 3233** | | Photographic Documentation | | | | | X |
| **01 3300** | 1.7 (A-D) | LEED Submittals | | | X | | |
| **01 3503** | | General Mechanical Requirements | | | X | | |
| **01 3506** | 3.2 (A-B) | Electrical Conduit System Including Boxes (Pull, Junction and Outlet) | | | X | | |
| | 3.3 (A-E) | Electrical Wiring Devices | | | X | | |
| | 3.4 (A-I) | Electrical Conductors and Terminations | | | X | | |
| | 3.5 (A-B) | Circuit Protective Devices | | | X | | |
| | 3.6 (A-J) | Distribution Centers | | | X | | |
| | 3.7 (A-I) | Motors | | | X | | |
| | 3.8 (A-I) | Motor Control Equipment | | | X | | |
| **01 3591** | | Historic Treatment Procedures | | | X | | |
| **01 5000** | 3.2 (A) | Temporary Water Facilities / Temporary Water | | | X | | |
| | 3.2 (B) | Temporary Water Facilities / Temporary Water – Work in Existing Facilities | | | X | | |
| | 3.3 (B) | Temporary Sanitary Facilities / Self-Contained Toilet Units | X | | | | |
| | 3.3 (C) | Temporary Sanitary Facilities / Existing Toilets | | | X | | |
| | 3.4 (B) 1 | Temporary Power, Lighting, and Site Lighting / Connection to Utility Lines | X | | | | |
| | 3.4 (B) 2 | Temporary Power, Lighting, and Site Lighting / Connection to Existing Electrical Power Service | | | X | | |
| | 3.4 (B) 3 | Temporary Power, Lighting, and Site Lighting / Electrical Generator Power Service | | | X | | |
| | 3.4 (D) | Temporary Power, Lighting, and Site Lighting / Temporary Lighting | | | X | | |
| | 3.4 (E) | Temporary Power, Lighting, and Site Lighting / Site Security Lighting (for New Construction Only) | | | X | | |
| | 3.5 (A-J) | Temporary Heat | | | X | | |
| | 3.8 (A) | DDC Field Office / Office Space in Existing Building | | | X | | |

| Section | Sub-Section | Sub-Section | Applies | | Does not Apply | | Applies as Amended |
|---|---|---|---|---|---|---|---|
| **01 5000** | 3.8 (B), (B-3a) | DDC Field Office / DDC Managed Project Trailer | | | | | X |
| | 3.8 (B), (B-3b) | DDC Field Office / CM Managed Project Trailer | X | | | | |
| | 3.8 (D) | DDC Field Office / Additional Equipment for the DDC Field Office | | | | | X |
| | 3.13(A-D) | Work Fence Enclosure | X | | | | |
| | 3.14 (A-H) | Rodent and Insect Control | X | | | | |
| | 3.17(B) | Project Rendering | | | X | | |
| | 3.18 (A-D) | 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 5423** | 1.9 (A-C) | Sidewalk Sheds | 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 8113.04** | | Sustainable Design Requirements for LEED v4 Buildings | | | X | | |
| **01 81 13.10** | | Environmentally Preferable Purchasing (EPP) Compliance | | | X | | |
| **01 8119** | | Indoor Air Quality Requirements for LEED Buildings | | | X | | |
| **01 9113** | | General Commissioning Requirements for MEP Systems | | | X | | |
| **01 9115** | | General Commissioning Requirements for Building Enclosure | | | X | | |

## AMENDED SECTIONS/SUB-SECTIONS

The Contractor is advised that the amended Sub-Sections set forth below are included in the General Conditions and apply to the Project.

**Section 01 50 00: Revise as noted below:**

**3.8 DDC FIELD OFFICE; B. DDC FIELD OFFICE TRAILER**

12.e: Two (2) Crystal Springs water coolers with bottled water, Model No. LP14058 or approved equal to be furnished for the duration of the Contract as required.

**3.8 DDC FIELD OFFICE; D. ADDITIONAL EQUIPMENT FOR THE DDC FIELD OFFICE;**
**3 COMPUTER WORKSTATION**

a. Hardware / Software Specification:

3) Personal Computers – Personal Computers must meet the requirements of the US General Services Administration (GSA) Government-Wide Strategic Solutions (GSS) Standard Laptop, Desktop, and Tablet Specifications, latest version. (Available online at https://sewp.nasa.gov/gss_techspecs.shtml.)

Additionally, Contractor must provide the following equipment:

1. 15-inch business laptop, featuring the latest model manufactured by Microsoft and equipped with the most recent Windows Pro Business OS to ensure full compatibility with DDC software. The laptop must include a minimum of 64GB RAM, a 1TB SSD, and the latest high-speed processor available. It should be pre-installed with all required software packages for desktop functionality. Include a compatible power docking station that supports the laptop and offers multiple device connectivity options.as in 3.8, D, 3., a., 3).

2 Monitors, Two 24 inch monitors. or larger; they must be compatible with the optional docking station offered. Provide mandatory accessories as per GSA specifications. All equipment must meet the minimum requirements listed in the GSA Specifications. 3.8, D, 3., a., 3).

## ADDITIONAL SECTIONS/SUB-SECTIONS

The Contractor is advised that the additional Sub-Sections set forth below are included in the General Conditions and apply to the Project.

**Section 01 10 00: Add the following articles:**

1.13 PHASING REQUIREMENTS

A. Proposed Phasing Plans **–** Listed under Schedule C herein and attached to the Bid Drawings is a set of Proposed Phasing Plans as a guide for the Contractor to produce their final Phasing Plans.

1. The roof over the mechanical room and the mechanical room ceiling repairs will be prioritized and scheduled as priority work in the baseline schedule.

1.14 WORK RESTRICTIONS

A. The list below includes, but is not limited to, work restrictions set forth by DCAS and DDC:

1. Courthouse Hours of Operation: 6 AM to 9 PM
2. Construction Working Hours:

a. Non-Noisy Work: Monday - Friday 6 AM to 9 PM
b. Noisy Work and Disruptive Work: 9 PM to 6 AM

1) The Contractor must carry out noise-generating and vibratory demolition and construction activities between 9 pm and 6 am, Monday through Friday, including weekends. The noise-generating work includes, but is not limited to, loud, excessive, or disruptive noises such as drilling, grinding, hammering, metal cutting, demolition work, and the use of power tools and heavy equipment (“Noise-Generating Work”).

2) The Contractor must prepare a noise mitigation plan in compliance with DEP requirements and submit it to DEP for approval, in accordance with Title 15 Rules of the City of New York (RCNY) Chapter 28. In addition to the Noise Mitigation Plan for large equipment and other construction aids listed in the DEP forms, the Contractor must provide a supplementary mitigation plan that details the noise-generating hand tools and activities involved, along with a noise level chart indicating Decibel (dB) levels from safe to unsafe, as per OSHA guidelines 29 CFR 1926.

3) For noise-generating and vibratory demolition and construction work that cannot be performed during nighttime hours and is considered daytime work by installers, erectors, or manufacturers, the Contractor must obtain written waivers from DDC, DCAS, and OCA prior to scheduling such work. Scheduling may proceed only as authorized by these waivers.

4) All required and specified interior repairs must be carried out during the noisy work hours listed above. Similarly, any work associated with the roof repairs, considered non-noisy but deemed disruptive to the active operations of the courthouse, must be scheduled and performed during noisy work hours, unless otherwise approved in writing by the Commissioner.

3. Construction Working hours for the 2nd Floor: 1 AM to 9 AM (Arraignments)

4. Other Construction Hours:
   a. For Contractor-requested material deliveries or incidental construction work outside allowed construction hours, coordinate with DCAS, DDC, and CM.

5. The Contractor must coordinate any needed building access with the CM and DDC 24-48 hours in advance.

6. After coordinating building access with DDC and CM, to connect to the building’s utilities, and to gain access to the 10th floor mechanical room, the Contractor must contact the building’s engineer, Stephen O’Neill, at (718) 590-3234.

7. The Contractor must arrange access to interior, occupied areas identified in the plans for specified repairs at least two weeks in advance, following the Base Schedule. Interior repairs include:
   a. Concrete repairs to the underside of the Main Roof -10th floor Mechanical Floor
   b. Ceiling repairs in offices, courtrooms, public corridors, and judges' chambers.

8. The Contractor must coordinate with DCAS, DDC, CM and the Courthouse to identify all work restrictions, including both scheduled and unscheduled arraignments. The Contractor must incorporate the restricted areas hours into the Base Schedule.

1.15 EXISTING ANTENNAS

A. There are several antennas and video equipment installed at the Main Roof level and at the Elevator Bulkhead. They service different city agencies operating in the building. The antenna work will be coordinated as follows:

1. Contractor's Responsibilities:

a. The Contractor will coordinate all the antenna removal, relocation and re-installation with DCAS, DDC, CM, and the Courthouse.

b. The Contractor is responsible for surveying the roof-mounted equipment and, as part of their submittal, develop an antenna location plan detailing the location, size, type, and connections for each antenna.

c. The Contractor must document and make an inventory of all roof-level antennas, including related conduits, wiring, equipment and systems. The Contractor must submit this inventory to the following parties to facilitate coordination of the work described below:
1) The Construction Manager (CM),
2) The Department of Design and Construction (DDC),
3) The Department of Citywide Administrative Services (DCAS), and
4) The Office of Court Administration (OCA).

d. The Contractor, in coordination with these entities, will identify the antenna user, service provider, antenna vendor, and all other relevant agencies requiring notification. The Contractor, with the assistance of the antenna service provider or vendor and the CM, must develop a detailed procedural plan for each antenna including related conduits, wiring, equipment and systems. This plan must include the following steps:

1) Assign all roles and responsibilities for the removal, disposal, relocation, and reinstallation of antennas, including related conduits, wiring, equipment, and systems.

2) Document all technical requirements for each task, including safety protocols and equipment specifications.

3) For defunct equipment:
a) Obtain written direction from the equipment vendor or designated city agency.
b) Remove and lawfully dispose of the equipment in accordance with all applicable regulations.

4) For active equipment:
a) Coordinate with the appropriate equipment vendor or city agency to ensure they perform all removal, relocation, and reinstallation tasks.
b) Provide technical support to the vendor or agency to prevent interference with construction work and to protect newly installed work.
c) Verify compliance with all safety and regulatory requirements throughout all operations in active construction zones.
d) Direct handling of active equipment, including removal, relocation, and reinstallation—remains the responsibility of the appropriate equipment vendor or agency.
e) All steps and responsibilities will be documented and reviewed with the CM and DDC prior to execution.

2. Agencies' Responsibilities:

a. Ownership / Identification – All existing antennas and video equipment installed on the Main Roof and at Elevator Bulkhead must be identified by the appropriate agency and their vendors to establish ownership and operation conditions.

b. Removal – Equipment identified as defunct by the vendors must be removed and legally disposed of by the Contractor. The removal and temporary storage of active antennas or video equipment to facilitate construction activities will be performed by the respective agencies' vendors.

c. Relocation – The agency or vendor responsible for each active antenna or video equipment unit will relocate the equipment to a designated temporary location prior to construction activities. The temporary location must be selected to ensure no interference with Contractor work zones or material installation. Upon completion of the Contractor's work, the responsible agency or vendor will return the antennas to their original locations, following the same relocation procedures as outlined above.

d. Reinstallation – For equipment that will be stored and then put back, after the new steel support for the antennas or video equipment is installed, all antennas or video equipment must be returned to their permanent place by the correct agency's vendor.

1.16 TEMPORARY ROOF PROTECTION

A. TEMPORARY PROTECTION PLAN - This project includes the immediate implementation of a Temporary Roof Protection Plan prior to the full replacement of the existing roofing systems. This plan must be implemented 30 ccds after the NTP is issued and must be completed within 60 ccds of implementation. The Temporary Roof Protection Plan consists of:

1. Temporary protecting the roofs (B though F below), and
2. Temporary protecting selected roof rising walls (G below).

B. TEMPORARY PROTECTION OF ROOFS - There are four (4) existing roof conditions at the Bronx Courthouse, all in need of temporary protection before full roofing replacement takes place:

1. Gravel-ballast over BUR type
2. Single-ply roofing membrane over BUR type (roof areas where gravel was removed)
3. Single-ply roofing membrane
4. Concrete wearing course over roofing membrane

C. GRAVEL-BALLASTED ROOFS OVER BUR-TYPE ROOFING

1. **ACM Positive** – The existing gravel ballast at the following roofs tested positive for ACM:
   a. Roof # 1 - Bulkhead Roof Bulkhead level
   b. Roof # 10 - NW Corner Roof 9th floor
   c. Roof # 12 - South Setback Roof 8th floor
   d. Roof # 17 - SE Corner Roof 7th floor
   e. Roof # 18 - SW Corner Roof 7th floor
   f. Roof # 19 - NW Corner Roof 7th floor

2. At roofs that tested positive (for locations see H-Series Drawings), implement the following sequence:
   a. Remove all visible vegetation currently growing on the roof surface, including trees, bushes and weeds.
   b. Do not disturb /sweep the gravel.
   c. With gravel in place, apply/spray coating emulsion along wall/curb flashings, around roof drains, and over the field.

d. Apply asphalt clay emulsion roof coating (ASTM D1227, Type III, Class 1) at a rate of 3-4 gallons per 100 sq ft.
e. Inspect all exiting pitch pockets, penetrations, and all post base flashings to identify tears, punctures, holes and open pockets.
f. For base of pitch pockets, post bases and penetrations, use liquid flashing with reinforced mesh in a 3-course fashion.
g. For open pitch pockets use pitch pocket filler as required.

3. **ACM Negative** - The following roofs with gravel ballast tested **negative** for ACM:
   a. Roof # 2 - Main Roof Main Roof level
   b. Roof # 4 - East corner setback 10th upper floor
   c. Roof # 5 - East corner setback 10th upper floor
   d. Roof # 9 - NE corner roof 9th floor
   e. Roof # 14 - NE corner roof 8th floor
   f. Roof # 15 - NW corner roof 8th floor
   g. Roof # 16 - NE corner roof 7th floor

4. At roofs that tested **negative** (for locations see H-Series Drawings), implement the following sequence:
   a. Remove all visible vegetation currently growing on the roof surface, including trees, bushes and weeds.
   b. Sweep as much gravel as possible from built-up roof surface, clean and spud these areas to prepare the substrate.
   c. Apply / spray / roller coating emulsion along wall/curb flashings, around roof drains, and over the field.
   d. Apply the asphaltic clay emulsion roof Coating (ASTM D1227, Type III, Class 1) at a rate of 3-4 gallons per 100 sq ft.
   e. Redistribute the existing gravel into the newly applied emulsion coating.
   f. Inspect all exiting pitch pockets and all post base flashings to identify tears, punctures, holes and open pockets.
   g. For base of pitch pockets/post bases, penetrations, use liquid flashing with reinforced mesh in a 3-course fashion.
   h. For open pitch pockets use pitch pocket filler as required.

D. SINGLE-PLY ROOFING MEMBRANE OVER BUR TYPE - There are five (5) roofs with a single-ply roofing membrane installed over existing BUR type roofing:
   1. Roof # 3 - South set back roof 9th floor
   2. Roof # 7 - East set back roof 9th floor
   3. Roof # 8 - West set back roof 9th floor
   4. Roof # 11 - East set back roof 8th floor
   5. Roof # 13 - West set back roof 8th floor
   6. At roofs with a single ply over BUR (for locations see H-Series Drawings), implement the following sequence:
      a. Inspect roofs with single ply membrane over BUR to identify tears, punctures, holes and open seams.
      b. Inspect all exiting pitch pockets, penetrations and all post base flashings to identify tears, punctures, holes and open pockets.
      c. At all identified deteriorating conditions, apply liquid flashing with reinforced mesh in a 3-course fashion.
      d. For base of pitch pockets/post bases, penetrations, use liquid flashing with reinforced mesh in a 3-course fashion.
      e. For open pitch pockets use pitch pocket filler as required.

E. SINGLE-PLY ROOFING MEMBRANE - There are three (3) roofs with an existing single ply:
   1. Roof # 20 - East covered roof 3rd floor
   2. Roof # 21 - South cover3ed roof 3rd floor
   3. Roof # 22 - West covered roof 3rd floor
   4. At roofs with a single ply (for locations see H-Series Drawings), implement the following sequence: Inspect roofs with single ply membrane to identify tears, punctures, holes and open seams.
      a. Inspect all exiting pitch pockets, penetrations and all post base flashings to identify tears, punctures, holes and open pockets.
      b. At all identified deteriorating conditions, apply liquid flashing with reinforced mesh in a 3-course fashion.
      c. For base of pitch pockets/post bases, penetrations, use liquid flashing with reinforced mesh in a 3-course fashion.
      d. For open pitch pockets use pitch pocket filler as required.

F. CONCRETE WEARING COURSE OVER ROOFING MEMBRANE - There is one (1) roof with concrete wearing course over a roofing membrane:
   1. Roof # 6 - Cooling Tower 10th floor
   2. At the roof with the concrete wearing course (for location see H-Series Drawings), implement the following sequence:
      a. Remove all visible vegetation currently growing on the roof surface.
      b. Sweep roof surface to a clean substrate.
      c. Inspect all exiting pitch pockets and all post base flashings to identify tears, punctures, holes and open pockets.
      d. Apply coating emulsion along wall/curb flashings, around roof drains, and over the field.
      e. Apply the asphaltic clay emulsion roof coating (ASTM D1227, Type III, Class 1) at a rate of 3-4 gallons per 100 sq ft.
      f. Inspect all exiting pitch pockets, penetrations and all post base flashings to identify tears, punctures, holes and open pockets.
      g. For base of pitch pockets, penetrations, and post bases, use liquid flashing with reinforced mesh in a 3-course fashion.
      h. For open pitch pockets use pitch pocket filler as required.

G. PROTECTING ROOF RISING WALLS –
   1. Rising walls at Main Roof - The following roof rising walls must be protected in advance of the full replacement of the existing roofing systems:
      a. E, S and W (3) rising walls of the Elevator Bulkhead at Roof #2, Main Roof
      b. N, E, S and W (4) rising walls of both chimneys at Roof #2, Main Roof

   2. At the noted roof rising walls (for location see H-Series Drawings), implement the following sequence:
      a. Remove all visible vegetation currently growing on the wall surfaces.
      b. Vacuum clean all wall surfaces to a clean substrate.
      c. Prime all wall surface with a water dispersed adhesion promotion primer.
      d. Apply two (2) coats of elastomeric, UV curing, acrylic protective coating (TT-C-555B) to achieve a dry film thickness of 16 mils.
      e. Coating system must include a reinforcing fiber matt. (see spec Section 099653 – Elastomeric Coatings part of this project)
      f. Inspect copings and wall penetrations for open joints and holes.
      g. For open coping joints and open penetration holes, use liquid flashing with reinforced mesh in a 3-course fashion.

H. QUANTITIES – Allocated quantities. Contractor must also submit a Unit Price for each of the seven applications, as noted in the Item Grid in PASSPort:

1. Protection at roofs with ACM gravel - 2,200SF
2. Protection at roofs with gravel no ACM – 11,000SF
3. Protection at roofs with single ply – 330SF
4. Reinforced liquid flashing – 1,100LF
5. Pitch pocket filler – 55 Locations
6. Reinforced elastomeric coating - 2,750SF

**Revise Section 01 32 33: Add the following article:**

3.7 REPORTS

A. Photos must be presented in a written report format with each photo clearly identified as follows:

1. Written pre-construction report with photos capturing overall spaces, access routes, work areas, and finishes in the construction zone, noting any damaged finishes adjacent to the work areas.
2. Photo location plan that identifies where the photo was taken and tags it with the location (such as floor and room), date, time, activity, and level of importance.
3. A bi-weekly written report describing work performed and progress photos documenting work in that period.
4. Final written report with photos documenting pre- and post-construction finishes.

## VIII. SPECIAL EXPERIENCE REQUIREMENTS FOR THE PROJECT

Also refer to the PASSPort Questionnaire for Special Experience Requirements.

## IX. REVISIONS: SPECIFICATIONS AND CONTRACT DRAWINGS

The Specifications and the Contract Drawings for the Project are revised in accordance with the provisions set forth below.

(1) Owner: Wherever the term “Owner” is used in the Specifications and/or the Contract Drawings, such term means 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 Documents section in PASSPort contains a Notice which identifies a particular product from a designated manufacturer as a "Sole Source Product, the Contractor is 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 PASSPort Questionnaire. Special Experience Requirements may apply to Contractors, subcontractors, installers, fabricators, applicators, erectors, specialists, manufacturers and/or suppliers. Refer to DDC General Conditions Section 014000 Article 1.7.C for applicable Special Experience qualification levels. If the Specifications and/or the Contract Drawings contain any Special Experience Requirement that is not set forth in the PASSPort Questionnaire, 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 as noted in DDC General Conditions Section 014000 Quality Requirements, Article 1.7.B, except as described in paragraph (b) below.
   (b) Any Special Experience Requirement that pertains to the abatement of hazardous materials is not be subject to the deletion and/or revision set forth above. Such Special Experience Requirement remains in full force and effect.
   (c) Except as set forth in the DDC General Conditions Article 1.7, 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 Documents section in PASSPort. In the event of any conflict or inconsistency between (1) the Notice regarding Alternate Bids set forth in the Documents section in PASSPort and (2) a provision in the Specifications and/or the Contract Drawings regarding Alternate Bids, the Notice set forth in the Documents section in PASSPort will prevail. If the agency is not requesting the submission of Alternate Bids, as indicated by the absence of a Notice in the Documents section in PASSPort, 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 (LEED v3) or 100 miles (LEED v4), 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 (LEED v3) or 100 miles (LEED v4), the Contractor must 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 will prevail.

(10) Warranties: Requirements for Warranties are set forth in Schedule B, which is included in the Addendum to the General Conditions.
- (a) The term "manufacturer's warranty" as described in this article encompasses the following terms as indicated in the Specifications: "Manufacturer's Warranty", "Manufacturer's Special Warranty", "Special Warranty", "Special Finish Warranty", "Manufacturer's Special Warranty for a (product, assembly)."
- (b) In the event of any conflict or inconsistency between (1) a warranty requirement set forth in the Specifications and/or the Contract Drawings and (2) a warranty requirement set forth in Schedule B, the warranty requirement set forth in Schedule B will prevail.
- (c) In the event a warranty requirement set forth in the Specifications and/or the Contract Drawings is omitted from Schedule B, such omission from Schedule B has no effect and the Contractor's obligation to provide the manufacturer's warranty, as set forth in the Specifications and/or the Contract Drawings, will remain in full force and effect.
- (d) In the event a warranty requirement for a particular item of material or equipment is omitted from Schedule B, as well as from the Specifications or the Contract Drawings, and the manufacturer of such item actually provides a warranty, the Contractor is 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 and, if applicable, in the Indemnification Agreement in the Appendix. 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 will 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 will prevail.

(18) Shall: Wherever the word "shall" is used in the Specifications and/or the Contract Drawings with respect to the Contractor's or Subcontractor's responsibilities or Project Requirements, the term is intended to convey a contractual mandate, such as the terms "must," "will," or "be obliged to" (and not "may").

## 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 | The Contractor must obtain a bid security in the amount indicated to the right. | Required provided the TOTAL BID PRICE set forth on the Bid Form is $1,000,000. Or more.<br><br>Certified Check: 2% of Bid Amount<br>or<br>Bond: 10% of Bid Amount | |
| Information For Bidders | Performance and Payment Bonds | | For Contracts in the amount of $1,500,000.00 or more, Performance and Payment Bonds must each be in amount equal to 100% of the Contract Price. | |
| Information For Bidders | Department of Design and Construction Safety Requirements | The Contractor must provide the safety personnel as indicated to the right | □ Project Safety Representative<br>■ Dedicated, full-time Project Safety Representative | |
| Article 14 Contract | Time of Substantial Completion | Consecutive Calendar Days | **548** | |
| Article 15 Contract | Liquidated Damages | For each consecutive calendar day over completion time | **$ 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 $1,000,000 | **10%** |
| Article 24 Contract | Deposit Guarantee | Percent of Contract Price | **1%** | |
| Article 24 Contract | Period of Guarantee | | See Schedule B of the Addendum to the General Conditions | |
| Article 75 Contract | Compensation to be Paid to Contractor | | Amount for which the Contract was Awarded:<br>_____<br>_____ Dollars<br>($_____) | |
| Article 79 Contract | MWBE Program | | See M/WBE Utilization Plan in the PASSPort Procurement M/WBE Considerations Section. | |

## SCHEDULE A (FOR PUBLICLY BID PROJECTS)

### Relating to Article 22 – Insurance

### PART II. Types of Insurance, Minimum Limits and Special Conditions

**Note: All certificate(s) of insurance submitted pursuant to Contract Article 22.3. 3 must be accompanied by a Certification by Broker consistent with Part III below and include the following information:**

- **For each insurance policy, the name and NAIC number of issuing company, number of policy, and effective dates;**
- **Policy limits consistent with the requirements listed below;**
- **Additional insureds or loss payees consistent with the requirements listed below; and**
- **The number assigned to the Contract by the City (in the "Description of Operations" field).**

**Insurance indicated by a blackened box (■) or by (X) in the ☐ to left will be required under this contract.**

| Types of Insurance (per Article 22 in its entirety, including listed paragraph) | Minimum Limits and Special Conditions |
|---|---|
| ■ Commercial General Liability Art. 22.1.1 | This Contract requires Commercial General Liability Insurance (CGL) that is at least as broad as ISO Form CG 00 01 (see Section 22.1.1 of the New York City Standard Construction Contract).<br><br>The minimum limits shall be $1,000,000.00 per occurrence and $2,000,000.00 per project aggregate applicable to this Contract unless the Work requires a permit from the Department of Buildings and greater limits of Commercial General Liability Insurances are required pursuant to 1 RCNY section 101-08.<br><br>Additional Insureds:<br>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<br><br>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).<br><br>3. The Bronx Family Criminal Courthouse, including its officials and employees. |

**SCHEDULE A (FOR PUBLICLY BID PROJECTS)**

**Relating to Article 22 - Insurance**

**PART II. Types of Insurance, Minimum Limits and Special Conditions**

**Insurance indicated by a blackened box (■) or by (X) in the ☐ to left will be required under this contract.**

| Types of Insurance (per Article 22 in its entirety, including listed paragraph) | Minimum Limits and Special Conditions |
|---|---|
| ■ Workers' Compensation Art. 22.1.2<br>■ Disability Benefits Insurance Art. 22.1.2<br>■ Employers' Liability Art. 22.1.2<br>□ Jones Act Art. 22.1.3<br>□ U.S. Longshoremen's and Harbor Workers Compensation Act Art. 22.1.3 | Workers' Compensation, Employers' Liability, and Disability Benefits Insurance: Statutory per New York State law without regard to jurisdiction.<br>**Note**: The following forms are acceptable: (1) New York State Workers' Compensation Board Form No. C-105.2, (2) State Insurance Fund Form No. U-26.3, (3) New York State Workers' Compensation Board Form No. DB-120.1 and (3) Request for WC/DB Exemption Form No. CE-200. The City will not accept an ACORD form as proof of Workers' Compensation or Disability Insurance.<br>Jones Act and U.S. Longshoremen's and Harbor Workers' Compensation Act: Statutory per U.S. law. |
| ■ Builders' Risk Art. 22.1.4 | 100 % of total value of **Work**<br>**Contractor** the Named Insured; the **City** both an Additional Insured and one of the loss payees as its interests may appear.<br>Installation Floater not permitted.<br>Note: Builders Risk Insurance may terminate upon **Substantial Completion** of the **Work** in its entirety. |
| ■ Commercial Auto Liability Art. 22.1.5 | $1,000,000.00 per accident combined single limit<br>If vehicles are used for transporting hazardous materials, the **Contractor** shall provide pollution liability broadened coverage for covered vehicles (endorsement CA 99 48) as well as proof of MCS 90 |

**SCHEDULE A (FOR PUBLICLY BID PROJECTS)**

**Relating to Article 22 - Insurance**

**PART II. Types of Insurance, Minimum Limits and Special Conditions**

**Insurance indicated by a blackened box (■) or by (X) in the ☐ to left will be required under this contract.**

| Types of Insurance<br>(per Article 22 in its entirety, including listed paragraph) | Minimum Limits and Special Conditions |
|---|---|
| □ Contractor's Pollution Liability Art. 22.1.6 | $_____ per occurrence<br><br>$_____ aggregate<br><br>Additional Insureds:<br>1. City of New York, including its officials and employees, and<br>2. _____<br>3. _____ |
| □ Marine Protection and Indemnity Art. 22.1.7(a) | $_____ per occurrence<br><br>$_____ aggregate<br><br>Additional Insureds:<br>1. City of New York, including its officials and employees, and<br>2. _____<br>3. _____ |
| □ Hull and Machinery Insurance Art. 22.1.7(b) | $_____ per occurrence<br><br>$_____ aggregate<br><br>Additional Insureds:<br>1. City of New York, including its officials and employees, and<br>2. _____<br>3. _____ |
| □ Marine Pollution Liability Art. 22.1.7(c) | $_____ each occurrence<br><br>Additional Insureds:<br>1. City of New York, including its officials and employees, and<br>2. _____<br>3. _____ |
| [OTHER] Art. 22.1.8<br><br>□ Ship Repairers Legal Liability | $_____ each occurrence |

**SCHEDULE A (FOR PUBLICLY BID PROJECTS)**

**Relating to Article 22 - Insurance**

**PART II. Types of Insurance, Minimum Limits and Special Conditions (Continued)**

**Insurance indicated by a blackened box (■) or by (X) in the ☐ to left will be required under this contract.**

| Types of Insurance<br>(per Article 22 in its entirety, including listed paragraph) | Minimum Limits and Special Conditions |
|---|---|
| [OTHER] Art. 22.1.8<br><br>□ Collision Liability/Towers Liability | $_____ per occurrence<br><br>$_____ aggregate<br><br>Additional Insureds:<br>1. City of New York, including its officials and employees, and<br>2. _____<br>3. _____ |
| [OTHER] Art. 22.1.8<br><br>□ Railroad Protective Liability _____ | $_____ per occurrence<br><br>$_____ aggregate<br><br>Additional Insureds:<br>1. City of New York, including its officials and employees, and<br>2. _____<br>3. _____ |
| [OTHER] Art. 22.1.8<br><br>■ Asbestos Liability _____ | Only required of the Contractor or Subcontractor performing any required asbestos removal.<br><br>$1,000,000 each occurrence,<br><br>$2,000,000 aggregate (Combined Single Limit); only required of the Contractor or Subcontractor performing any required asbestos removal.<br><br>Additional Insureds:<br>1. City of New York, including its officials and employees, and<br><br>2. The Bronx Family Criminal Courthouse, including its officials and employees. |

**SCHEDULE A (FOR PUBLICLY BID PROJECTS)**

**Relating to Article 22 - Insurance**

**PART II. Types of Insurance, Minimum Limits and Special Conditions (Continued)**

**Insurance indicated by a blackened box (■) or by (X) in the ☐ to left will be required under this contract.**

| | |
|---|---|
| [OTHER] Art. 22.1.8<br><br>□ Boiler Insurance_____ | <br><br>$200,000 |
| [OTHER] Art. 22.1.8<br><br>■ Professional Liability<br><br>In the event any section of the Specifications requires the Contractor to engage a Professional Engineer to provide design and/or engineering services, the Engineer engaged by the Contractor, as well as any sub consultant(s) performing professional services, shall provide Professional Liability Insurance. | $1,000,000 per occurrence<br><br>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.<br><br>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. |
| OTHER] Art. 22.1.8<br><br>□ Umbrella/Excess Liability Insurance<br><br>The Contractor shall provide Umbrella/Excess Liability Insurance in the minimum amounts shown to the right. The policy terms and condition should be at least as broad as the underlying policies. The underlying policies should comply with the insurance provision as outlined by the contract. Defense cost should be in addition to the limit of liability. The City of New York, including its officials and employees, should be included as additional insured as respects to the noted project. | $10,000,000 per Occurrence and<br><br>$10,000,000 in Aggregate |

## SCHEDULE A (FOR PUBLICLY BID PROJECTS)

### Relating to Article 22 - Insurance

### PART III. Certificates of Insurance

All certificates of insurance (except certificates of insurance solely evidencing Workers' Compensation Insurance, Employer's Liability Insurance, and/or Disability Benefits Insurance) must be accompanied by one of the following:

(1) the Certification by Insurance Broker or Agent on the following page setting forth the required information and signatures;

-- OR --

(2) copies of all policies as certified by an authorized representative of the issuing insurance carrier that are referenced in such certificate of insurance. If any policy is not available at the time of submission, certified binders may be submitted until such time as the policy is available, at which time a certified copy of the policy shall be submitted.

**SCHEDULE A (FOR PUBLICLY BID PROJECTS)**

**Relating to Article 22 - Insurance**

**PART III. Certification by Insurance Broker or Agent**

The undersigned insurance broker or agent represents to the City of New York that the attached Certificate of Insurance is accurate in all material respects.

_____

[Name of broker or agent (typewritten)]

_____

[Address of broker or agent (typewritten)]

_____

[Email address of broker or agent (typewritten)]

_____

[Phone number/Fax number of broker or agent (typewritten)]

_____

[Signature of authorized official or broker or agent]

_____

[Name and title of authorized official, broker or agent (typewritten)]

State of ……...)
) ss:
County of ……)

Sworn to before me this

_____ day of _____, 20__

_____

NOTARY PUBLIC FOR THE STATE OF_____

**SCHEDULE A (FOR PUBLICLY BID PROJECTS)**

**Relating to Article 22 - Insurance**

**PART IV. Address of Commissioner**

Wherever reference is made in Article 7 or Article 22 to documents to be sent to the **Commissioner** (e.g., notices, filings, or submissions), such documents must be sent via email to insurance@ddc.nyc.gov. Hard copies of such documents will no longer be required or accepted.

## SCHEDULE B

## Guarantees and Warranties

**(Reference: Section 01 7839, Article 2.9 of the DDC Standard General Conditions)**

### GUARANTY FROM CONTRACTOR

**(1) Contractor's Guaranty Obligation:** The Contractor must 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 will be (2) two years.

- Trees and/or Plant Material. For trees and/or plant material furnished and installed, the guarantee period will be (2) two years. During the guarantee period, the Contractor must 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 must obtain a written warranty from the manufacturer. Such warranty must provide that the material or equipment is free from defects for the period set forth below and will be replaced or repaired within such specified period. The Contractor must deliver all required warranties to the Commissioner.

**(2) Required Warranties:**

| Specification Number | Material or Equipment | Warranty Period (Years) |
|---|---|---|
| Section 07 56 00 | Fluid-Applied Roofing | 25 |
| Section 07 64 13 | Metal Wall Cladding/Watertight Warranty | 20 |
| Section 07 64 13 | Metal Wall Cladding/ Finish Warranty | 20 |
| Section 23 74 00 | Packaged Outdoor HVAC Equipment | 5 (compressor) |

**(3) Application:** The obligations under the warranty for the periods specified above 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 will take precedence.

(b) In the event a warranty requirement set forth in the Specifications is omitted from Schedule B, such omission from Schedule B will have no effect and the Contractor's obligation to provide the manufacturer's warranty, as set forth in the Specifications, will 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 is 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 is 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.

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G-001 Notes

EN-001 Energy Calculations
EN-002 LL51-23 Building Envelope Analysis & Horizontal Opaque Surfaces
EN-003 LL51-23 Building Envelope Vertical & Opaque Surfaces

H001 Asbestos Abatement – General Notes
H002 Asbestos Abatement – 10th to Elevator Penthouse Roof Plan
H003 Asbestos Abatement – 10th to Elevator Penthouse Roof Plan
H004 Asbestos Abatement – 7th to 9th Floor Roof Plan
H005 Asbestos Abatement – 7th to 9th Floor Roof Plan
H006 Asbestos Abatement –7th to 9th Floor Roof Plan

DM-101 Demolition Plan at Roofs 1 to 6
DM-102 Demolition Plan at Roofs 7 to 19
DM-103 Demolition Plan at Roofs 20 to 26

A-100 Key Plans for Roof Locations & Roofing Types
A-101 Plan of Roof Replacement & Related Work at Roofs 1 to 6
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A-103 Plan of Roof Replacement & Related Work at Roofs 20 to 26
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S-002.00 General Notes - Sheet 2
S-109.00 Ninth Floor Plan
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S-200.00 Typical Sections
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S-401.00 Typical Light Gage Construction Details- Sheet 1

S-402.00 Typical Light Gage Construction Details- Sheet 2
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P-101.00 Plumbing Main Roof Plan
P-102.00 Plumbing Setback Terraces @ Floor 7, 8 & 9
P-103.00 Plumbing Colonnade & Corner Terraces @ Floors 2 & 3
P-400.00 Plumbing Details and Schedule

**Mechanical**
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MT-100.00 Mechanical 10th Floor Plan
MD-101.00 Mechanical Demolition Roof Plan
MT-101.00 Mechanical Construction Roof Plan
MT-500.00 Mechanical Details
MT-600.00 Mechanical Schedules

**Electrical**
EN-001 Energy Analysis-1
ET-001.00 Electrical Symbol List, Notes and Abbreviations Cover Sheet
ET-002.00 Electrical Single Line Riser Diagram Power
ET-003.00 Electrical Details
ET-100.00 Electrical Stair Enclosure and Courtyard Plans
ET-101.00 Electrical Roof Plan
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ED-100.00 Electrical Roof Demolition Plan

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2 PHT-002 Phasing Plan Title and Notes Sheet 2
3 PH-001 Construction Aid-Schedule of Roofs
4 PH-002 Construction Aid-Roof Plan
5 PH-003 Construction Aid-East Elevation
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8 PH-006 Construction Aid-Section
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## SCHEDULE D

## Electrical Motor Control Equipment

**(Reference: 01 3506, Article 3.8 of the DDC Standard General Conditions)**

Requirements for electrical motor equipment may be included in one or more sections of the Specifications for the Contract for the Project. Schedule D set forth below delineates specific information for electrical motor control equipment. In the event of any conflict between the Specifications and this Schedule D, Schedule D will 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 will have no effect and the Contractor's obligation with respect to the electrical motor control equipment, as set forth in the Specifications, will remain in full force and effect.

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**DB** Disconnect Circuit Breaker (Switch)
**TS** Thermal Switch
**MS** Magnetic Starter
**CMS** Comb. Mag. Starter
**P** Pilot Light
**F** Firestat
**T** Thermostat
**AL** Alternator
**BG** Break Glass Station
**HOA** Hand-Off Auto.
**PB** Push Button Station
**RO** Remote "off"

| Equip. Ident. | Location | # of Units | HP or KW | Volts and Phase | Control Type: See legend above | Remarks: |
|---|---|---|---|---|---|---|
| RTU – 1&2 | Main Roof | 2 | 3HP | 460/3 | HOA | None |

## SCHEDULE E

## Separation of Trades

***NOT USED FOR SINGLE CONTRACTS***

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# CONTRACT # 1

# GENERAL CONSTRUCTION WORK

# SECTION 02 41 19 - SELECTIVE DEMOLITION

## 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: Removal and demolition of selected items from selected areas of the building as indicated on the Drawings. Work must include, but is not limited to the following items:
   1. Removal of all existing ballast gravel, loose and bagged, at Main and at all other roof levels,
   2. Removal of all existing membrane roofing system at Main and at all other roof levels,
   3. Removal of all cut-in metal counter flashings at Main Roof and at all other roof levels.
   4. Removal of four-inch concrete wearing course at Cooling Tower Courtyard,
   5. Removal of all between-slab waterproofing membrane at Cooling Tower Courtyard
   6. Partial removal of concrete encasement of steel columns supporting the steel dunnage at Cooling Tower Courtyard,
   7. Partial removal of concrete encasement at structural steel beam of Roof Stair.

B. Related Sections:
   1. Section 03 01 30 Maintenance of Cast-in-Place Concrete
   2. Section 03 01 50.61 Resurfacing of Cast Decks and Underlayment
   3. Section 03 30 53 Miscellaneous Cast-in-Place Concrete
   4. Section 07 56 00 Fluid-Applied Roofing
   5. Section 07 62 00 Sheet Metal Flashing and Trim

C. Responsibility, Protection, Disturbances, Restrictions
   1. Condition of Space
      a. The City of New York assumes no responsibility for actual condition of the space in which removals and demolition work is performed.
   2. Protections
      a. Provide temporary barricades and other forms of protection required to protect all City of New York property, personnel, and general public from injury due to selective removals and demolition work.

b. Provide protective measures as required to provide free and safe passage of all City of New York personnel, and the general public.
c. Protect from disturbance existing finish work that is to remain in place, and which becomes exposed during operations.
d. Protect all roof areas with building paper or other suitable covering.

3. Disturbances
   a. Promptly remove and install new any and all disturbances to all property and finishes caused by the removals and demolition work, to the Commissioner's satisfaction and at no extra cost to the City of New York.
4. Explosives
   a. The use of explosives is prohibited.
5. Electric Power-driven Tools:
   a. Only hand-held electric power-driven tools conforming to the following criteria must be used to remove or drill concrete and masonry.
      1. Electric Chiseling Hammer
         a) Power Data 115 Volts AC
         b) 2 7-8 Amps
         c) Three-wire grounded connection
         d) Percussion 2400-2600 Impacts/Minute
         e) Type/Size Hand-held (+ 18-inch length)
         f) Unit Weight 12-15 pounds (minus chisel bit)
      2. Electric Hammer Drill
         a) Power Data 115 Volts AC
         b) 5-8 Amps
         c) Three-wire grounded connection
         d) Percussion 2400-3200 Impacts/Minute
         e) Type/Size Hand-held (+ 18-inch length)
         f) Unit Weight 12-15 pounds (minus chisel bit)
         g) Speed Data 0-0500 RPM (Under load)

1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 "Submittal Procedures".

1.4 SUBMITTALS

A. Shop Drawings
   1. For that part of the work that is not considered minor alterations or ordinary removals and installations, submit shop drawings and associated calculations. Demolition drawings and sequencing must be signed and sealed by a Professional licensed in the State of New York and Design Drawings of such must be filed with the Building Department.
B. Schedule
   1. Submit a schedule indicating proposed methods and sequence of operations for selective removals and demolition work, prior to

commencement of operations. The sequence of operations must be planned, in detail, to ensure uninterrupted service of the courthouse.

C. Submit procedures for dust and noise control.

1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

B. Regulatory Requirements

1. Work of this Section must conform to all requirements of the 2022 NYC Building Code including but not limited to the following safety, health, and anti-pollution regulations:

a. The provisions of Chapter 33 Safeguards During Construction or Demolition, of the 2022 NYC Building Code must govern the conduct of all construction or demolition operations with regard to the safety of the public and property.
b. For regulations relating to the safety of persons employed in construction or demolition operations, OSHA standards must apply.
c. In addition to the requirements of Chapter 33, construction or demolition operations must also be conducted in conformance with the New York City Fire Code.
d. The removal and/or abatement of asbestos containing materials (ACM) from structures must occur in strict compliance with Federal, State, and City regulations. These regulations include all applicable requirements by the New York City Department of Environmental Protection (DEP).

2. Conform to the requirements of "Safety and Health Standards, Subpart P - Excavations, Trenching and Shoring" - OSHA.

3. Where more stringent requirements than those contained in the 2022 NYC Building Code are given in this Section, the requirements of this Section must govern.

PART 2 - PRODUCTS - NOT APPLICABLE

PART 3 - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 INSPECTION

A. Prior to commencement of the selective removals and demolition work, inspect the areas in which the work will be performed. Determine and list the existing conditions of rooms or area surfaces and equipment. After the work in each respective area is completed, determine if adjacent surfaces or equipment have been disturbed as a result of the work; if so, the disturbance must be corrected at the Contractor's expense.

B. Create a safety zone around the demolition area as per Section BC 3306.2.1 of the 2022 NYC Building Code. Fences/barriers must be erected to prevent persons other than workers from entering.

3.3 REMOVALS AND DEMOLITION WORK

A. The Contractor must engage the services of a third party Professional Engineer, licensed in the State of NY (not a direct employee) to prepare the details and sequencing of the demolition, complying with all items included in Section BC 3306.5, for that part of the work that does not constitute a minor alteration or ordinary removals and installations. (Refer to Section §28-105.4.2 of the NYC Administrative Code for the items that do not constitute minor alterations, or ordinary removals and installations i.e. items that affect structural, fire or health safety). The Contractor's Professional Engineer must file Form PW-1 with the Building Department, thereby becoming the Professional Engineer of Record for such demolition work. These submittal documents must be kept at the site as per Section BC 3306.5.2.

B. Perform selective demolition work in a systematic manner and use such methods as are required to complete the work indicated, and in accordance with the Specifications and governing 2022 NYC Building Code.

C. When walls, partitions, floors, and ceilings (or portions thereof) are indicated to be removed, unless indicated otherwise:

1. Remove all items attached to the surfaces of the construction to be removed.

2. Remove all plumbing piping, fixtures, accessories and rough-in occurring on or in the construction to be removed; cap piping and/or re-route lines as indicated or required.

3. Remove all connectors, piping, ductwork and other HVAC items and accessories occurring on or in the construction to be removed; cap and/or re-route piping and ductwork as indicated or required.

4. Remove all electrical wiring, to include, but not limited to, lighting, communications, alarms and all related appurtenances, conduits,

devices, fixtures, and other electrical items and accessories occurring on or in the construction to be removed; disconnect power and remove wiring and conduit back to source.

D. Carefully remove items, equipment and materials to be retained by the City of New York.

3.4 DISPOSAL OF DEMOLISHED MATERIALS

A. Remove debris, rubbish and other materials resulting from the removals and demolitions from the building immediately; transport and legally dispose of materials off-site. The disposal method must be in accordance with the 2022 NYC Building Code. Items to be retained by the City of New York must be delivered to indicated locations.

B. Burning of removed materials is not permitted on the job site.

3.5 CLEAN-UP AND REMOVALS AND INSTALLATION

A. Upon completion of removals and demolition work, remove tools, equipment and all remaining demolished materials from the site.

B. Remove all disturbed areas caused by the removals and demolition work and install new. Remove adjacent construction or surfaces soiled or disturbed by selective demolition work and install new.

C. All areas in which work was performed under this Section must be left "broom-clean."

3.6 PROPRIETORSHIP OF MATERIALS

A. All equipment, materials, and items removed must remain the property of the City of New York, if desired; equipment, material and items not desired to be re-used or retained by the City of New York must be removed from the site by the Contractor. The Commissioner will designate which equipment, materials and items will be retained.

B. Items, equipment and materials for future use must be removed and salvaged by the Contractor.

END OF SECTION 02 41 19

**SECTION 028013 – GENERAL CONTRACTOR WORK**
**SEPTEMBER 2022 VERSION**

## ALLOWANCE FOR INCIDENTAL ASBESTOS ABATEMENT

### 1.01 SCOPE FOR ASBESTOS ABATEMENT WORK

A. The "General Conditions" apply to the work of this Section.

B. The Asbestos abatement contractor shall remove asbestos containing materials as needed to perform the other work of this Contract when discovered during the course of work. When required, the Asbestos abatement contractor shall replace the ACM with non-asbestos containing materials. An allowance of **$15,000.00** for the **General Contractor** is herein established for this incidental work when so ordered and authorized by the Commissioner.

C. All work shall be done in accordance with the applicable provisions of the rules and regulations of the asbestos control program as promulgated by Title 15 Chapter I of RCNY and New York State Department of Labor Industrial Code Rule 56 cited as 12 NYCRR Part 56, whichever is more stringent as per latest amendments to these laws and as modified herein by these specifications.

D. All disposal of asbestos contaminated material shall be per Local Law 70/85.

E. The asbestos abatement contractor's attention is directed to the fact that certain methods of asbestos abatement are protected by patents. To date, patents have been issued with respect to "negative pressure enclosure" or “negative-air” or "reduced pressure” and "glove bag".

F. The asbestos abatement contractor shall be solely responsible for and shall hold the Department of Design and Construction and the City harmless from any and all damages, losses and expenses resulting from any infringement by the asbestos abatement contractor of any patent, including but not limited to the patents described above, used by the asbestos abatement contractor during performance of this agreement.

G. "Asbestos" shall mean any hydrated mineral silicate separable into commercially usable fibers, including but not limited to chrysotile (serpentine), amosite (cumingtonite-grunerite), crocidolite (riebeckite), tremolite, anthrophyllite and actinolite.

H. Prior to starting, the asbestos abatement contractor must notify the Commissioner of the Department of Design and Construction if he/she anticipates any difficulty in performing the Work as required by these Specifications. The asbestos

abatement contractor is responsible to prepare and submit all filings, notifications, etc. required by all City, State and Federal regulatory agencies having jurisdiction.

The asbestos abatement contractor is responsible for submitting the Asbestos Project Notification Form (ACP-7 Form) to the Department of Environmental Protection, Asbestos Control Program, as per Title 15, Chapter I of RCNY and to the NYSDOL as per Industrial Code Rule 56.

The asbestos abatement contractor is responsible for preparing and submitting Asbestos Variance Application (ACP-9). If a Variance is required, the asbestos abatement contractor is responsible to retain a NYSDOL Asbestos Project Designer, as defined in Title 15, Chapter 1 of the RCNY to prepare and submit the required variance.

The General Contractor is responsible for preparing and submitting an Asbestos Abatement Permit and/or Work Place Safety Plans (WPSP) that may be required for the completion of the Contract or incidental work. If such plans are required, the General Contractor is responsible for retaining a registered design professional as defined in Title 15, Chapter 1 of the RCNY to prepare and submit the required plans.

The asbestos abatement contractor is responsible for the submission of all required documents to the NYCDEP to acquire the appropriate Asbestos Project Conditional Closeout (ACP-20) and/or Asbestos Project Completion Forms (ACP-21) on a timely basis for the completion of the incidental work encountered under this contract.

The asbestos abatement contractor will be required to attend an on-site job meeting with the Construction Project Manager prior to the start of work to examine conditions and plan the sequence of operations, etc.

The asbestos abatement contractor shall have a NYSDOL/NYCDEP Asbestos Supervisor onsite to oversee the work and conduct a final visual inspection as required by both Title 15, Chapter 1 of the RCNY and NYSDOL Industrial Code Rule 56.

I. All work shall be done during regular working hours unless the asbestos abatement contractor requests authorization to work in other then regular working hours and such authorization is granted by the Commissioner. (Regular work hours are those hours during which any given facility, in which work is to be done, is customarily open and functioning, normally between the hours of 8:00 A.M. and 4:00 P.M. Monday - Friday.) If such work schedule is authorized by the Commissioner, the work shall be done at no additional cost to the City.

J. The Commissioner may order that work be done in other than regular working hours as herein by defined and this order may require the asbestos abatement

contractor to pay premium or overtime wages to complete the work. If the Commissioner orders work in other than regular working hours, the asbestos abatement contractor shall multiply the unit price for that portion of the work requiring premium wages by 1.50 when computing payment in accordance with Paragraph 1.09. All requests for premium payment must be supported by certified payroll sheets and field sheets approved by the Construction Project Manager.

## 1.02 QUALIFICATIONS OF ASBESTOS ABATEMENT CONTRACTOR

A. Requirements: The asbestos abatement contractor must be approved through the Department's Request for Subcontractor Approval, administered by the Agency Chief Contracting Office (ACCO), Vendor Integrity Unit. The asbestos abatement contractor must demonstrate compliance with the special experience requirements set forth in subparagraphs (1) through (6) below. Such documentation shall include without limitation, all required licenses, certificates, and documentation.

1. The asbestos abatement contractor must, whether an individual, corporation, partnership, joint venture or other legal entity, demonstrate for the three-year period prior to the work that it has been licensed by the New York State Department of Labor (NYSDOL), as an "Asbestos Abatement Contractor". The asbestos abatement contractor shall submit copies of the asbestos abatement contractors NYSDOL License for the past three years

2. The asbestos abatement contractor must, for the three-year period prior to the work, have been in the business of providing asbestos abatement services as a routine part of its daily operations.

3. The asbestos abatement contractor proposing to do asbestos abatement work must be thoroughly experienced in such work and must submit a list of five (5) asbestos abatement projects of similar size and complexity. The aggregate cost of these projects must be at least $1,000,000 in each of the three years.

4. For each project submitted to meet the experience requirements set forth above, the asbestos abatement contractor must submit the following information for the project; name and location of the project; name title and telephone number and email address of the owner or the owner's representative who is familiar with the asbestos abatement contractor's work; brief description of the scope of work completed as a prime or sub-asbestos abatement contractor; amount of contract or subcontract and the date of completion.

5. The asbestos abatement contractor must demonstrate that it has the financial resources, certified supervisory personnel and equipment

necessary to carry out the work and to comply with the required performance schedule, taking into consideration other business commitments. The asbestos abatement contractor must submit such documentation as may be required by the Department of Design and Construction to demonstrate that it has the requisite capacity to perform the required services of this contract. The Department may also conduct an inspection of the asbestos abatement contractor's facility to verify if the contractor has equipment and staffing to perform the work.

6. The asbestos abatement contractor must submit a copy of their Corporate Health and Safety Plan for review and acceptance. A Job Hazard Analysis (JHA) for the specific work conducted must be included.

B. Throughout the specifications, reference is made to codes and standards which establish qualities and types of workmanship and materials, and which establish methods for testing and reporting on the pertinent characteristics thereof. Provide materials or workmanship that meet or exceed the specifically named codes or standards where required by these specifications.

C. Site Investigation: Asbestos abatement contractor shall inspect all the specifications and related drawings and will investigate and confirm the site conditions affecting the work, including, but not limited to (1) through (5) below. The asbestos abatement contractor will attend a walkthrough site inspection with the department's Project Manager and the Third-Party Air Monitor prior to the work. Such walkthrough will be scheduled at the Department's convenience.

1. Physical considerations and conditions of both the material and structure. These considerations include any obstacles or obstructions encountered in accessing or removing the material.

2. Handling, storage, transportation and disposal of the material.

3. Availability of qualified and skilled labor.

4. Availability of utilities.

5. Exact quantities of all materials to be disturbed and/or removed

## 1.03 ASBESTOS ABATEMENT CONTRACTOR RESPONSIBILITIES

The asbestos abatement contractor will visit the subject location within one (1) working day of notification to ascertain actual work required. If the project is identified as being "urgent", then work shall commence no later than 48 hours from the time of notification. In this event, the asbestos abatement contractor shall immediately notify when applicable EPA NESHAPS Coordinator, NYSDOL Asbestos Control Bureau and NYCDEP

Asbestos Control Program of start of the work and file the necessary Asbestos Notifications and any applicable Variance Applications with the regulatory agencies cited above.

In the event that the project is not classified as "urgent" the asbestos abatement contractor shall notify the EPA NESHAPS Coordinator, NYSDOL and NYCDEP by submitting the requisite asbestos project notification forms, postmarked 10 days before activity begins if 260 linear feet or more and/or 160 square feet or more of asbestos containing material will be disturbed.

The following information must be included in the notification:

A. Name and address of building City or operator;

B. Project description:

1. Size - square feet, number of linear feet, etc;

2. Age - date of construction and renovations (if known);

3. Use - i.e., office, school, industrial, etc.

4. Scope - repair, demolition, cleaning, etc.

C. Amount of asbestos involved in work and an explanation of techniques used to determine the amount;

D. Building location/address, including Block and Lot numbers;

E. Work schedule including the starting and completion dates;

F. Abatement methods to be employed;

G. Procedures for removal of asbestos-containing material;

H. Name, title and authority of governmental representative sponsoring project.

## 1.04 WORK INCLUDED IN UNIT PRICE

The asbestos abatement contractor will be paid a basic unit price of **$25.00** per square feet for the removal and disposal of asbestos containing material and replacement of the same with non-asbestos containing materials.

Unit price shall include all costs necessary to do the work of this Contract, including but not limited to: labor, materials, equipment, utilities, disposal, insurance, overhead and profit.

## 1.05 AIR MONITORING – ASBESTOS ABATEMENT CONTRACTOR

A. "Air Sampling" shall mean the process of measuring the fiber content of a known volume of air collected during a specific period of time. The procedure utilized for asbestos follows the 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" | l4” | 4.71 |

## 1.09 METHOD OF PAYMENT

Payment shall be made in accordance with Items A through R below. Payment shall be calculated based on the actual quantity of the item performed by the asbestos abatement contractor, times the unit price specified below. Credits may apply to certain times, as specified below.

A. **REMOVAL, DISPOSAL AND REPLACEMENT OF ASBESTOS CONTAINING PIPE INSULATION:** Actual linear footage, multiplied by the square footage factor listed for the respective pipe size in Section 1.08, multiplied by the unit price in Section 1.04.

EXAMPLE: 100 lin.ft. of 1/2" pipe and 100 lin.ft. of 6" pipe, including elbows, tees. Flanges, etc.

100 X 0.65 = 65 sq.ft. 65 x unit price = Payment

100 X 2.62 = 262 sq.ft. 262 x unit price = Payment

B. **REMOVAL, DISPOSAL AND REPLACEMENT OF BOILER INSULATION:** (all types including Silicate Block and including the removal/replacement of metal jacketing) Payment shall be made at 1.5 times the unit price per square foot.

EXAMPLE: Item B. removal and replacement of 1000 S.F. of boiler insulation (incl. Silicate block)

1000 S.F. X (1.5) X the Unit Price = Payment

C. **REMOVAL, DISPOSAL AND REPLACEMENT OF TANK INSULATION:** (all types including removal/replacement of metal jacketing) Payment shall be made at 1.5 times the unit price per square foot.

D. **REMOVAL, DISPOSAL AND REPLACEMENT OF BOILER UPTAKE, & BREACHING INSULATION:** (all types including stiffening angles and wire lath) Payment shall be made at 2.0 times the unit price per square foot.

E. **REMOVAL, DISPOSAL AND REPLACEMENT OF DUCT INSULATION:** Payment shall be made at 1.0 times the unit price per square foot.

F. **REMOVAL, DISPOSAL AND REPLACEMENT OF SOFT ASBESTOS CONTAINING MATERIAL:** (Including sprayed-on fire proofing and sound proofing) Payment shall be made at 1.0 times the unit price per square foot of surface area. Area of irregular surfaces must be calculated and confirmed with DDC representative.

G. **ACOUSTIC PLASTER REPAIR AND/OR ENCAPSULATION:** Payment shall be made at 0.5 times the unit price per square foot.

H. **PATCHING OR REPAIR** of items listed in A through F will be paid at 0.33 times the unit price per square foot.

I. **REMOVAL, DISPOSAL AND REPLACEMENT OF WATERPROOFING ASBESTOS CONTAINING MATERIAL: (**including friable and non-friable waterproofing material from interior and exterior walls, floors, foundations, penetrations, louvers, vents and openings other than windows, doors and skylights) Payment shall be made at 0.5 times the unit price per square foot.

J. **REMOVAL, DISPOSAL AND REPLACEMENT OF ASBESTOS CONTAINING ELECTRICAL WIRING INSULATION:** (including friable and non-friable wiring insulation) Payment shall be made at 0.33 times the unit price per square foot.

K. **PAINTING:** Payment shall be made at 0.05 times the unit price per square foot.

L. **REMOVAL AND DISPOSAL OF ASBESTOS-CONTAINING PLASTER:** from ceilings and walls, including any wire lath and disposal as asbestos containing waste. Payment shall be made at 0.80 times the unit price per square foot.

M. **REMOVAL AND DISPOSAL OF ASBESTOS-CONTAINING FLOOR TILES, CEILING TILES, TRANSITE PANELS:** (including any adhesive, glue, mastic and/or underlayment) and disposal as asbestos containing waste. Payment shall be made at 0.40 times the unit price per square foot. If multiple

layers are discovered, each additional layer shall be paid at 0.20 times the unit price per square foot.

N. **ADDITIONAL CLEAN UP/HOUSEKEEPING OF WORK AREA:** (excluding pre-cleaning of work area required by regulations) HEPA vacuuming and wet cleaning of asbestos contaminated surface. Payment shall be made at 0.20 times the unit price per square foot. When GLOVE BAG is employed to remove ACM, cost of HEPA vacuuming and wet cleaning of floor area up to 3 feet on each side of glove-bag shall be included in unit price and no extra payment will be made.

O. **REMOVAL, DISPOSAL OF ASBESTOS-CONTAINING ROOFING MATERIAL:** including mastic, flashing and sealant compound and provide temporary asbestos-free roof covering consisting of one layer of rolled roofing paper sealed with asphaltic roofing compound. Payment shall be made at 0.8 times the unit price per square foot. Credit at a rate of 0.33 times the unit price will be taken for each square foot of temporary roof covering which the asbestos abatement contractor is directed not to install.

P. **PICK-UP AND DISPOSAL OF GROSS DEBRIS:** (excluding any waste generated from abatement under Item A-R) at a rate of $150 per cubic yard for asbestos contaminated waste and $75 per cubic yard for non-asbestos contaminated waste. This cost includes all labor and material cost associated with work.

Q. **REMOVAL OF ASBESTOS-CONTAINING BRICK, BLOCK, MORTAR, CEMENT OR CONCRETE:** along with all surfacing materials including wire lath and/or other supporting structures and disposal as ACM waste. Payment shall be made at a rate of $25.00 per cubic foot of material removed.

R. **REMOVAL AND DISPOSAL OF ASBESTOS CONTAINING WINDOW/DOOR CAULKING:** including friable and non-friable caulking, weather-stripping, glazing, sealants, or other waterproofing materials applied to windows, doors, skylights, etc. Payment shall be made at the rate of $400.00 per opening regardless of size or configuration. This cost includes labor, consumable materials, set-up/breakdown, removal, and disposal, as required.

**Note 1:** CREDIT: For items listed in A through F, a credit at a rate of 0.33 times the unit price, times the respective multiplier (for each item) will be taken for each square foot of insulation which the asbestos abatement contractor is not directed to reapply.

**Note 2:** MINIMUM PAYMENT: The minimum payment per call at any individual job sites or various job sites during the same day will be eight hundred dollars ($800.00).

**Note 3:** All payments shall be made as described in paragraph 1.09 herein**.**

**Note 4:** WORKING HIGHER THAN 12 FEET ABOVE FLOOR LEVEL OR WORK REQUIRING COMPLEX SCAFFOLDING OR CONSTRUCTION WORK

PLATFORMS: Provisions are made in this Contract to compensate the asbestos abatement contractor for work performed in locations that are difficult to access due to work at elevations that are significantly higher than the normal work level. The unit price for these items will be paid at 1.20 times the unit price described in Paragraphs 1.09, A through R for those portions of the work that are more than twelve (12) feet above the grade for that would be judged as the normal working level.

## 1.10 GUARANTEE

A. Work performed in compliance with each task shall be guaranteed for a period of one year from the date the completed work is accepted by the Department of Design and Construction.

B. The Commissioner of The Department of Design and Construction will notify the asbestos abatement contractor in writing regarding defects in work under the guarantee.

## 1.11 OCCUPANCY OF SITE NOT EXCLUSIVE

Attention is specifically drawn to the fact that contractors, performing the work of other Contracts, may be brought upon any of the work sites of this Contract. Therefore, the asbestos abatement contractor shall not have exclusive rights to any site of his work and shall fully cooperate and coordinate his work with the work of other contractors who may be brought upon any site of the work of this Contract. This paragraph applies to those areas outside the regulated Work Area as defined by Title 15, Chapter I of RCNY.

## 1.12 SUBMITTALS

A. Pre-Construction Submittals:

1. Attend a pre-construction meeting scheduled by the City of New York Department of Design and Construction. This meeting shall also be attended by a designated representative of the City of New York third party air monitoring firm, facility manager and the Construction Project Manager. At this meeting, the asbestos abatement contractor shall present three copies of the following items:
   a. asbestos abatement contractor’s scope of work, work plan and schedule.

   b. Asbestos project notifications, approved variances and plans to Government Agencies.

   c. Copies of Permits, clearance and licenses if required.

   d. Schedules: the asbestos abatement contractor shall provide to the Construction Project Manager a copy of the following schedules for

approval. Once approved, schedules shall be maintained and updated as received. asbestos abatement contractor shall post a copy of all schedules at the site:

(1) A construction schedule stating critical dates of the project including, but not limited to, mobilization, Work Area preparation, demolition, gross removal, fine cleaning, encapsulation, inspections, clearance monitoring, and phase of refinishing and final inspections. The schedule shall be updated biweekly, at a minimum.

(2) A schedule of staffing stating number of workers per shift per activity, name and number of supervisor(s) per shift, shifts per day, and total days to be worked.

(3) Submit all changes in schedule or staffing to the Construction Project Manager prior to implementation.

e. Written description of emergency procedures to be followed in case of injury or fire. This section must include evacuation procedures, source of medical assistance (name and telephone number to nearest hospital) and procedures to be used for access by medical personnel (examples: first aid squad and physician). NOTE: Necessary Emergency Procedures Shall Take Priority Over All Other Requirements of These Specifications.

f. Safety Data Sheets (SDS) for encapsulants, sealants, firestopping foam, cleaners/disinfectants, spray adhesive and any and all potentially hazardous materials that may be employed on the project. No work involving the aforementioned will be allowed to proceed until SDS are reviewed.

g. Worker Training and Medical Surveillance: The asbestos abatement contractor shall submit a list of the persons who will be employed by him /her to perform the removal work. Present evidence that workers have received proper training required by the regulations and the medical examinations required by OSHA 29 CFR 1926.1101.

h. Logs: Specimen copies of daily progress log, visitor's log, and disposal log.

(1) The asbestos abatement contractor shall provide a permanently bound logbook of minimum 8-1/2” x 11” size at the entrance to the Worker and Waste Decontamination enclosure system as hereinafter specified. Logbook 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. Logbook 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 02 82 13**
**SEPTEMBER 2022 VERSION**

# ASBESTOS ABATEMENT

## PART 1 – GENERAL

### 1.01 DESCRIPTION

A. The Contract Documents are as defined in the "Agreement". The General Conditions shall apply to all Work of this Section.

B. Work specified herein shall be the removal and disposal of Asbestos-Containing Materials (ACM) and asbestos-contaminated materials from designated areas of 215 East 161st Street, Bronx, NY 10451.

C. The following documents were reviewed and utilized to generate this abatement design specification which serves to locate and quantify the amount of ACM, and asbestos contaminated material, to be abated in support of this project.

1. Set of 100% Construction Document (CD) drawings titled, "Bronx Family & Criminal Court Roof Upgrade," dated 11/26/24, and prepared by Ivan Brice Architecture.
2. Final Report of Asbestos Survey Services titled, "Bronx Family & Criminal Court Roof Rehabilitation", dated 01/11/24, performed by LiRo.

D. The phasing and scheduling of work for this project shall be coordinated with and approved by the Construction Project Manager and Facility Manager. The Construction Project Manager and Facility Manager will make the final determination on all issues under this Contract covered by this Specification.

### 1.02 SCOPE OF WORK

A. The asbestos abatement contractor is to provide all labor, materials, equipment, services, testing, appurtenances, permits and agreements necessary to perform the work required for the abatement of ACM as required by these contract documents. All work shall be performed in accordance with this Specification, EPA regulations, OSHA regulations, New York City Local Law 70, Title 15, Chapter 1 RCNY, New York State Industrial Code 56, NIOSH recommendations, and any other applicable federal, state or local government regulations. Whenever there is a conflict or overlap of the above references, the most stringent provisions are applicable.

B. The intent of this Specification section is to ensure that the asbestos abatement contractor is responsible for the following:

1. Abatement of all ACM.

2. Cleaning and decontamination of the entire affected area.

3. Demolition that may be required to access ACM in each area, Asbestos abatement contractor shall dispose of all debris associated with demolition activities as ACM waste.

4. Removal and disposal of all ACM found within these areas such as Roof Membrane 3rd Layer/Bottom (Black), Roof Membrane 2nd Layer/Vapor Barrier (Brown), Screed Layer (Beige) and Roof Ballasts (Black), Roof Flashing/Tar (Black), Counter Flashing Caulk (Gray), Roof Drain Flashing/Tar (Black), Vent/Stacks Flashing/Tar (Black), Roof Membrane 1st Layer/Top (Black), Roof Drain Flashing (Brown), Replacement Roof/Top Layer (Beige), Replacement Roof/Concrete Board (Gray) and Replacement Roof/Liquid Membrane Sealant (Gray).

5. Provide all scaffolding, platform installation, equipment, tools, transportation and any other equipment required and/or necessary to complete all work described in the Contract Documents.

6. The asbestos abatement contractor shall be responsible for and shall include any and all fees or changes imposed by Local, State or Federal Law, Rule or Regulation applicable to the work specified herein, including fees or charges which may be imposed subsequent to the work.

7. Prior to destructive demolition activities, the DDC may elect to collect bulk samples of assumed asbestos-containing materials and analyze the bulk samples for asbestos content.

C. The asbestos abatement contractor shall perform the following work as described below and indicated on the drawings. The drawings are only a diagrammatic representation of the Work Areas and do not constitute the actual quantities of material. Asbestos abatement contractor is responsible for the confirmation of the actual total quantities of the Work.

**1. Drawing H002.00: 10th To Elevator Penthouse Roof Plan**

a. Remove and dispose of asbestos-containing Roof Membrane 3rd Layer/Bottom (Black), Roof Membrane 1st Layer/Top (Black), Roof Membrane 2nd Layer/Vapor Barrier (Black), Screed Layer (Beige) and Roof Ballasts (Black), Roof Flashing/Tar (Black), Counter Flashing Caulk (Gray), Roof Drain Flashing/Tar (Black), and Vent/Stacks Flashing/Tar (Black), within **Work Area 1**. Asbestos-containing Roof Membrane 3rd Layer/Bottom (Black) , Roof Membrane 1st Layer/Top (Black), Roof Membrane 2nd Layer/Vapor Barrier (Brown), Screed Layer (Beige) and Roof Ballasts (Black), Roof Flashing/Tar (Black), Counter Flashing Caulk (Gray), Roof Drain Flashing/Tar (Black), and Vent/Stacks Flashing/Tar (Black), shall be removed utilizing NYCDEP Title 15, Chapter 1§ 1-107 Foam Procedure.

| Work Area | Removal Procedure | Approximate Square Feet (Sq. Ft.) | Approximate Linear Feet (Ln. Ft.) |
|---|---|---|---|
| 1 | NYCDEP Title 15 Chapter 1 § 1-107 Foam Procedure for Roof Removal | 1,200 Sq. Ft. of Asbestos Containing Roof Membrane 3rd Layer/Bottom (Black), Roof Membrane 1st Layer/Top (Black), Roof Membrane 2nd Layer/Vapor Barrier (Brown), Screed Layer (Beige) and Roof Ballasts (Black) | – |
| | | 1,780 Sq. Ft. Asbestos Containing Roof Flashing/Tar (Black) | – |
| | | 60 Sq Ft. Asbestos Containing Counter Flashing Caulk (Gray) | 720 Ln. Ft. Asbestos Containing Counter Flashing Caulk (Gray) |
| | | 60 Sq Ft. Asbestos Containing Roof Drain Flashing/Tar (Black) | |
| | | 60 Sq Ft. Asbestos Containing Vent/Stacks Flashing/Tar (Black) | |

**2. Drawing H003.00: 10th to Elevator Penthouse Roof Plan**

a. Remove and dispose of asbestos-containing Roof Flashing/Tar (Black) and Roof Drain Flashing/Tar (Black), within **Work Area 2.** Asbestos-containing Roof Flashing/Tar (Black) and Roof Drain

Flashing/Tar (Black) shall be removed utilizing NYCDEP Title 15, Chapter 1§ 1-107 Foam Procedure.

| Work Area | Removal Procedure | Approximate Square Feet (Sq. Ft.) | Approximate Linear Feet (Ln. Ft.) |
|---|---|---|---|
| 2 | NYCDEP Section § 1-107 Foam Procedure for Roof Removal | 1,400 Sq. Ft. Asbestos Containing Roof Flashing/Tar (Black) | – |
| | | 30 Sq Ft. Asbestos Containing Roof Drain Flashing/Tar (Black) | – |

**3. Drawing H004.00: 7th to 9th Roof Plan**

a. Remove and dispose of asbestos-containing Roof Membrane 1st Layer/Top (Black) and Contaminated Roof Membrane 2nd Layer/Vapor Barrier (Brown), Screed Layer (Beige) and Roof Ballasts (Black), Roof Flashing/Tar (Black), and Roof Drain Flashing (Brown), within **Work Area 3.** Asbestos-containing Roof Membrane 1st Layer/Top (Black) and Contaminated Roof Membrane 2nd Layer/Vapor Barrier (Brown), Screed Layer (Beige) and Roof Ballasts (Black), Roof Flashing/Tar (Black), and Roof Drain Flashing (Brown) shall be removed utilizing NYCDEP Title 15, Chapter 1 Section § 1 - 1-107 Foam Procedure for Roof Removal.

| Work Area | Removal Procedure | Approximate Square Feet (Sq. Ft.) | Approximate Linear Feet (Ln. Ft.) |
|---|---|---|---|
| 3 | NYCDEP Section § 1-107 Foam Procedure for Roof Removal | 250 Sq. Ft. of Asbestos Containing Roof Membrane 1st Layer/Top (Black) and Contaminated Roof Membrane 2nd Layer/Vapor Barrier (Brown), Screed Layer (Beige) and Roof Ballasts (Black | – |
| | | 1,720 Sq. Ft. Asbestos Containing Roof Flashing/Tar (Black) | – |
| | | 5 Sq Ft. Asbestos Containing Roof Drain Flashing (Brown) | – |

**4. Drawing H005.00: 7th to 9th Roof Plan**

a. Remove and dispose of asbestos-containing Roof Membrane 1st Layer/Top (Black) and Contaminated Roof Membrane 2nd Layer/Vapor Barrier (Brown), Screed Layer (Beige) and Roof Ballasts (Black), Roof Flashing/Tar (Black), Roof Drain Flashing (Brown), Replacement Roof/Top Layer (Beige), Replacement Roof/Concrete Board (Gray), and Replacement Roof/Liquid Membrane Sealant (Gray) within **Work Area 4.**

Roof Membrane 1st Layer/Top (Black) and Contaminated Roof Membrane 2nd Layer/Vapor Barrier (Brown), Screed Layer (Beige) and Roof Ballasts (Black), Roof Flashing/Tar (Black), Roof Drain Flashing (Brown), Replacement Roof/Top Layer (Beige), Replacement Roof/Concrete Board (Gray), and Replacement Roof/Liquid Membrane Sealant (Gray) shall be removed utilizing NYCDEP Title 15, Chapter 1 § 1-107 Foam Procedure for Roof Removal.

| Work Area | Removal Procedure | Approximate Square Feet (Sq. Ft.) | Approximate Linear Feet (Ln. Ft.) |
|---|---|---|---|
| 4 | NYCDEP Title 15 Chapter 1 § 1-107 Foam Procedure for Roof Removal | 2,650 Sq. Ft. of Asbestos Containing Roof Membrane 1st Layer/Top (Black) and Contaminated Roof Membrane 2nd Layer/Vapor Barrier (Brown), Screed Layer (Beige) and Roof Ballasts (Black), Replacement Roof/Top Layer (Beige), Replacement Roof/Concrete Board (Gray), Replacement Roof/Liquid Membrane Sealant (Gray) | – |
| | | 1,800 Sq. Ft. Asbestos Containing Roof Flashing/Tar (Black) | – |
| | | 70 Sq Ft. Asbestos Containing Roof Drain Flashing (Brown) | – |

**5. Drawing H006.00: 7th to 9th Roof Plan**

a. Remove and dispose of asbestos-containing Roof Membrane 1st Layer/Top (Black) and Contaminated Roof Membrane 2nd Layer Vapor Barrier (Brown), Screed Layer (Beige) and Roof Ballasts (Black), Roof Flashing/Tar (Black), and Roof Drain Flashing (Black), within **Work Area 5.** Asbestos-containing Roof Membrane 1st Layer/Top (Black) and Contaminated Roof Membrane 2nd Layer Vapor Barrier (Brown), Screed Layer (Beige) and Roof Ballasts (Black), Roof Flashing/Tar (Black), and Roof Drain Flashing (Black) shall be removed utilizing NYCDEP Title 15, Chapter 1 Section § 1-107 Foam Procedure for Roof Removal.

| Work Area | Removal Procedure | Approximate Square Feet (Sq. Ft.) | Approximate Linear Feet (Ln. Ft.) |
|---|---|---|---|
| 5 | NYCDEP Title 15 Chapter 1 § 1-107 Foam Procedure for Roof Removal | 1,650 Sq. Ft. of Asbestos Containing Roof Membrane 1st Layer/Top (Black) and Contaminated Roof Membrane 2nd Layer Vapor Barrier (Brown), Screed Layer (Beige) and Roof Ballasts (Black) | – |
| | | 400 Sq. Ft. Asbestos Containing Roof Flashing/Tar (Black) | – |
| | | 10 Sq Ft. Asbestos Containing Roof Drain Flashing (Black) | – |

D. The facility is under the jurisdiction of the New York City Department of Citywide Administrative Services. The asbestos abatement contractor shall perform the work of this contract in a manner that will be least disruptive to the normal use of the building.

E. Asbestos abatement contractor's attention is directed to the fact that patents cover certain methods of asbestos abatement indicated in the specifications. To date, patents have been issued with regard to negative pressure enclosures or negative or reduced pressure and glove-bag.

F. Asbestos abatement contractor shall be solely responsible for and shall hold the City of New York Department of Design and Construction and the City harmless from, any and all damages, losses and expenses resulting from any infringement by Asbestos abatement contractor of any patent, including but not limited to the patents described above, used by Asbestos abatement contractor during performance of this agreement.

G. Prior to starting, the asbestos abatement contractor must notify the Commissioner of the City of New York Department of Design and Construction if he anticipates any difficulty in performing the work as directed and required by these Specifications. Asbestos abatement contractor shall be required to attend an on-site job meeting with the Construction Project Manager prior to start of work to examine conditions of the site for removal and plan the sequence for removal operations.

H. The asbestos abatement contractor shall retain a certified Project Designer for the preparation of an Asbestos Variance Application (ACP-9), if required.

I. The asbestos abatement contractor shall be responsible for preparing and submitting all filings, notifications, amendments and variances, etc. required by all City, State and Federal regulatory agencies having jurisdiction, at no additional cost to the NYC DDC.

J. The general contractor shall retain a Registered Design Professional (person licensed and registered to practice the professions of architecture or engineering under the Education Law of the State of New York) to prepare a Work Place Safety Plan (WPSP), if required.

K. The general contractor shall retain a Registered Design Professional (person licensed and registered to practice the professions of architecture or engineering under the Education Law of the State of New York) to perform final inspections required pursuant to Title 28 of the Administrative Code, including but not limited to special inspections required under Chapter 17 of the Building Code. Such special inspections and A-TR1 forms shall be completed by the Registered Design professional.

L. For coordination with other Asbestos abatement contractors, see the General Conditions governing all Contracts.

M. Related Asbestos Removal Work Under Other Contracts:

1. Each asbestos abatement contractor shall be responsible for the removal of incidental asbestos not identified in this section and found prior to or during the Work.

2. Incidental asbestos is defined as ACM that is discovered during the course of their work that must be abated to enable them to perform the work of their Contract.

N. Work Hours:

1. The asbestos abatement contractor shall establish his work schedule in a way that avoids interference or conflict with the normal functioning of the facility. Work in the evenings shall be done at no additional cost to the City.

2. All work shall be done during regular working hours unless the Asbestos abatement contractor requests authorization to work other than regular working hours and such authorization is granted by the Commissioner (Regular working hours are those during which any given facility in which work is to be done is customarily open and functioning). If such work schedule is authorized by the Commissioner the work shall be done at no additional cost to the City.

3. The order of phases and start dates associated with each will be determined by the Construction Project Manager.

4. Asbestos abatement contractor shall be required to schedule waste transfer during evening hours, when activity within the facility is at a minimum. Evening hours are defined as 6:00 p.m. to 6:00 a.m. Waste transfer must be approved by the Construction Project Manager and Facility Manager.

O. The following conditions shall apply to all temporary shutdowns of existing services:

1. All temporary lighting and temporary electrical services for use in the Work Area shall be in weather proof enclosures and be ground fault protected and:

a. Shall be performed at no additional charge to the City.

2. Shall be performed at times not interfering with the other activities in the building.

3. Shall be performed only with written consent from the Commissioner and the Facility Manager.

4. Shall be made through written request to the Commissioner at least 10 days in advance with complete written description of the work to be performed.

P. Stages of Asbestos Removal Work:

1. The asbestos abatement contractor will be required to perform the work and it is the intent of this Specification to remove all asbestos containing and asbestos contaminated materials from the Work Area. The asbestos abatement contractor is responsible for verifying all quantities of materials listed.

Q. Certain equipment in the Work Area may need to remain operational during removal. Therefore, the removal of ACM from this equipment shall be performed as the last removal activities within the Work Area. The Asbestos abatement contractor shall coordinate the scheduling for the removal of ACM on functioning equipment with the Construction Project Manager.

## 1.03 QUALIFICATIONS OF ASBESTOS ABATEMENT CONTRACTOR

A. Requirements: The asbestos abatement contractor must be approved through the Department's Request for Subcontractor Approval, administered by the Agency Chief Contracting Office (ACCO), Vendor Integrity Unit. The asbestos abatement contractor must demonstrate compliance with the special experience requirements

set forth in subparagraphs (1) through (6) below. Such documentation shall include without limitation, all required licenses, certificates, and documentation.

1. The asbestos abatement contractor must, whether an individual, corporation, partnership, joint venture or other legal entity, demonstrate for the three year period prior to the work that it has been licensed by the New York State Department of Labor (NYSDOL), as an "Asbestos Abatement Contractor". The asbestos abatement contractor shall submit copies of the asbestos abatement contractors NYSDOL License for the past three years

2. The asbestos abatement contractor must, for the three-year period prior to the work, have been in the business of providing asbestos abatement services as a routine part of its daily operations.
3. The asbestos abatement contractor proposing to do asbestos abatement work must be thoroughly experienced in such work and must submit a list of five (5) asbestos abatement projects of similar size and complexity. The aggregate cost of these projects must be at least $1,000,000 in each of the three years.
4. For each project submitted to meet the experience requirements set forth above, the asbestos abatement contractor must submit the following information for the project; name and location of the project; name title and telephone number and email address of the owner or the owner's representative who is familiar with the asbestos abatement contractor's work; brief description of the scope of work completed as a prime or sub-asbestos abatement contractor; amount of contract or subcontract and the date of completion.
5. The asbestos abatement contractor must demonstrate that it has the financial resources, certified supervisory personnel and equipment necessary to carry out the work and to comply with the required performance schedule, taking into consideration other business commitments. The asbestos abatement contractor must submit such documentation as may be required by the Department of Design and Construction to demonstrate that it has the requisite capacity to perform the required services of this contract. The Department may also conduct an inspection of the asbestos abatement contractor's facility to verify if the contractor has equipment and staffing to perform the work.
6. The asbestos abatement contractor must submit a copy of their Corporate Health and Safety Plan for review and acceptance. A Job Hazard Analysis (JHA) for the specific work conducted must be included.

B. Throughout the specifications, reference is made to codes and standards which establish qualities and types of workmanship and materials, and which establish methods for testing and reporting on the pertinent characteristics thereof. Provide materials or workmanship that meet or exceed the specifically named codes or standards where required by these specifications.

C. Site Investigation: Asbestos abatement contractor shall inspect all the specifications and related drawings and will investigate and confirm the site conditions affecting the work, including, but not limited to (1) through (5) below. The asbestos abatement contractor will attend a walkthrough site inspection with the department's Project Manager and the Third-Party Air Monitor prior to the work. Such walkthrough will be scheduled at the Department's convenience.

1. Physical considerations and conditions of both the material and structure. These considerations include any obstacles or obstructions encountered in accessing or removing the material.

2. Handling, storage, transportation and disposal of the material.

3. Availability of qualified and skilled labor.

4. Availability of utilities.

5. Exact quantities of all materials to be disturbed and/or removed.

## 1.04 WORK BY OTHERS

The City reserves the right during the term of this Contract to have work performed on asbestos abatement projects by other asbestos abatement contractors as the situation warrants.

## 1.05 DEFINITIONS

A. General Explanation: Certain terms used in this Specification Section are defined below. Definitions and explanations of this Specification Section are not necessarily complete or exclusive but are general for the Work to the extent they are not stated more explicitly in another element of the Contract Documents.

B. Definitions in General Use:

1. Approve: Where used in conjunction with Engineer's response to submittals, requests, applications, inquiries, reports and claims by Asbestos abatement contractor, the meaning of term "approved" will be held to limitations of Engineer's responsibilities and duties as specified in Contract Documents. In no case will "approval" by Engineer be interpreted as a release of Asbestos abatement contractor from responsibilities to fulfill requirements of Contract Documents.

2. Directed, Requested, etc.: Where not otherwise explained, terms such as "directed," "requested," "authorized," "selected," "approved," "required," "accepted," and "permitted" mean "directed by Engineer," "requested by Engineer," and similar phrases. However, no such implied meaning will be interpreted to extend Engineer's responsibility into Asbestos abatement contractor's responsibility for construction supervision.

3. Furnish: Except as otherwise defined in greater detail, term "furnish" is used to mean supply and deliver to project site, ready for unloading, unpacking, assembly, installation, etc., as applicable in each instance.

4. Indicated: The term "indicated" is a cross-reference to graphic representations, notes or schedules on Drawings, to other paragraphs or schedules in the Specifications, and to similar means of recording requirements in Contract Documents. Where terms such as "shown," "noted," "scheduled," and "specified" are used in lieu of "indicated," it is for purpose of helping reader locate cross-reference, and no limitation of location is intended except as specifically noted.

5. Install: Except as otherwise defined in greater detail, term "install" is used to describe operations at Project site including unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning and similar operations, as applicable in each instance.

6. Installer: The term "installer" is defined as the entity (person or firm) engaged by the asbestos abatement contractor, or its sub-asbestos abatement contractor for performance of a particular unit of work at Project site, including installation, erection, application and similar required operations. It is a general requirement that such entities (installers) be expert in operations they are engaged to perform.

7. Provide: Except as otherwise defined in greater detail, term “provide” means furnish and install, complete and ready for intended use, as applicable in each instance.

8. Third-Party Air Monitor: The term “Third-Party Air Monitor” is defined as an entity engaged by City and Construction Project Manager to perform specific inspections or tests of the work, either at Project site or elsewhere; and to report and (if required) interpret results of those inspections or tests.

C. Definitions Relative to Asbestos Abatement:

1. Abatement: Any and all procedures physically taken to control fiber release from asbestos-containing materials. This includes removal, encapsulation, enclosure, cleanup and repair.

2. Adequately Wet: The complete penetration of a material with amended water to prevent the release of particulates. If visible emissions are observed coming from asbestos-containing material, then the material has not been adequately wetted. However, the absence of visible emissions is not evidence of being adequately wet. ACM must be fully penetrated with the wetting agent in order to be considered adequately wet. If the ACM being abated is resistant to amended water penetration, wetting agent shall be applied to the material prior to and during removal as necessary to minimize fiber release.

3. Aggressive Sampling: Method of sampling in which the individual collecting the air sample creates activity by the use of mechanical equipment during the sampling period to stir up settled dust and simulate activity in that area of the building.

4. AHERA: Asbestos Hazard Emergency Response Act of 1986

5. AIHA: American Industrial Hygiene Association.

6. Airlock: System for permitting entrance and exit while restricting air movement between a contaminated area and an uncontaminated area. It consists of two curtained doorways separated by a distance of at least three feet such that one passes through one doorway into the airlock, allowing the doorway sheeting to overlap and close off the opening before proceeding through the second doorway, thereby preventing flow-through contamination.

7. Air Sampling: Process of measuring the fiber content of a known volume of air collected during a specific period. The procedure utilized for asbestos follows the NIOSH Standard Analytical Method 7400, or the provisional transmission electron microscopy methods developed by the US EPA which is utilized for lower detection levels and specific fiber identification.

8. Ambient Air Monitoring: “Ambient air monitoring” shall mean measurement or determination of airborne asbestos fiber concentrations outside but in the general vicinity of the worksite.

9. Amended Water: Water to which a surfactant has been added.

10. ANSI: American National Standards Institute

11. Area Air Sampling: Any form of air sampling or monitoring where the sampling device is placed at some stationary location.

12. Asbestos: Any hydrated mineral silicate separable into commercially usable fibers, including but not limited to chrysotile (serpentine), amosite (cumingtonite-grunerite), crocidolite (riebeckite), tremolite, anthophyllite and actinolite.

13. Asbestos-Containing Material (ACM): Asbestos or any material containing more than one-percent asbestos.

14. Asbestos-Containing Waste Material: ACM, asbestos-contaminated objects or debris associated with asbestos abatement requiring disposal.

15. Asbestos-Contaminated Objects: Any objects which have been contaminated by asbestos or asbestos-containing material.

16. Asbestos Assessment Report: "Asbestos Assessment Report" shall mean the "Form ACP-5" form, as approved by NYCDEP, by which a NYCDEP-certified asbestos investigator certifies that a building or structure (or portion thereof) is free of ACM or the amount of ACM to be abated constitutes a minor project.

17. Asbestos Handler: Individual who disturbs, removes, repairs, or encloses asbestos material. This individual shall have completed approved training course(s) and be in possession of certification issued by NYCDEP and NYSDOL.

18. Asbestos Handler Supervisor: Individual who supervises the handlers during an asbestos project and ensures that proper asbestos abatement procedures as well as individual safety procedures are being adhered to. This individual shall have completed approved training course(s) and be in possession of certification issued by NYCDEP and NYSDOL.

19. Asbestos Investigator: An individual certified by NYCDEP as having successfully demonstrated his or her ability to identify the presence of and evaluate the condition of asbestos in a building or structure.

20. Asbestos Project: Any form of work performed in a building or structure which will disturb (e.g., remove, enclose, encapsulate) asbestos-containing material.

21. ASTM: American Society for Testing and Materials.

22. Asbestos Project Notification: The "Form ACP-7" asbestos project notification form as approved by DEP.

23. Authorized Visitor: Authorized visitor shall mean the building owner and his/her representative, and any representative of a regulatory or other agency having jurisdiction over the project.

24. Building Owner: Person in whom legal title to the premises is vested unless the premises are held in land trust, in which instance Building Owner means the person in whom beneficial title is vested.

25. Building Materials: Any and all manmade materials, including but not limited to interior and exterior finishes, equipment, bricks, mortar, concrete, plaster, roofing, flooring, caulking, sealants, tiles, insulation, and outdoor paving such as sidewalks, paving tiles and asphalt.

26. Certified Industrial Hygienist (CIH): Individual with a minimum of five years experience as an industrial hygienist and who has successfully completed both levels of the examination administered by the American Board of Industrial Hygiene and who is currently certified by that board.

27. Certified Safety Professional (CSP): Individual having a bachelor's degree from an accredited college or university and a minimum of four years experience as a safety professional and who has successfully completed both levels of the examination administered by the Board of Certified Safety Professionals and who is currently certified by that board.

28. Chain of Custody: “Chain of Custody” shall mean the form or set of forms that document the collection and transfer of a sample.

29. City: City of New York

30. Clean Room: An uncontaminated area or room that is part of worker decontamination enclosure system with provisions for storage of workers' street clothes and protective equipment.

31. Clearance Air Monitoring: Employment of aggressive sampling techniques with a volume of air collected to determine the airborne concentration of residual fibers and shall be performed as the final abatement activity.

32. Commissioner: shall mean the head of the Agency that has entered into this contract or his/her duly authorized representative.

33. Competent Person: Shall mean the designated person as defined by OSHA in 29 CFR1926.1101.

34. Curtained Doorway: Device that consists of at least three overlapping sheets of fire retardant plastic over an existing or temporarily framed doorway. One sheet shall be secured at the top and left side, the second sheet at the top

and right side, and the third sheet at the top and left side. All sheets shall have weights attached to the bottom to ensure that the sheets hang straight and maintain a seal over the doorway when not in use.

35. Decontamination Enclosure System: Series of connected rooms, separated from the Work Area and from each other by air locks, for the decontamination of workers, materials, waste containers, and equipment.

36. Demolition: The dismantling or razing of a building, including all operations incidental thereto (except for asbestos abatement activities), for which a demolition permit from the New York City Department of Buildings is required.

37. Department: shall mean the New York City Department of Design and Construction (DDC).

38. NYCDEP or DEP: The New York City Department of Environmental Protection.

39. Disturb: Any action taken which may alter, change, or stir, such as but not limited to the removal, encapsulation, enclosure or repair of asbestos-containing material.

40. DOB: The New York City Department of Buildings.

41. Egress: A continuous and unobstructed path of vertical and horizontal egress travel from any occupied portion of a building or structure to a public way. A means of egress consists of three separate and distinct parts: the exit access, the exit and the exit discharge.

42. ELAP: Environmental Laboratory Approval Program administered by the New York State Department of Health.

43. Encapsulant (sealant) or Encapsulating Agent: Liquid material which can be applied to ACM and which temporarily controls the possible release of asbestos fibers from the material either by creating a membrane over the surface (bridging encapsulant) or by penetrating into the material and binding its components together (penetrating encapsulant). A thin coat of lockdown encapsulant shall be applied to all surfaces in the work area which were not the subject of removal or abatement, including the cleaned layer of the surface barriers, but excepting sprinklers, standpipes, and other active elements of the fire suppression system.

44. Encapsulation: The coating or spraying of asbestos-containing material encapsulant. A thin coat of lockdown encapsulant shall be applied to all surfaces in the work area which were not the subject of removal or

abatement, including the cleaned layer of the surface barriers, but excepting sprinklers, standpipes, and other active elements of the fire suppression system.

45. Enclosure: Construction of airtight walls and/or ceilings between ACM and the facility environment, or around surfaces coated with ACM, or any other appropriate procedure as determined by the NYCDEP which prevents the release of asbestos fibers.

46. EPA or USEPA: United States Environmental Protection Agency.

47. Equipment Room: Contaminated area or room that is part of the worker decontamination enclosure system with provisions for the storage of contaminated clothing and equipment.

48. Exit: That portion of a means of egress system which is separated from other interior spaces of a building or structure by fire-resistance-rated construction to provide a protected path of egress travel between the exit access and the exit discharge.

49. FDNY: The Fire Department of the City of New York.

50. Fiber: An acicular single crystal or a similarity elongated polycrystalline aggregate which displays some resemblance to organic fibers by having such properties as flexibility, high aspect ratio, silky luster, axial lineation, and others, and which has attained its shape primarily through growth rather than cleavage.

51. Fixed Object: A unit of equipment, furniture, or other item in the work area which cannot be removed from the work area. Fixed objects shall include equipment, furniture, or other items that are attached, in whole or in part, to a floor, ceiling, wall, or other building structure or system or to another fixed object and cannot be reasonably removed from the work area. Fixed objects shall also include pipes and other equipment inside the work area which are not the subject of the asbestos project. Active fire suppression system components shall not be considered fixed objects.

52. Glovebag technique: shall mean a method for removing asbestos-containing material from heating, ventilation and air conditioning (HVAC) ducts, short piping runs, valves, joints, elbows, and other nonplanar surfaces. The glovebag assembly is a manufactured device consisting of a large bag (constructed of at least 6-mil transparent plastic), two inward-projecting long sleeve gloves, one inward-projecting waterwand sleeve, an internal tool pouch, and an attached, labeled receptacle for asbestos waste. The glovebag is constructed and installed in such a manner that it surrounds the object or

area to be decontaminated and contains all asbestos fibers released during the removal process.

53. HEPA-Filter: High efficiency particulate air filter capable of trapping and retaining 99.97 percent of particles (asbestos fibers) greater than 0.3 micrometers mass median aerodynamic equivalent diameter.

54. HEPA vacuum equipment: "HEPA vacuum equipment" shall mean vacuuming equipment with a HEPA filter.

55. Holding Area: Chamber in the equipment decontamination enclosure located between the washroom and an uncontaminated area.

56. Homogeneous Work Area: Portion of the Work Area that contains one type of ACM and/or where one type of abatement is used.

57. Industrial Hygiene: Science and art devoted to the recognition, evaluation, and control of those environmental factors or stresses, arising in or from the work place, which may cause sickness, impaired health and well being, or significant discomfort and inefficiency among worker or among the citizens of the community.

58. Industrial Hygienist: Individual having a college or university degree or degrees in Engineering, Chemistry, Physics or Medicine, or related Biological Sciences who, by virtue of special studies and training, has acquired competence in industrial hygiene. Such special studies and training must have been sufficient in all of the above cognate sciences to provide the abilities:

    a. To recognize the environmental factors and to understand their effect on people and their well being; and

    b. To evaluate, on the basis of experience and with the aid of quantitative measurement techniques, the magnitude of these stresses in terms of ability to impair people's health and well being; and

    c. To prescribe methods to eliminate, control, or reduce such stresses when necessary to alleviate their efforts.

59. Isolation Barrier: The construction of partitions, the placement of solid materials, and the plasticizing of apertures to seal off the work place from surrounding areas and to contain asbestos fibers in the work area.

60. Large Asbestos Project: Asbestos project involving the disturbances (e.g., removal, enclosure, encapsulation) of 260 linear feet or more of ACM or 160 square feet or more of ACM.

61. Log: An official record of all activities that occurred during the project. At a minimum, the log shall identify the building owner, agent, asbestos abatement contractor, and workers, and other pertinent information including daily activities, cleanings and waste transfers, names and certificate numbers of asbestos handler supervisors and asbestos handlers; results of inspections of decontamination systems, barriers, and negative pressure ventilation equipment; summary of corrective actions and repairs; work stoppages with reason for stoppage; manometer readings at least twice per work shift; daily checks of emergency and fire exits and any unusual events.

62. Minor Project: A project involving the disturbance (e.g., removal, enclosure, encapsulation, repair) of 25 linear feet or less of asbestos containing material or 10 square feet or less of asbestos containing material.

63. Movable Object: Unit of equipment or furniture in the Work Area that can be removed from the Work Area.

64. Negative Air Pressure Equipment: Portable local exhaust system equipped with HEPA filtration. The system shall be capable of creating a negative pressure differential between the outside and inside of the Work Area.

65. NESHAPS: National Emission Standards for Hazardous Air Pollutants.

66. NFPA: The National Fire Protection Association.

67. NIOSH: National Institute for Occupational Safety and Health.

68. DEP or NYCDEP: New York City Department of Environmental Protection

69. NYSDOL: New York State Department of Labor.

70. NYSDOL ICR 56: “NYSDOL ICR 56” shall mean Part 56 of the Official Compilation of Codes, Rules and Regulations of the State of New York or 12 NYCRR Part 56.

71. NYSDOH: The New York State Department of Health.

72. Obstruction: The blocking of a means of egress with any temporary structure or barrier. A double layer of fire-retardant 6-mil polyethylene sheeting shall not be considered an obstruction when it is prominently marked as an exit with photo luminescent signage or paint and cutting tools (knife, razor) are attached to the work area side of the sheeting for use in the event that the sheeting must be cut to permit egress. A corridor shall not be

considered obstructed when there is a clear path measuring at least three (3) feet wide.

73. Occupied Area: Area of the work site where abatement is not taking place and where personnel or occupants normally function or where workers are not required to use personal protective equipment.

74. OSHA: Occupational Safety and Health Administration.

75. Outside air: “Outside air” shall mean the air outside the work place.

76. Person: Individual, partnership, company, corporation, association, firm, organization, governmental agency, administration, or department, or any other group of individuals, or any officer or employee thereof.

77. Personal Air Monitoring: Method used to determine employees' exposure to airborne asbestos fibers. The sample is collected outside the respirator in the worker's breathing zone.

78. Personal Protective Equipment (PPE): Appropriate protective clothing, gloves, eye protection, footwear, and head gear.

79. Phase Contrast Microscopy (PCM): The measurement protocol for the assessment of the fiber content of air. (NIOSH Method 7400).

80. Physician: Person licensed or otherwise authorized under Article 131 Section 65.22 of the New York State Education Law.

81. Plasticize: To cover floors and walls with fire retardant plastic sheeting as herein specified or by using spray plastics as acceptable to the Department.

82. Polarized Light Microscopy (PLM): The measurement protocol for the assessment of the asbestos content of bulk materials. (Interim Method for the Determination of Asbestiform Materials in Bulk Insulation Samples- 40 CFR Part 763, Subpart F, Appendix A as amended on September 1, 1982)

83. Project Designer: A person who holds a valid Project Designer Certificate issued by the New York State Department of Labor.

84. Project Monitor: A person who holds a valid Project Monitor Certificate issued by the New York State Department of Labor.

85. Qualitative Fit Test: Individual test subject's responding (either voluntarily or involuntarily) to a chemical challenge outside the respirator face-piece. Acceptable methods include irritant smoke test, odorous vapor test, and taste test.

86. Quantitative Fit Test: Exposing the respiratory wearer to a test atmosphere containing an easily detectable, nontoxic aerosol, vapor or gas as the test agent. Instrumentation, which samples the test atmosphere and the air inside the face-piece of the respirator, is used to measure quantitatively the leakage into the respirator. There are a number of test atmospheres, test agents, and exercises to perform during the test.

87. Registered Design Professional: A person licensed and registered to practice the professions of architecture or engineering under the Education Law of the State of New York.

88. Removal: Stripping of any asbestos- containing materials from surfaces or components of a facility or taking out structural components in accordance with 40 CFR 61 Subparts A and M.

89. Renovation: An addition or alteration or change or modification of a building or the service equipment thereof, that is not classified as an ordinary repair as defined in §27-125 of the Administrative Code of the City of New York.

90. Repair: Corrective action using specified work practices (e.g., glovebag, plastic tent procedures, etc.) to minimize the likelihood of fiber release from minimally damaged areas of ACM.

91. Replacement material: Any material used to replace ACM that contains less than .01 percent asbestos.

92. Shift: A worker's, or simultaneous group of workers', complete daily term of work.

93. Shower Room: Room between the clean room and the equipment room in the worker decontamination enclosure with hot and cold running water controllable at the tap and arranged for complete showering during decontamination.

94. Small Asbestos Project: Asbestos project involving the disturbance (e.g., removal, enclosure, encapsulation) of more than 25 and less than 260 linear feet of ACM or more than ten and less than 160 square feet of ACM.

95. Staging Area: Work Area near the waste transfer airlock where containerized asbestos waste has been placed prior to removal from the Work Area.

96. Strip: To remove asbestos materials from any part of the facility.

97. Structural Member: Load-supporting member of a facility, such as beams and load-supporting walls, or any non-load-supporting member, such as ceiling and non-load-supporting walls.

98. Surface barriers: The plasticizing of walls, floors, and fixed objects within the work area to prevent contamination from subsequent work.

99. Surfactant: Chemical wetting agent added to water to improve penetration.

100. Transmission Electron Microscopy (TEM): The measurement protocol for the assessment of the asbestos fiber content of air. Interim Transmission Electron Microscopy Analytical Methods-40 CFR Part 763, Subpart E, Appendix A.

101. Visible Emissions: Emissions containing particulate material that are visually detectable without the aid of instruments.

102. Washroom: Room between the Work Area and the holding area in the equipment decontamination enclosure system where equipment and waste containers are wet cleaned and/or HEPA-vacuumed prior to disposal.

103. Waste decontamination enclosure system: “Waste decontamination enclosure system” shall mean the decontamination enclosure system designated for the controlled transfer of materials and equipment, consisting of a washroom and a holding area.

104. Wet Cleaning: “Wet cleaning” shall mean the removal of asbestos fibers from building surfaces and objects by using cloths, mops, or other cleaning tools which have been dampened with water.

105. Wet methods: “Wet methods” shall mean the use of amended water or removal encapsulants to minimize the generation of fibers during ACM disturbance.

106. Work Area: Designated rooms, spaces, or areas of the building or structure where asbestos abatement activities take(s) place.

107. Worker Decontamination Enclosure System: Portion of a decontamination enclosure system designed for controlled passage of workers and authorized visitors, consisting of a clean room, a shower room, and an equipment room separated from each other and from the Work Area by airlocks and curtained doorways.

108. Work Place: The work area and the decontamination enclosure system(s).

109. Work Place Safety Plan: Construction documents prepared by a registered design professional and submitted for review by DEP in order to obtain an asbestos abatement permit. Such plan shall include, but not be limited to, plans, sections, and details of the work area clearly showing the extent, sequence, and means and methods by which the work is to be performed.

110. Work Site: Premises where abatement activity is being performed. May be composed of one or more Work Areas.

## 1.06 STANDARD OPERATING PROCEDURES

A. Develop and implement a written standard procedure for abatement work to ensure maximum protection and safeguard from asbestos exposure of the workers, visitors, employees, public, and environment.

B. TELEPHONE DEVICE

The asbestos abatement contractor or his authorized representative shall, at all times during the normal workday or during periods of overtime work under this Contract, carry a mobile cellular telephone capable of transmitting photographs and data. He/she shall supply the Department of Design and Construction with the phone number for the device and he/she is liable to respond back to the calls from DDC within the next one (1) hour period after he/she receives calls from DDC. The cost to the asbestos abatement contractor for this device and all charges accruing thereto is deemed included in the work.

C. The standard operating procedure shall ensure:

1. Tight security from unauthorized entry into the workspace.

2. Restriction of asbestos abatement contractor's personnel to the immediate Work Area and access/egress routes.

3. Donning of proper protective clothing and respiratory protection prior to entering the Work Area.

4. Safe work practices in the work place, including provisions for inter-room communications, exclusion of eating, drinking, smoking, or in any way breaking the respiratory protection.

5. Proper exit practices from the work space to the outside through the showering and decontamination facilities.

6. Removing asbestos in a way that minimizes release of fibers.

7. Packing, labeling, loading, transporting, and disposing of contaminated material in a way that minimizes exposure and contamination.

8. Emergency evacuation procedures, for medical or safety situations, to minimize the potential exposure to airborne asbestos fibers for emergency personnel, building occupants, and building environment.

9. Safety from accidents in the workspace, especially from electrical shocks, fall hazards associated with scaffolding, slippery surfaces, and entanglements in loose hoses and equipment.

10. Provisions for effective supervision, air monitoring and personnel monitoring for exposure during the work.

11. Engineering controls that minimize exposure to fibers within the workspace.

12. The asbestos abatement contractor shall provide a 24-hour fire watch throughout the entire term of the project, to protect against fire and unauthorized entry into the workspace when required by the NYCDEP. Fire watch shall be performed by an individual who is a certified asbestos worker capable of entering the Work Area for regular inspections.

D. Provide an Asbestos Handler Supervisor to provide continuous supervision of all work, and to be responsible for the following:

1. Ensure that individuals are using proper personal protective equipment, are trained in its use and hold valid NYCDEP and NYSDOL Asbestos Handler certificates.

2. Maintain entry log records and ensure that they are recorded in accordance with the provisions of Title 15, Chapter 1 of RCNY and NYSDOL ICR 56.

3. Surveillance of the Work Areas at a minimum of once per work shift or as required by Title 15, Chapter 1 of RCNY and NYSDOL ICR 56 -7.3, to ensure the integrity of work place isolation, negative pressure equipment and workers personal protective equipment is not torn or ripped and that respiratory protection is worn at all times.

4. Ensure that sufficient personal protective equipment is stored in the clean room.

5. Take precautions to prevent heat stress. Precautions include, but are not limited to, selecting lightweight protective clothing, reducing the work rate, and providing adequate fluid breaks.

6. Perform work area inspection with project monitor prior to the commencement of final clearance air monitoring.

7. The asbestos abatement contractor shall retain the asbestos handler supervisor to perform a visual inspection prior to the post-abatement clearance air monitoring to confirm that all containerized waste has been removed from work and holding areas and there is no visible ACM debris or residue on or about all abated surfaces.

E. ENGINEERING CONTROLS

1. All asbestos projects shall utilize negative pressure ventilation equipment.

   a. The asbestos abatement contractor shall use a manometer to document the pressure differential. The asbestos abatement contractor shall install and make the manometer operational once the negative pressure has been established in the work area. Magnahelic manometers shall be calibrated at least every six months and a copy of the current calibration certification shall be available at the work site.

2. Negative pressure ventilation equipment shall be installed and operated to provide at least one air change in the work area every 15 minutes. Where there are no floor or wall barriers because floor or wall material is being abated, there shall be at least one air change in the work area every ten minutes.

3. The negative pressure ventilation equipment shall operate continuously, 24 hours a day, from the establishment of isolation barriers through successful clearance air monitoring. If such equipment shuts off, adjacent areas shall be monitored for asbestos fibers.

4. A static negative air pressure of 0.02 inches (minimum) water column shall be maintained at all times in the work place during abatement to ensure that contaminated air in the Work Area does not filter back to uncontaminated areas.

5. If the contaminated area of an asbestos project covers the entire floor of the affected building, or an area greater than 15,000 square feet on any given floor, the installation of a negative air cut off switch or switches shall be required at a single location outside the work place, such as inside a stairwell, or at a secured location in the ground floor lobby when conditions warrant. The required switch or switches shall be installed by a licensed electrician pursuant to a permit issued by the Department of Buildings. If negative pressure ventilation equipment is used on multiple floors, the cut off switch shall be able to turn off the equipment on all floors.

6. On loss of negative pressure or electric power to the negative pressure ventilating units, abatement shall stop immediately and shall not resume until power is restored and negative pressure ventilation equipment is operating again.

7. Negative pressure ventilation equipment shall be exhausted to the outside of the building away from occupied areas.

   a. All openings (including but not limited to operable windows, doors, vents, air intakes or exhausts of any mechanical devices) less than 15 feet from the exterior exhaust duct termination location shall be plasticized with two layers of fire retardant 6-mil polyethylene sheeting, or a second negative pressure ventilation unit with the primary unit's capacity shall be connected in series prior to exhausting to the outside.

   b. Negative pressure ventilation equipment shall exhaust away from areas accessible to the public.

   c. All ducting shall be sealed and braced or supported to maintain airtight joints. Ducts shall be reinforced and shall be installed so as to prevent breakage. Damage to ducts must be repaired immediately.

8. Where ducting to the outside is not possible, a second negative pressure ventilation unit compatible with the primary unit's capacity shall be connected in series. The area receiving the exhaust shall have sufficient, non-recycling exhaust capacity to the outside of the structure.

9. In the event that there is a failure of the containment system or a breach in the Isolation Barriers, all abatement work will cease and the asbestos abatement contractor will immediately correct the condition. Abatement work will not resume until the Work Area has been smoke tested by the third-party laboratory and approved by the Construction Project Manager.

F. LOCKDOWN ENCAPSULATION PROCEDURES

1. The following procedures shall be followed to seal in non-visible residue while conducting lockdown encapsulation on all surfaces from which ACM has not been removed:

   a. Only encapsulants rated as acceptable or marginally acceptable on the basis of Battelle Columbus Laboratory test procedures and rating requirements developed under the 1978 USEPA Contract shall be used for lockdown encapsulation.

b. The encapsulant solvent or vehicle shall not contain a volatile hydrocarbon unless reviewed and approved by DEP.

c. Latex paint with solids content greater than 15 percent shall be considered a lockdown sealant for coating all non-metallic surfaces.

d. Encapsulants shall be applied using airless spray equipment. Spraying is to occur at the lowest pressure range possible to minimize fiber release from encapsulant impact at the surface. It shall be applied with a consistent horizontal or vertical motion.

e. The cleaned layer of the surface barriers shall be removed from walls and floors.

The isolation barriers shall remain in place throughout cleanup. Decontamination enclosure systems shall remain in place and be utilized. A thin coat of lockdown encapsulant shall be applied to all surfaces in the work area which were not the subject of removal or abatement, including the cleaned layer of the surface barriers, but excepting sprinklers, standpipes, and other active elements of the fire suppression system.

## 1.07 NOTIFICATIONS, PERMITS, WARNING SIGNS, LABELS, AND POSTERS

A. The asbestos abatement contractor shall submit an Asbestos Project Notification (ACP-7) to the NYCDEP listing each work area within the building separately one week in advance of the start of work.

B. The registered design professional shall obtain an asbestos abatement permit authorizing the performance of construction work as required for asbestos projects involving one or more of the following activities:

1. Obstruction of an exit door leading to an exit stair or the exterior of the building;

2. Obstruction of an exterior fire escape or access to that fire escape;

3. Obstruction of a fire-rated corridor leading to an exit door;

4. Removal of handrails in an exit stair or ramp;

5. Removal or dismantling of any fire alarm system component including any fire alarm-initiating device (e.g., smoke detectors, manual pull station);

6. Removal or dismantling of any exit sign or any component of the exit lighting system, including photo luminescent exit path markings;

7. Removal or dismantling of any part of a sprinkler system including piping or sprinkler heads;

8. Removal or dismantling of any part of a standpipe system including fire pumps or valves;

9. Removal of any non-load bearing / non-fire-rated wall (greater than 45 square feet or 50 percent of a given wall);

10. Any plumbing work other than the repair or replacement of plumbing fixtures;

11. Removal of any fire-resistance rated portions of a wall, ceiling, floor, door, corridor, partition, or structural element enclosure including spray-on fire resistance rated materials;

12. Removal of any fire damper, smoke damper, fire stopping material, fire blocking, or draft stopping within fire-resistance rated assemblies or within concealed spaces;

13. Any work that otherwise requires a permit from the DOB (full demolitions, alterations, renovations, modifications or plumbing work).

C. The asbestos abatement contractor shall provide a floor plan showing the areas of the building under abatement and the location of all fire exits in said areas. It shall be prominently posted in the building lobby or comparable location, along with a notice stating the location within the building of the negative air cutoff switch, if applicable.

D. When one or more of the activities listed in 1.07 (B) (1-8) and (B)(13) of this specification an asbestos abatement permit is required by DEP. The general contractor is responsible for submitting, a work place safety plan (WPSP) and any other applicable construction documents. These documents must be prepared and sealed by a registered design professional.

E. A WPSP is not required for projects requiring an asbestos abatement permit due to one or more of the activities listed in 1.07 (B) (9-12) of this specification. The asbestos abatement contractor shall submit, together with the asbestos project notification, all applicable asbestos abatement permit construction documents.

F. The general contractor shall retain a Registered Design Professional to perform the inspections required pursuant to Title 28 of the Administrative Code, including but not limited to special inspections required by Chapter 17 of the Building Code, as follows:

1. A final inspection shall be performed by a registered design professional retained by the general contractor after all work authorized by the asbestos abatement permit is completed. The person performing the inspection shall note all failures to comply with the provisions of the Building Code or approved asbestos abatement permit and shall promptly notify the owner in writing. All defects noted in such inspection shall be corrected. The final inspection report shall either:

   a. Confirm:

      (1) That the construction work is complete, including the reinstallation or reactivation of any building fire safety or life safety component.

      (2) That any defects previously noted have been corrected.

      (3) That all required inspections were performed.

      (4) That the work is in substantial compliance with the approved asbestos abatement permit construction documents, the Building Code, and other applicable laws and rules.

   b. Confirm:

      (1) That the construction work does not return the building (or portion thereof) affected by the abatement project to a condition compliant with the building code and other applicable laws and rules, but that the registered design professional has reviewed an application for asbestos abatement permit construction documents approval that has been approved by the department of buildings, and the subsequent scope of work as approved will, upon completion, render all areas affected by the asbestos project in full compliance with the building code and all applicable laws and rules.

      (2) That any defects previously noted that are not addressed by the subsequent scope of work as approved by the department of buildings, have been corrected.

      (3) That all required inspections that are not addressed by the subsequent scope of work as approved by the department of buildings were performed.

(4) That all completed work pursuant to an asbestos abatement permit is in substantial compliance with the approved asbestos abatement permit construction documents.

G. The Registered Design Professional shall provide the final inspection reports to be filed with DEP on A-TR1 form. Records of final inspections made by registered design professionals shall be submitted to DDC as part of the close out document package.

H. Erect bilingual (English-Spanish) warning signs around the work space and at every point of potential entry from the outside and at main entrance to building which can be viewed by the public without obstruction, in accordance with OSHA 29 CFR 1926.1101 (K) (Sign Specifications) and Title 15, Chapter 1 of RCNY. The warning signs shall be a bright color so that they will be easily noticeable. The size of the sign and the size of the lettering shall be no less than OSHA requirements.

I. Provide the required labels for all polyethylene bags and all drums utilized to transport contaminated material to the landfill in accordance with OSHA 29 CFR 1926.1101 (K)(2) and by 49 CFR Parts 171 and 172 of the Department of Transportation regulations.

J. Provide any other signs, labels, warnings, and posted instructions that are necessary to protect, inform and warn people of the hazard from asbestos exposure. Post in a prominent and convenient place for the workers a copy of the latest applicable regulations from OSHA, EPA, NIOSH, State of New York and New York City and any additional items mandated for posting by the aforementioned regulations.

K. Furnish all permits, variances and notices required to perform the Work.

## 1.08 EMERGENCY PRECAUTIONS

A. Establish emergency and fire exits from the Work Area. The clean side of all emergency exits shall be equipped with two full sets of protective clothing and respirators at all times.

B. Notify local medical emergency personnel, both ambulance crews and hospital emergency room staff prior to commencement of abatement operations as to the possibility of having to handle contaminated or injured workmen.

C. Prepare to administer first aid to injured personnel after decontamination. Seriously injured personnel shall be treated immediately or evacuated immediately for decontamination. When an injury occurs, precautions shall be taken to reduce

airborne fiber concentrations (i.e., misting of the air with water) until the injured person has been removed from the Work Area.

D. Notify, before actual removal of the asbestos material, the local police and fire departments to the danger of entering the Work Area. Asbestos abatement contractor shall make every effort to help these agencies form plans of action should their personnel need to enter the contaminated area.

## 1.09 SUBMITTALS

A. Pre-Construction Submittals:

1. Attend a pre-construction meeting scheduled by the Department. This meeting shall also be attended by a designated representative of the City of New York third party air monitoring firm, facility manager and the Construction Project Manager. At this meeting, the asbestos abatement contractor shall present three copies of the following items, bound and indexed. The detailed plan of action must be submitted at least five (5) days prior to the pre-construction meeting.

   a. Asbestos abatement contractor's scope of work, work plan and schedule.

   b. Asbestos project notifications, approved variances and plans to Government Agencies.

   c. Copies of Permits, clearance and licenses if required.

   d. Schedules: the asbestos abatement contractor shall provide to the Construction Project Manager a copy of the following schedules for approval. Once approved, schedules shall be maintained and updated as received. Asbestos abatement contractor shall post a copy of all schedules at the site:

      (1) A construction schedule stating critical dates of the project including, but not limited to, mobilization, Work Area preparation, demolition, gross removal, fine cleaning, encapsulation, inspections, clearance monitoring, and phase of refinishing and final inspections. The schedule shall be updated biweekly, at a minimum.

      (2) A schedule of staffing stating number of workers per shift per activity, name and number of supervisor(s) per shift, shifts per day, and total days to be worked.

(3) Submit all changes in schedule or staffing to the Construction Project Manager prior to implementation.

(4) A schedule of equipment to be used including numbers and types of all major equipment such as HEPA Air Filtration Units, HEPA-vacuums, airless sprayers, Water Atomizing Devices and Type "C" compressors.

e. A written plan and shop drawings for preparation of work site and decontamination chamber.

f. Description of protective clothing and approved respirator to be used, make, model, NIOSH approval numbers.

g. Delineation of responsibility of work site supervision, including competent person, with names, resumes, and home telephone numbers.

h. Explanation of decontamination sequence and isolation techniques.

i. Description of specific equipment to be utilized, including make and model number of air filtration devices, vacuums, sprayers, etc.

j. Description of any prepared methods, procedures, techniques, or equipment other than those specified in the Contract Documents.

k. Explanation of the handling of asbestos contaminated wastes including EPA and NYCDEC identification numbers of Waste Hauler.

l. Description of the final clean-up procedures to be used.

m. Name and qualifications of asbestos abatement contractor's Air Monitor including AIHA accreditation, and proof of NIOSH PAT and NIST/NVLAP Bulk Quality Assurance Proficiency of OSHA samples for approval by the City of New York Department of Design and Construction.

n. Written description of emergency procedures to be followed in case of injury or fire. This section must include evacuation procedures, source of medical assistance (name and telephone number) and procedures to be used for access by medical personnel (examples: first aid squad and physician). NOTE: Necessary Emergency Procedures Shall Take Priority Over All Other Requirements of These Specifications.

o. Safety Data Sheets (SDS) for encapsulants, sealants, firestopping foam, cleaners/disinfectants, spray adhesive and any and all potentially hazardous materials that may be employed on the project. No work involving the aforementioned will be allowed to proceed until SDS are reviewed.

p. Worker Training and Medical Surveillance: Asbestos abatement contractor shall submit a list of the NYSDOL and NYCDEP Asbestos supervisors and handlers who will work on this project. Present evidence that workers have received proper training required by the regulations and required by OSHA 29 CFR 1926.1101 (Asbestos Standard) and 1926.1200 (HAZCOM standard) and any other standards applicable to the work.

q. Logs: Specimen copies of daily progress log, visitor's log, and disposal log.

(1) The asbestos abatement contractor shall provide a permanently bound log book of minimum 8-1/2" x 11" size at the entrance to the Worker and Waste Decontamination enclosure system as hereinafter specified. Log book shall contain all information specified in ICR56-3.4 (a)(2)(i).

(2) All entries into the log shall be made in non-washable, permanent ink and such pen shall be strung to or otherwise attached to the log to prevent removal from the log-in area. Under no circumstances shall pencil entries be permitted. Any significant events occurring during the abatement project shall be entered into the log. Upon completion of the job, the Asbestos abatement contractor shall submit a copy of the logbook containing a day-to-day record of personnel log entries countersigned by the Construction Project Manager every day.

(3) Worker's Acknowledgments: Submit statements signed by each employee that the employee has received training in the proper handling of ACM, understands the health implications and risks involved; and understands the use and limitations of the respiratory equipment to be used.

B. During Construction Submittals:
Submit copies of the following items to the Construction Project Manager during the work:

1. Security and safety logs showing names of person entering workspace, date and time of entry and exit, record of any accident, emergency evacuation, and any other safety and/or health incident.

2. Progress logs showing the number of workers, supervisors, hours of work and tasks completed shall be submitted daily to the Construction Project Manager.

3. Floor plans indicating asbestos abatement contractor's current work progress shall be submitted for review by the Construction Project Manager at weekly progress meetings.

4. All asbestos abatement contractors' air monitoring and inspection results.

C. Project Closeout Submittals:

Upon completion of the project and as a condition of acceptance, the asbestos abatement contractor shall present two copies of the following items, bound and indexed:

1. Lien Waivers from asbestos abatement contractor, Sub-asbestos abatement contractors and Suppliers,

2. Daily OSHA air monitoring results,

3. All Waste Manifests (Asbestos and Construction Debris), seals and disposal logs,

4. Field Sign-In/Sign-Out Logs for every shift,

5. Copies of all Building Department Forms and Permits,

6. A Letter of Compliance stating that all the work on this project was performed in accordance with the Specifications and all applicable Federal, State and Local regulations,

7. All Warranties as stated in the Specifications,

   a. Fully executed disposal certificates and transportation manifest.

8. Project Record: The asbestos abatement contractor shall maintain a project record for all small and large asbestos projects. During the project, the project record shall be kept on site at all times. Upon completion of the project, the project record shall be maintained by the building owner. The project record shall consist of:

   a. Copies of licenses of all asbestos abatement contractors involved in the project;

b. Copies of DEP and NYSDOL supervisor and handler certificates for all workers engaged in the project;

c. Copies of all project notifications and reports filed with DEP, NYSDOL and EPA for the project, with any amendments or variances;

d. Copies of all asbestos abatement permits, including associated approved plans and work place safety plan;

e. A copy of the air sampling log and all air sampling results;

f. A copy of the abatement asbestos abatement contractor's daily log book;

g. All data related to bulk sampling including the results of any asbestos surveys performed by an asbestos investigator;

h. Copies of all asbestos waste manifests;

i. A copy of all Project Monitor's Reports (ACP-15).

j. A copy of each ATR-1 Form completed for the asbestos project (if required).

k. A copy of each Asbestos Project Conditional Closeout Report (ACP-20).

l. A copy of the Asbestos Project Completion Form (ACP-21).

m. A copy of the project record shall be submitted to DDC and its Third Party Air Monitor within 48 hours of the Issuance of the ACP-21 form, as part of the close out documents.

9. The asbestos abatement contractor shall submit one of the following certifications to the general contractor, with a copy provided to DDC:

a. Asbestos Project Completion Form. If an asbestos project has been performed, a copy of the asbestos project completion form issued by DEP shall be submitted to DOB, with a copy being provided to DDC, prior to the issuance of a DOB permit and to any amendment of the underlying construction document approval which increases the scope of the project to include (a) work area(s) not previously covered.

b. An Asbestos Project Conditional Close-out Form. If an asbestos project has been performed a copy of the asbestos project conditional close-out form issued by DEP shall be submitted to DOB, with a copy being provided to DDC, prior to the issuance of a DOB permit and to any amendment of the underlying construction document approval which increases the scope of the project to include (a) work area(s) not previously covered.

## 1.10 QUALITY ASSURANCE

A. All work required for the completion of this project or called for in this Specification must be executed in a workmanlike manner by using the appropriate methods established by regulatory requirements and/or industrial standards. All workmanship or work methods are subject to review and acceptance by the Construction Project Manager. Throughout the Specification, reference is made to codes and standards which establish qualities, levels or types of workmanship which will be considered acceptable. It is the asbestos abatement contractor's responsibility to comply with these codes and standards during the execution of this work.

B. All materials and equipment required or consumed during the work of this Contract must meet the minimum acceptable criteria established by codes and standards referenced elsewhere in this Specification. Materials and equipment must be submitted for prior approval to the DDC project manager as part of the asbestos abatement contractor's "Shop Drawings".

C. It is the asbestos abatement contractor's responsibility, when so required by the Specification or upon written request from the Commissioner or his representative to furnish all required proof that workmanship, materials and/or equipment meet or exceed the codes and standards referenced. Such proof shall be in the form requested, typically a certified report or test conducted by a testing entity approved for that purpose by DDC.

D. The asbestos abatement contractor shall furnish proof that employees working under his supervision have had instruction on the dangers of asbestos exposure, on respirator use, decontamination, and OSHA regulations. This proof shall be in the form of a notarized affidavit to the effect that the above requirements have been satisfied and a copy of the Job Hazard Analysis (JHA) with tool box meeting executed meeting sign in sheet.

E. The asbestos abatement contractor will have posted and in view at the job site the OSHA regulations 29 CFR 1910.1001, and 1926.1101 Asbestos Standard, and 29 CFR 1926.59 Hazard Communication Standard Environmental Protection Agency 40 CFR, Part 61, subpart B: National Emission Standard for asbestos, asbestos stripping, work practices and disposal of asbestos waste. One copy of NYC Title 15, Chapter 1 of RCNY and NYS DOL ICR 56 at the job site at all times.

F. Familiarity with Pertinent Codes and Standards: In procuring all items used in this work, it is the asbestos abatement contractor's responsibility to verify the detailed requirements of the specifically named codes and standards and to verify that the items procured for use in this work meet or exceed the specified requirements and are suitable for their intended use.

G. Rejection of Non-Complying Items: The Commissioner reserves the right to reject items incorporated into the work that fail to meet the specified minimum requirements. The Commissioner further reserves the right, and without prejudice to other recourse that maybe taken, to accept non-complying items subject to an adjustment in the Contract amount as approved by the City.

H. Applicable Regulations, Codes and Standards: Applicable standards listed in these Specifications include, but are not necessarily limited to, standards promulgated by the following agencies and organizations:

1. American National Standards Institute (ANSI)
(Successor to USASI and ASA)
25 West 43rd Street (between 5th and 6th Avenue) 4th Floor
New York, NY 10036
212-642-4900

2. American Society for Testing and Materials (ASTM)
100 Bar Harbor Drive
West Conshohocken, PA 19428-2959
610-832-9500

3. National Institute for Occupational Safety and Health (NIOSH)
Robert A. Taft Laboratory
4676 Columbia Pkwy
Mailstop R12 Cincinnati, Ohio 45226
513-841-4428

4. National Electrical Code (NEC)
See NFPA

5. National Fire Protection Association (NFPA)
1 Batterymarch Park
Quincy, Massachusetts 02169-7471
617-770-3000

6. New York City Fire Department (FDNY)
9 Metrotech Center
Brooklyn, NY 11201-5431
718-999-2117

7. New York City Department of Buildings (NYC DOB)
   Enforcement Division
   280 Broadway, New York, New York 10007
   212- 566-2850

8. New York City Department of Environmental Protection (NYCDEP)
   Bureau of Environmental Compliance
   Asbestos Control Program
   59-17 Junction Boulevard, 8th Floor
   Corona, New York 11368
   718-595-3682

9. New York City Department of Health and Mental Hygiene (NYC DOHMH)
   Environmental Investigation
   125 Worth Street
   New York, New York 10013
   212-442-3372

10. New York State Department of Labor (NYSDOL)
    Division of Safety and Health, Engineering Services Unit
    State Office Building Campus
    Albany, New York 12240-0010

11. New York City Department of Sanitation
    125 Worth Street, Room 714
    New York, New York 10013
    212-566-1066

12. Occupational Safety and Health Administration (OSHA)
    Region II - Regional Office
    201Varick Street, Room 908
    New York, New York 10014
    212-337-2378

13. United States Environmental Protection Agency (EPA or USEPA)
    Region II
    Asbestos NESHAPS Contact
    Air and Waste Management Division
    (Air Compliance Branch) – USEPA
    290 Broadway, 21st Floor
    New York, New York 10007-1866
    212-637-3660

I. Post all applicable regulations in a conspicuous place at the job site. Assure that the regulations are not altered, defaced or covered by other materials. One copy of each regulation must also be kept at the Asbestos abatement contractor's office.

## 1.11 CITY/ASBESTOS ABATEMENT CONTRACTOR RESPONSIBILITIES

A. The normal occupants of the Work Areas will be relocated by the City prior to the performance of the abatement work and returned there to at the conclusion of the abatement work, at no cost to the asbestos abatement contractor. However, the asbestos abatement contractor shall protect all furniture and equipment in the Work Areas in a manner as hereinafter specified. In addition, the asbestos abatement contractor shall perform the work of this Contract in a manner that will be least disruptive to the normal use of the non-Work Areas in the building.

B. Asbestos abatement contractor shall be responsible for cleaning all portable items not specifically addressed by the Facility, in the Work Areas, or dispose of same as asbestos contaminated waste.

C. Facility to provide asbestos abatement contractor with a list of items that cannot be removed and need special attention.

D. Facility to stop all deliveries that may be scheduled to the Work Area while work is in progress.

E. Facilities to have authorized personnel on site at all times or supply the asbestos abatement contractor with means of contacting such personnel without unreasonable delay. Such personnel shall have access to all areas, have knowledge of electrical, and air handling equipment. Such personnel shall assist the asbestos abatement contractor in case of any power failure or breakdown to shut down air supply systems, to reset and control all protective systems such as alarms, sprinklers, locks, etc. The Facility shall ensure no active air handling systems are operating within the Work Area.

F. City will not occupy the portions of the building, in which work is being performed during the entire asbestos removal operation, including completion of clean up.

G. Asbestos abatement contractor shall provide a plan for 24 hour job security both for prevention of theft and for barring entry of curious but unprotected personnel into Work Areas, as required by the Department.

H. Asbestos abatement contractor shall provide surveillance by a fire watch and set forth procedures to be taken for the safety of building occupants in the event of an emergency, in accordance with the WPSP and DEP regulations.

I. Should the failure of any utility occur, the City will not be responsible to the asbestos abatement contractor for loss of time or any other expense incurred.

J. Facility will be responsible to notify the asbestos abatement contractor of any planned electrical power shutdowns in order to ensure that there are no power interruptions in the negative air pressure systems.

K. Asbestos abatement contractor shall remove all flammable materials from the work area and all sources of ignition (including but not limited to pilot lights) shall be extinguished.

L. Asbestos abatement contractor shall require a competent person (as defined in OSHA 1926.1101) to perform the following functions and to be on-site continuously for the duration of the project:

1. Monitor the set up of the Work Area enclosure and ensure its integrity.

2. Control entry and exit into the work enclosure.

3. Ensure that employees are adequately trained in the use of engineering controls, proper work practices, proper personal protective equipment and in decontamination procedures.

4. Ensure that employees use proper engineering controls, proper work practices, proper personal protective equipment and proper decontamination procedures.

5. The competent person (as defined in OSHA1926.1101) shall check for rips and tears in work suits and ensure that they are mended immediately or replaced.

## 1.12 USE OF BUILDING FACILITIES

A. City shall make available to the asbestos abatement contractor, from existing outlets and supplies, all reasonably required amounts of water and electric power at no charge.

B. Electric power to all Work Areas shall be shut down and locked out except for electrical equipment that must remain in service. Safe temporary power and lighting shall be provided by asbestos abatement contractor in accordance with applicable codes. All power to Work Areas shall be brought in from outside the area through ground-fault interrupter circuits installed at the source. Stationary electrical equipment within the Work Area, which must remain in service, shall be adequately protected, enclosed and ventilated. The Facility will identify all electric lines that must remain in service. Asbestos abatement contractor shall protect all lines.

C. Asbestos abatement contractor shall provide, at his own expense, all electrical, water, and waste connections, tie-ins, extensions, and construction materials, supplies, etc. All water tie-ins shall be hard piped with polyethylene or copper piping. At the end of each shift, asbestos abatement contractor shall disconnect all hoses within the work zone and place in equipment room of the worker decontamination unit. Asbestos abatement contractor shall ensure positive shutoff of all water to Work Area during non-working hours.

D. Utilities:

1. General:
   All temporary facilities required to be installed, shall be subject to the approval of the Commissioner. Prior to starting the work at any site; specify clearly the temporary locations of facilities preferably with sketches and submit the same to the Construction Project Manager for approval.

2. Water:
   The Department of Design and Construction will furnish all water needed for construction, at no cost to the asbestos abatement contractor in buildings under their jurisdiction. All temporary plumbing or adaptations to supply the needs of the Work Area shall be installed and removed by the asbestos abatement contractor and the cost thereof included in the Lump Sum price for abatement work. Shower water for the decontamination unit shall be provided hot. Heating of water, if necessary, shall be provided by the asbestos abatement contractor.

3. Electricity:
   The Department of Design and Construction will furnish all electricity needed for construction, at no cost to the asbestos abatement contractor in buildings under their jurisdiction. All temporary electrical work or adaptations to supply the needs of the Work Area shall be installed and removed by the asbestos abatement contractor and the cost thereof included in the Lump Sum price for abatement work.

   In leased spaces, arrangements for water supplies and electricity must be made with the landlord. However, all such arrangements must be made through and are subject to approval of the Department of Design and Construction. Utilities will be provided at no cost to the asbestos abatement contractor. However, it is the asbestos abatement contractor's (or the General contractor's) responsibility to furnish and install a suitable distribution system to the Work Area. This system will be provided at no cost to the City.

   A dedicated power supply for the negative pressure ventilating units shall be utilized. The negative air equipment shall be on a ground fault circuit

interrupter (GFCI) protected circuit separate from the remainder of the work area temporary power circuits.

E. Asbestos abatement contractor shall shut down and lock out all electric power to all work areas except for electrical equipment that must remain in service. Safe temporary power and lighting shall be provided in accordance with all applicable codes. Existing light sources (e.g., house lights) shall not be utilized. All power to work areas shall be brought in from outside the area through ground-fault circuit interrupter at the source.

1. If electrical circuits, machinery, and other electrical systems in or passing though the work area must stay in operation due to health and safety requirements, the following precautions must be taken:

   a. All unprotected cables, except low-voltage (less than 24 volts) communication and control system cables, panel boxes of cables and joints in live conduit that run through the work area shall be covered with three (3) independent layers of six (6) mil fire retardant polyethylene. Each layer shall be individually duct taped and sealed. All three (3) layers of polyethylene sheeting shall be left in place until satisfactory clearance air sampling results have been obtained.

   b. Any energized circuits remaining in the work area shall be posted with a minimum two (2) inch high lettering warning sign which reads: DANGER LIVE ELECTRICAL - KEEP CLEAR. A sign shall be placed on all live covered barriers at a maximum of ten (10) foot intervals. These signs shall be posted in sufficient numbers to warn all persons authorized to enter the work area of the existence of the energized circuits.

2. Any source of emergency lighting which is temporarily blocked as a result of work place preparation shall be replaced for the duration of the project by battery operated or temporary exit signs, exit lights, or photo luminescent path markings.

F. Asbestos abatement contractor shall provide a separate temporary electric panel board to power asbestos abatement contractor’s equipment. The Facility will designate an existing electrical source in proximity to the Work Area. Asbestos abatement contractor's licensed electrician shall provide temporary tie-in via cable, outlet boxes, junction boxes, receptacles and lights, all with ground fault interruption. At no time shall extension cords greater than 50-feet in length be allowed. All temporary electrical installation shall be in accordance with OSHA regulations. The electric shut down for power panel tie-in will be on off-hours and must be coordinated with the Facility. Asbestos abatement contractor shall provide to the City a specification and drawing outlining his power requirements at the pre-construction meeting.

G. Additional electrical equipment (i.e., transformers, etc.), which is necessary due to the lack of existing power on the floor, shall be at the asbestos abatement contractor's expense.

H. Asbestos abatement contractor shall provide fire protection in accordance with all State and Local fire codes.

I. Sprinklers, standpipes, and other fire suppression systems shall remain in service and shall not be plasticized.

J. When temporary service lines are no longer required, they shall be removed by the asbestos abatement contractor. Any parts of the permanent service lines, grounds and buildings, disturbed or damaged by the installation and/or removal of the temporary service lines, shall be restored to their original condition by asbestos abatement contractor. Senior Stationary Engineer will inspect and test all switches, controls, gauges, etc. and shall submit a list to the Construction Project Manager of any equipment damaged by the asbestos abatement contractor.

K. Asbestos abatement contractor shall supply hot shower water necessary for use in the decontamination unit.

## 1.13 USE OF THE PREMISES

A. Asbestos abatement contractor shall confine his apparatus, the storage of materials, and supplies, and the operation of his workmen to limits established by law, ordinances, and the directions of the Construction Project Manager and the Facility. All flammable or combustible materials shall be properly stored to obviate fire and in areas approved by the Facility.

B. Asbestos abatement contractor shall assure that no exits from the building are obstructed, that appropriate safety barriers are established to prevent access, and that Work Areas are kept neat, clean, and safe.

C. Asbestos abatement contractor shall maintain exits from the work area or alternative exits shall be established, in accordance with section 1027 of the New York City Fire Code. Exits shall be checked at the beginning and end of each work shift against blockage or impediments to exiting.

D. If the openings of temporary structural partitions related to abatement work areas block egress, the partition shall consist of two sheets of fire retardant 6-mil plastic, prominently marked as an exit with photo luminescent paint or signage. Cutting tools (e.g., knife, razor) shall be attached to the work area side of the sheeting for use in the event that the barrier must be cut open to allow egress.

E. All surrounding work, fixtures, soil lines, drains, water lines, gas pipes, electrical conduit, wires, utilities, duct work railings, shrubbery, landscaping, etc. which are to remain in place shall be carefully protected and, if disturbed or damaged, shall be repaired or replaced as directed by the City, at no additional cost.

F. All routes through the building to be used by the asbestos abatement contractor shall first be approved by the Construction Project Manager and the Facility.

G. Attention is specifically drawn to the fact that other asbestos abatement contractors, performing the work of other Contracts, may be (or are) brought upon any of the work sites of this Contract. Therefore, the asbestos abatement contractor shall not have exclusive rights to any site of his work and shall fully cooperate and coordinate his work with the work of other asbestos abatement contractors who may be on (or are on) any site of the work of this Contract. Regulated area exempted.

H. Temporary toilet facilities must be provided by the asbestos abatement contractor on the site. Coordinate location of facilities with Construction Project Manager. No toilet facilities will be allowed in the Work Area.

## 1.14 PROTECTION AND DAMAGE

A. The asbestos abatement contractor is responsible to cover all furniture and equipment that cannot be removed from Work Areas. Moveable furniture and equipment will be removed from Work Areas by asbestos abatement contractor prior to start of work and returned upon successful completion of the final air testing. At the conclusion of the work (after clearance level of air testing reaches the acceptable limit), the asbestos abatement contractor will remove all plastic covering from the walls, floors, furniture, equipment and reinstall furniture and equipment in the cleaned Work Area. The asbestos abatement contractor shall remove all shades, curtains and drapes from the Work Area, and reinstall the same following the final clean up.

B. Prior to plasticizing, the proposed work areas shall be pre-cleaned using HEPA filtered vacuum equipment and/or wet cleaning methods. Methods that raise dust, such as sweeping or vacuuming with equipment not equipped with HEPA filters, are prohibited.

C. Use rubber tired vehicles that use non-volatile fuels for conveying material inside building and provide temporary covering, as necessary, to protect floors.

D. No materials or debris shall be thrown from windows or doors of the building. Building waste management system shall NOT be used to remove any asbestos waste from the building.

E. Debris shall be removed from the work site daily. Premises shall be left neat and clean after each work shift, so that work may proceed the next regular workday without interruption. Limited bag storage may take place within the Work Area when approved by the Construction Project Manager.

F. Protect floors and walls along removal routes from damage, wear and staining with contamination control flooring. All finished surfaces to be protected with Masonite or other rigid sheathing material.

G. A preliminary inspection for pre-existing damage shall be conducted by asbestos abatement contractor and representative of the City before commencement of the project.

## 1.15 RESPIRATORY PROTECTION REQUIREMENTS

A. Respiratory protection shall be worn by all individuals who may be exposed to asbestos fibers from the initiation of the asbestos project until all areas have successfully passed clearance air monitoring in accordance with Regulations and these Specifications.

B. Asbestos abatement contractor shall develop and implement a written respiratory protection program with required site-specific procedures and elements. The program shall be administered by a properly trained individual. The written respiratory protection program shall include the requirements set forth in OSHA Standard 29 CFR 1910.134, at a minimum.

C. The Asbestos abatement contractor shall provide workers with individually issued and marked respiratory equipment. Respiratory equipment shall be suitable for the asbestos exposure level(s) in the Work Area(s), as specified in OSHA Standards 26 CFR 1910.134 and 29 CFR 1926.1101, NIOSH Standard 42 CFR 84, or as more stringently specified otherwise, herein.

D. Where respirators with disposable filter parts are employed, the asbestos abatement contractor will provide sufficient filter parts for replacement as necessary or as required by the applicable regulation.

E. All respiratory protection shall be NIOSH approved. All respiratory protection shall be provided by asbestos abatement contractor and used by workers in conjunction with the written respiratory protection program.

F. Asbestos abatement contractor shall provide respirators selected by an Industrial Hygienist that meet the following requirements:

Table 1. -- Assigned Protection Factors[5]

| Type of Respirator[1,2] | Half mask | Full facepiece | Helmet/hood |
|---|---|---|---|
| 1. Air-Purifying Respirator | [3]10 | 50 | …… |
| 2. Powered Air-Purifying Respirator (PAPR) | 50 | 1,000 | [4]25/1,000 |
| 3. Supplied-Air Respirator (SAR) or Airline Respirator | | | |
| • Demand mode | 10 | 50 | …… |
| • Continuous flow mode | 50 | 1,000 | [4]25/1,000 |
| • Pressure-demand or other positive-pressure mode | 50 | 1,000 | …… |
| 4. Self-Contained Breathing Apparatus (SCBA) | | | |
| • Demand mode | 10 | 50 | 50 |
| • Pressure-demand or other positive-pressure mode (e.g., open/closed circuit) | …….. | 10,000 | 10,000 |

[1]Employers may select respirators assigned for use in higher workplace concentrations of a hazardous substance for use at lower concentrations of that substance, or when required respirator use is independent of concentration.

[2]The assigned protection factors in Table 1 are only effective when the employer implements a continuing, effective respirator program as required by this section (29 CFR 1910.134), including training, fit testing, maintenance, and use requirements.

[3]This APF category includes filtering facepieces, and half masks with elastomeric facepieces.

[4]The employer must have evidence provided by the respirator manufacturer that testing of these respirators demonstrates performance at a level of protection of 1,000 or greater to receive an APF of 1,000. This level of performance can best be demonstrated by performing a WPF or SWPF study or equivalent testing. Absent such testing, all other PAPRs and SARs with helmets/hoods are to be treated as loose-fitting facepiece respirators, and receive an APF of 25.

[5]These APFs do not apply to respirators used solely for escape. For escape respirators used in association with specific substances covered by 29 CFR 1910 subpart Z, employers must refer to the appropriate substance-specific standards in that subpart. Escape respirators for other IDLH atmospheres are specified by 29 CFR 1910.134 (d)(2)(ii).

G. Selection of high efficiency filters:

1. All high efficiency filters shall have a nominal efficiency rating of 100 (99.97-percent effective) when tested against 0.3-micrometer monodisperse diethyl-hexyl phthalate (DOP) particles.

2. Choose N-, R-, or P-series filters based upon the presence or absence of oil particles.

   a. N-series filters shall only be used for non-oil solid and water based aerosols or fumes.

   b. R- and P-series filters shall be used when oil aerosols or fumes (i.e., lubricants, cutting fluids, glycerin, etc.) are present. The R-series filters are oil resistant and the P-series filters are oil proof.

   c. Follow filter manufacture recommendations.

3. If a vapor hazard exists, use an organic vapor cartridge in combination with the high efficiency filter.

H. Historical airborne fiber level data may serve as the basis for selection of the level of respiratory protection to be used for an abatement task. Historical data provided by the asbestos abatement contractor shall be based on personal air monitoring performed during work operations closely resembling the processes, type of material, control methods, work practices, and environmental conditions present at the site. Documentation of aforementioned results may be requested by the City and/or Third-Party Air Monitor for review. This will not relieve the asbestos abatement contractor from providing personal air monitoring to determine the time-weighted average (TWA) for the work under contract. The TWA shall be determined in accordance with 29 CFR 1926.1101.

I. At no time during actual removal operations shall half-mask air purifying respirators be allowed unless a full 8-hour TWA and excursion limit have been conducted and reviewed by the Construction Project Manager. If the TWA and excursion limit have not been conducted, a Supplied-Air Respirator (SAR) or Airline Respirator or Self-Contained Breathing Apparatus (SCBA) must be used. Use of single use dust respirators is prohibited for the above respiratory protection.

J. Workers shall be provided with personally issued and individually marked respirators. Respirators shall not be marked with any equipment that will alter the fit of the respirator in any way. Only waterproof identification markers shall be used.

K. Asbestos abatement contractor shall ensure that the workers are qualitatively or quantitatively fit tested by an Industrial Hygienist initially and every 12 months thereafter with the type of respirator he/she will be using.

L. Whenever the respirator design permits, workers shall perform the positive and negative air pressure fit test each time a respirator is worn. Powered air-purifying respirators shall be tested for adequate flow as specified by the manufacturer.

M. No facial hairs (beards) shall be permitted to be worn when wearing respiratory protection that requires a mask-to-face seal.

N. If a worker wears glasses, a spectacle kit to fit their respirator shall be provided by the asbestos abatement contractor at the asbestos abatement contractor's expense.

O. Respiratory protection maintenance and decontamination procedures shall meet the following requirements:

1. Respiratory protection shall be inspected and decontaminated on a daily basis in accordance with OSHA 29 CFR 1910.134 (b); and

2. High efficiency filters for negative pressure respirators shall be changed after each shower; and

3. Respiratory protection shall be the last piece of worker protection equipment to be removed. Workers must wear respirators in the shower when going through decontamination procedures as stated in Section 3.03 and/or 3.04.

4. Airline respirators with high efficiency filtered disconnect shall be disconnected in the equipment room and worn into the shower. Powered air-purifying respirator face pieces shall be worn into the shower. Filtered/power pack assemblies shall be decontaminated in accordance with manufacturers recommendations; and

5. Respirators shall be stored in a dry place and in such a manner that the face-piece and exhalation valves are not distorted; and

6. Organic solvents shall not be used for washing of respirators.

P. Authorized visitors shall be provided with suitable respirators and instruction on the proper use of respirators whenever entering the Work Area. Qualitative fit test shall be done to ensure proper fit of respirator.

## 1.16 PROTECTIVE CLOTHING

A. Provide worker protection as required by the most stringent OSHA and/or EPA standards applicable to the work. Provide to all workers, foremen, superintendents, authorized visitors and inspectors, protective disposable clothing consisting of full body coveralls, head covers, gloves and 18-inch high boot type covers or reusable footwear.

B. In addition to personal protective equipment for workers, the asbestos abatement contractor shall make available at each worksite at least four (4) additional uniforms and required respiratory equipment each day for personnel who are authorized to inspect the work site. He/she shall also provide, for the duration of the work at any site involving a decontamination unit for worksite access, a lockable storage locker for use by the Construction Project Manager. In addition to respiratory masks for workers, the asbestos abatement contractor must have on hand at the beginning of each work day, at least four (4) masks each with three sets of fresh filters, for use by personnel who are authorized to inspect the worksite and are medically qualified to don a respirator. The asbestos abatement contractor shall check for proper fit of the respirators of all City personnel authorized to enter the Work Area.

C. Asbestos handlers involved in tent procedures shall wear two (2) disposable suits, including gloves, hood and footwear, and appropriate respiratory equipment. All street clothes shall be removed and stored in a clean room within the work site. The double layer personal protective equipment shall be used for installation of the tent and throughout the procedure, if a decontamination unit (with shower and clean room) is contiguous to the Work Area, only one (1) layer of disposable personal protective equipment shall be required; in this case, prior to exiting the tent the worker shall HEPA vacuum and wet clean the disposable suit.

D. The outer disposable suit (if 2 suits are worn) shall be removed and remain in the tent upon exiting. Following the tent disposal and work site clean up the workers shall immediately proceed to a shower at the work site. The inner disposal unit and respirator shall be removed in the shower after appropriate wetting. The disposal clothing shall be disposed of as asbestos-containing waste material. The workers shall then fully and vigorously shower with supplied liquid bath soap, shampoo, and clean dry towels.

E. Coveralls: provide disposable full-body coveralls and disposable head covers. Require that they be worn by all workers in the Work Area. Provide a sufficient number for all required changes for all workers in the Work Area.

F. Boots: provide work boots with non-skid soles, and where required by OSHA, foot protection, for all workers. Provide boots at no cost to workers. Paint uppers of all boots yellow with waterproof enamel. Do not allow boots to be removed from the Work Area for any reason after being contaminated with ACM and/or dust.

G. Hard Hats: provide hard hats as required by OSHA for all workers, and provide a minimum of four spares for Inspectors, visitors, etc. Label all hats with same warning label as used on disposal bags. Require hard hats to be worn at all times that work is in progress that may cause potential head injury. Provide hard hats of the type with polyethylene strap suspension. Require hats to remain in the Work Area throughout the work. Thoroughly clean and decontaminate and bag hard hats prior to removing them from the Work Area at the end of the work.

H. Goggles: provide eye protection (goggles) as required by OSHA for all workers involved in any activity that may potentially cause eye injury. Require them to be worn at all times during these activities. Thoroughly clean and decontaminate goggles before removing them from the Work Area.

I. Gloves: provide work gloves to all workers, of the type dictated by the Work and OSHA Standards. Do not remove gloves from the Work Area. Dispose of as asbestos contaminated waste at the end of the work. Gloves shall be worn at all times, except during Work Area Preparation activities that do not disturb ACM.

J. Reusable footwear, hard hats and eye protection devices shall be left in the contaminated Equipment Room until the end of the Asbestos Abatement Work.

K. Disposable protective clothing shall be discarded and disposed of as asbestos waste every time the wearer exits from the workspace to the outside through the decontamination facility.

L. Adequate supplies of disposable coveralls, head covers and foot covers shall be maintained by the asbestos abatement contractor for authorized representatives who may inspect the Work Area.

## 1.17 AIR MONITORING - ASBESTOS ABATEMENT CONTRACTOR

A. Asbestos abatement contractor shall employ a qualified industrial hygiene firm to conduct OSHA personal exposure monitoring air samples in accordance with OSHA Regulations, 1926.1101 (Asbestos Standards for Construction) to establish representative full shift monitoring data, per task, to determine respiratory protection. The asbestos abatement contractor may submit representative Personal exposure monitoring data for a project of similar size and complexity in lieu of performing monitoring in accordance with OSHA 29CFR 1926.1101.

B. The asbestos abatement contractor shall ensure that a qualified industrial hygiene laboratory for OSHA personal exposure monitoring is utilized. Such laboratory shall be a current proficient participant in the American Industrial Hygiene Association (AIHA) PAT Program. The laboratory shall be accredited by the AIHA and New York State Department of Health Environmental Laboratory Approval Program (ELAP).

C. Sampling and analysis methods shall be per NIOSH 7400A.

D. Test Reports:

1. Promptly process and distribute one copy of the test results, to the Commissioner via email.

2. Prompt reports are necessary so that if required, modifications to work methods and/or practices may be implemented as soon as possible.

3. Asbestos abatement contractor shall post the personal exposure monitoring results at the jobsite within 24 hours of receipt of the results.

E. Competent person shall conduct inspections and provide written reports daily. Inspections will include checking the standard operating procedures, engineering control systems, respiratory protection and decontamination systems, packaging and disposal of asbestos waste, and any other aspects of the project which may affect the health and safety of the people and environment.

F. All costs for required the asbestos abatement contractor's air monitoring shall be borne by the asbestos abatement contractor.

G. The City reserves the right to conduct air and surface dust sampling in conjunction with and separate from the Third-Party Air Monitor for the purposes of Quality Assurance.

## 1.18 THIRD PARTY MONITORING AND LABORATORY

A. The NYCDDC, at its own expense, will employ the services of an independent Third-Party Air Monitoring Firm and Laboratory. The Third-Party Air Monitor will perform air sampling activities and project monitoring at the Work Site.

B. The Laboratory will perform analysis of air samples utilizing Phase Contrast Microscopy (PCM) and/or Transmission Electron Microscopy (TEM). This laboratory shall meet the standards stated in Paragraph 1.17. B.

C. Observations will include, but not be limited to, checking the standard operating procedures, engineering control systems, respiratory protection, decontamination systems, packaging and disposal of asbestos waste, and any other aspects of the project that may affect the health and safety of the environment, Asbestos abatement contractor, and/or facility occupants.

D. The Third-Party Air Monitoring Firm and the designated Project Monitor shall have access to all areas of the asbestos removal project at all times and shall continuously inspect and monitor the performance of the asbestos abatement contractor to verify that said performance complies with this Specification. The Third-Party Air Monitor shall be on site throughout the entire abatement operation.

E. The NYCDDC will be responsible for costs incurred with the Third Party Air Monitoring Firm and laboratory work. Any subsequent additional testing required due to limits exceeded during initial testing shall be paid for by the Asbestos abatement contractor.

F. At a minimum, air sampling shall be conducted in accordance with the following schedule:

| Abatement Activity | Pre-Abatement | During Abatement | Post- Abatement |
|---|---|---|---|
| Equal to or greater than 10,000 square feet or 10,000 linear feet of ACM | PCM | PCM | TEM |
| Less than 10,000 square feet or 10,000 linear feet of ACM | PCM | PCM | PCM |

Note: TEM is acceptable wherever PCM is required.

G. The number of air samples required per stage of abatement and size of abatement project is listed in the table below:

| | | Pre-Abatement | During Abatement | Post Abatement |
|---|---|---|---|---|
| | Large Asbestos Projects | | | |
| 1. | Full Containment | 10 | 5 | 10 |
| 2. | Glovebag inside Tent | 5[a] | 5[a] | 5[a] |
| 3. | Exterior Foam and Vertical Surfaces | - | 5[c] | 5[d] |
| 4. | Interior Foam | 10 | 5[c] | 10[d] |
| | | | | |
| | Small Asbestos Projects | | | |
| 1. | Full Containment | 6 | 3 | 6 |
| 2. | Glovebag inside Tent | 3[b] | 3[b] | 3[b] |
| 3. | Tent | 3[b] | 3[b] | 3[b] |
| 4. | Exterior Foam and Vertical Surfaces | - | 3[c] | 3[d] |
| 5. | Interior Foam | 6 | 3[c] | 6[d] |
| | | | | |
| | Minor Projects | | | |
| 1. | Glovebag inside Tent | - | - | 1[d] |
| 2. | Tent | - | - | 1[d] |
| 3. | Exterior Foam and Vertical Surfaces | - | - | 1[d] |
| 4. | Interior Foam | - | - | 1[d] |

[a]if more than three (3) tents then two (2) samples required per enclosure.

[b]if more than three (3) tents then one (1) sample required per enclosure.

[c]samples shall be taken within the work area(s).

[d]area sampling is required only if:

- visible emissions are detected during the project
- during-abatement area sampling results exceeded 0.01 f/cc or the pre-abatement area sampling result(s) for interior projects where applicable.
- work area to be reoccupied is an interior space at a school, healthcare, or daycare facility.

H. Prior to commencement of abatement activities, the Third-Party Air Monitoring Firm will collect a minimum number of area samples inside each homogeneous work area.

1. Samples will be taken during normal occupancy activities and circumstances at the work site.

2. Samplers shall be located within the proposed work area and at all proposed isolation barrier locations.

3. Samples shall be analyzed using PCM.

4. The number of samples to be collected will be determined by the size of the project and the abatement methods to be utilized.

I. Frequency and duration of the air sampling during abatement shall be representative of the actual conditions during the abatement. The size of the asbestos project will be a factor in the number of samples required to monitor the abatement activities. The following minimum schedule of samples shall be required daily.

1. For large asbestos projects employing full containment, area air sampling shall be performed at the following locations:

a. Two area samples outside the work area in uncontaminated areas of the building, remote from the decontamination facilities.

(1) Primary location selection shall be within 10 feet of isolation barriers.

(2) Where negative ventilation exhaust runs through uncontaminated building areas, one of the area samples will be required in these areas to monitor any potential fiber release.

(3) Where exhaust tubes have been grouped together in banks of up to five (5) tubes, with each tube exhausting separately and the bank of tubes terminating together at the same controlled area, one area air sample shall be taken.

b. One area sample within the uncontaminated entrance to each decontamination enclosure system.

c. Where adjacent non-work areas do not exist, an exterior area sample shall be taken.

d. One area sample within 5 feet of the unobstructed exhaust from a negative pressure ventilation system exhausting indoors but not within a duct.

e. One area sample outside, but within 25 feet of, the building or structure, if the entire building or structure is the work area.

2. For large asbestos projects involving interior foam method, area air sampling shall be performed at the following sampling locations:

a. One area sample taken outside the work area within 10 feet of isolation barriers.

b. One area sample taken within the uncontaminated entrance to each worker decontamination and waste decontamination enclosure system.

c. One area sample within 5 feet of the unobstructed exhaust from a negative pressure ventilation system exhausting indoors but not within a duct, if applicable.

d. Three area samples inside the work area.

e. One area sample where the negative ventilation exhaust ducting runs through uncontaminated building areas, if applicable.

3. For large asbestos projects employing the glovebag procedure within a tent, a minimum of five continuous air samples shall be taken concurrently with the abatement for each work area, unless there are more than three enclosures, in which case two area samples per enclosure are required.

a. Four area samples taken outside the work area within ten feet of tent enclosure(s).

b. One area sample taken within the uncontaminated entrance to each worker and waste decontamination enclosure system.

c. One area sample within five feet of the unobstructed exhaust from a negative pressure ventilation system exhausting indoors, but not within a duct, if applicable.

d. One area sample where negative ventilation exhaust ducting runs through uncontaminated building areas, if applicable.

4. For large asbestos projects involving exterior foam method or removal of ACM from vertical surfaces, a minimum of five continuous area samples shall be taken concurrently with the abatement for each work area using the following minimum requirements:

a. Three area samples inside the work area and remote from the decontamination systems.

b. One area sample within the uncontaminated entrance to each worker and waste decontamination enclosure system.

c. One area sample outside the work area within 25 feet of the building or structure, if the entire building or structure is the work area.

d. One area sample inside the building or structure at the egress point to the work area, if applicable.

5. For small asbestos projects employing full containment, a minimum of three

continuous area samples shall be taken concurrently with the abatement for each work area at the following locations:

a. Two area samples taken outside the work area within ten feet of the isolation barriers.

b. One area sample within the uncontaminated entrance to each worker or waste decontamination enclosure system.

c. One area sample within five feet of the unobstructed exhaust from a negative pressure ventilation system exhausting indoors, but not within a duct, if applicable.

d. One area sample where negative ventilation exhaust ducting runs through an uncontaminated building area, if applicable.

6. Tent Procedures:
For projects involving more than 25 linear feet or 10 square feet, a minimum of three continuous samples shall be taken concurrently throughout abatement.

J. Post-abatement clearance air monitoring for projects not solely employing glove-bag procedures shall include a minimum number of area samples inside each homogeneous work area and outside each homogeneous work area (five samples inside/five samples outside for Large Projects and three samples inside/three samples outside for Small Projects). In addition to the five sample inside/five sample outside minimum for Large Projects, one additional representative area sample shall be collected inside and outside the work area for every 5,000 square feet above 25,000 square feet of floor space where ACM has been abated.

K. Post-abatement clearance air monitoring for Small Projects solely employing glove-bag procedures is not required unless one or more of the following events occurs. In such cases, post-abatement clearance air monitoring procedures shall be followed. The events requiring post-abatement clearance air monitoring are:

1. The integrity of the glove-bag was compromised,

2. Visible emissions are detected outside the glove-bag, and/or

3. Ambient levels exceed 0.01 f/cc during abatement.

L. Monitoring requirements for other than post-abatement clearance air monitoring are as follows:

1. The sampling zone for indoor air samples shall be representative of the building occupants' breathing zone.

2. If possible, outdoor ambient and baseline samplers should be placed about 6 feet above the ground surface in reasonable proximity to the building and away from obstructions and drafts that may unduly affect airflow.

3. For outdoor samples, if access to electricity and concerns about security dictate a rooftop site, locations near vents and other structures on the roof that would unduly affect airflow shall be avoided.

4. Air sampling equipment shall not be placed in corners of rooms or near obstructions such as furniture.

5. Samples shall have a chain of custody record.

M. Post-abatement clearance air monitoring requirements are as follows:

1. Sampling shall not begin until at least one hour after wet cleaning has been completed and no visible pools of water or condensation remain.

2. Samplers shall be placed at random around the work area. If the work area contains the number of rooms equivalent to the number of required samples based on floor area, a sampler shall be placed in each room. When the number of rooms is greater than the required number of samples, a representative sample of rooms shall be selected.

3. The representative samplers placed outside the work area but within the building shall be located to avoid any air that might escape through the isolation barriers and shall be approximately 50 feet from the entrance to the work area, and 25 feet from the isolation barriers.

N. The following aggressive sampling procedures shall be used within the work area during all clearance air monitoring:

1. Before starting the sampling pumps, use forced air equipment (such as a one horsepower leaf blower) to direct exhaust air against all walls, ceilings, floors, ledges and other surfaces in the work area. This pre-sampling procedure shall take at least five minutes per 1,000 square feet of floor area; then

2. Place a 20-inch diameter fan in the center of the room. Use one fan per 10,000 cubic feet of room space. Place the fan on slow speed and point it toward the ceiling.

3. Start the sampling pumps and sample for the required time or volume.

4. Turn off the pump and then the fan(s) when sampling is completed.

5. Collect a minimum number of area samples inside and outside each homogeneous work area (five inside/five outside samples for Large Projects and three inside/three outside samples for Small Projects). In addition to the minimum for Large Projects, one representative area samples shall be collected inside and outside the work area for every 5,000 square feet above 25,000 square feet of floor space where ACM has been abated.

O. For post-abatement monitoring, area samples shall conform to the following schedule:

| Area Samples for Analysis by | Minimum Volume | Flow Rate |
|---|---|---|
| PCM | 1,800 liters | 5 to 15 liters/minute |
| TEM | 1,250 liters | 1 to 10 liters/minute |

1. Each homogeneous work area that does not meet the clearance criteria shall be thoroughly re-cleaned using wet methods, with the negative pressure ventilation system in operation. New samples shall be collected in the work area as described above. The process shall be repeated until the work site meets the clearance criteria.

2. For an asbestos project with more than one homogeneous work area, the release criterion shall be applied independently to each work area.

3. Should airborne fiber concentrations exceed the clearance criteria, the asbestos abatement contractor shall re-clean the work area utilizing wet wiping and HEPA-vacuuming techniques. Following completion of re-cleaning activities, the Third-Party Air Monitor will perform an observation of the Work Area. If the Third-Party Air Monitor determines that the work was performed in accordance with the specifications, the appropriate settling period will be observed and additional air sampling will be performed.

4. All costs resulting from additional air tests and observations shall be borne by the asbestos abatement contractor. These costs may include, but are not limited to, labor, analysis fees, materials, and expenses.

5. After the area has been found to be in compliance, the asbestos abatement contractor may remove Isolation Barriers and perform final cleaning as specified.

P. Clearance and/or Re-occupancy Criteria:

1. The clearance criteria shall be applied to each homogeneous work area independently.

2. For PCM analysis, the clearance air monitoring shall be considered satisfactory when each of the 5 inside/5 outside samples for Large Projects and/or 3 inside/3 outside samples for Small Projects is less than or equal to 0.01 f/cc or the background concentrations, whichever is greater.

3. For TEM analysis, the clearance air monitoring shall be considered satisfactory when the requirements stated in 40 CFR Part 763, Subpart E, Appendix A, Section IV are met.

4. As soon as the air monitoring tests are completed and analyzed, the Third-Party Air Monitor will send the results of such tests to the City and notify the Asbestos abatement contractor.

5. The asbestos abatement contractor shall initiate the appropriate closeout process in DEP ARTS within 24 hours of the Re-occupancy letter being issued by the Third-Party Air Monitoring Firm. This will allow the Third-Party Air Monitoring Firm to complete and submit the ACP-15 forms for each specific work area.

6. The asbestos abatement contractor shall provide the ACP-20 and ACP-21 forms to the general contractor within 48 hours of receipt by DEP.

## 1.19 TAMPERING WITH TEST EQUIPMENT

All parties to this Contract are hereby notified that any tampering with testing equipment will be considered an attempt at falsifying reports and records to federal and state agencies and each offense will be prosecuted under applicable state and federal criminal codes to the fullest extent possible.

## 1.20 GUARANTEE

A. Work performed in compliance with this Contract shall be guaranteed for a period of one year from the date the completed work is accepted by the City.

B. The asbestos abatement contractor shall not be held liable for the guarantee where the repair required under the guarantee is a result of obvious abuse or vandalism, as determined by the Commissioner.

C. The City will notify the asbestos abatement contractor in writing regarding defects in work under the guarantee.

# PART 2 – PRODUCTS

## 2.01 MATERIAL HANDLING

A. Deliver all materials to the job site in their manufacturer's original container, with the manufacturer's label intact and legible.

1. Maintain packaged materials with seals unbroken and labels intact until time of use.

2. Store all materials on pallets, away from any damp and/or wet surface. Cover materials in order to prevent damage and/or contamination.

3. Promptly remove damaged materials and unsuitable items from the job site, and promptly replace with material meeting the specified requirements, at no additional cost to the City.

B. The Construction Project Manager may reject as non-complying such material and products that do not bear identification satisfactory to the Construction Project Manager as to manufacturer, grade, quality and other pertinent information.

## 2.02 MATERIALS

A. Wetting agents: (Surfactant) shall consist of resin materials in a water base, which have been tested to ensure materials are non-toxic and non-hazardous. Surfactants shall be installed according to the manufacturer's written instructions.

B. Encapsulants: Liquid material which can be applied to asbestos-containing material which temporarily controls the possible release of asbestos fibers from the material or surface either by creating a membrane over the surface (bridging encapsulant) or by penetrating into the material and binding its components together (penetrating encapsulant). A thin coat of lockdown encapsulant shall be applied to all surfaces in the work area which were not the subject of removal or abatement, including the cleaned layer of the surface barriers, but excepting sprinklers, standpipes, and other active elements of the fire suppression system.

C. During abatement activities, replacement materials shall be stored outside the work area in a manner to prevent contamination. Materials required for the asbestos project (i.e., plastic sheeting, replacement filters, duct tape, etc.) shall be stored to prevent damage or contamination.

D. Framing Materials and Doors: As required to construct temporary decontamination facilities and isolation barriers. Lumber shall be high grade, new, finished one side and fire retardant.

E. Fire Retardant Polyethylene Sheeting: minimum uniform thickness of 6-mil. Provide largest size possible to minimize seams. All materials used in the construction of temporary enclosures shall be noncombustible or fire-retardant in accordance with NFPA 701 and 255.

F. Fire Retardant Reinforced Polyethylene Sheeting: For covering floor of decontamination units, provide translucent, nylon reinforced or woven polyethylene laminated, fire retardant polyethylene sheeting. Provide largest size possible to minimize seams, minimum uniform thickness 6-mil. All materials used in the construction of temporary enclosures shall be noncombustible or fire-retardant in accordance with NFPA 701 and 255.

G. Drums: Asbestos-transporting drums, sealable and clearly marked with warning labels as required by OSHA and EPA.

H. Polyethylene Disposal Bags: Asbestos disposal bags, minimum of fire retardant 6-mil thick. Bags shall be clearly marked with warning labels as required by OSHA and EPA.

I. Signs: Asbestos warning signs for posting at perimeter of Work Area, as required by OSHA and EPA.

J. Waste Container Bag Liners and Flexible Trailer Trays: One piece leak-resistant flexible tray with absorbent pad.

K. Tape: Provide tape which is of high quality with an adhesive that is formulated to aggressively stick to sheet polyethylene.

L. Spray Adhesive: Provide spray adhesive in aerosol cans which is specifically formulated to stick tenaciously to sheet polyethylene.

M. Flexible Duct: Spiral reinforced flex duct for air filtration devices.

N. Protective Clothing: Workers shall be provided with sufficient sets of properly fitting, full-body, disposable coveralls, head covers, gloves, and 18-inch high boot-type foot covers. Protective clothing shall conform to OSHA Standard 29 CFR 1926.1101.

O. Surfactants, strippers, sealers, or any other chemicals used shall be non-carcinogenic and non-toxic.

P. Materials used in the construction of temporary enclosures shall be noncombustible or fire-retardant in accordance with NFPA 701 and 255.

## 2.03 TOOLS AND EQUIPMENT

A. Air Filtration Device (AFD): AFDs shall be equipped with High Efficiency Particulate Air (HEPA) filtration systems and shall be approved by and listed with Underwriter's Laboratory.

B. Scaffolding: All scaffolding shall be designed and constructed in accordance with

OSHA (29 CFR 1926/1910), New York City Building Code, and any other applicable federal, state and local government regulations. Whenever there is a conflict or overlap of the above references the most stringent provisions are applicable. All scaffolding and components shall be capable of supporting without failure a minimum of four times the maximum intended load, plus an allowance for impact. All scaffolding and staging must be certified in writing by a Professional Engineer licensed to practice in the State of New York.

1. Equip rungs of all metal ladders, etc., with an abrasive, non-slip surface.

2. Provide non-skid surface on all scaffold surfaces subject to foot traffic. Scaffold ends and joints shall be sealed with tape to prevent penetration of asbestos fibers.

C. Transportation Equipment: Transportation Equipment, as required, shall be suitable for loading, temporary storage, transit and unloading of asbestos contaminated waste without exposure to persons or property. Any temporary storage containers positioned outside the building for temporary storage shall be metal, closed and locked.

D. Vacuum Equipment: All vacuum equipment utilized in the Work Area shall utilize HEPA filtration systems.

E. Vacuum Attachments: Soft Brush Attachment, Asbestos Scraper Tool, Drill Dust Control Kit.

F. Electric Sprayer: An electric airless sprayer suitable for application of encapsulating material and shall be approved by and listed with Underwriters Laboratory.

G. Water Sprayer: The water sprayer shall be an airless or other low-pressure sprayer for amended water application.

H. Water Atomizer: Powered air-misting device equipped with a ground fault interrupter and equipped to operate continuously.

I. Brushes: All brushes shall have nylon bristles. Wire brushes are excluded from use due to their potential to shred asbestos fibers into small, fine fibers.

J. Power tools used to drill, cut into, or otherwise disturb ACM shall be manufacturer-equipped with HEPA filtered local exhaust ventilation. Abrasive removal methods, including the use of beadblasters, are prohibited.

K. Other Tools and Equipment: Asbestos abatement contractor shall provide other suitable tools for the stripping, removal, encapsulation, and disposal activities including but not limited to: hand-held scrapers, sponges, rounded-edge shovels,

brooms, and carts.

L. Fans and Leaf Blower: Provide Leaf Blower (one leaf blower per floor) and one 20-inch diameter fans for each 10,000 cubic feet of Work Area volume to be used for aggressive sampling technique for clearance air testing.

M. Fire Extinguishers: At least one fire extinguisher with a minimum rating 2-A:10-B:C shall be required for each work place. In the case of large asbestos projects, at least two such fire extinguishers shall be required.

N. First Aid Kits: Asbestos abatement contractor shall maintain adequately stocked first aid kits in the clean rooms of the decontamination units and within Work Areas. The first aid kit shall be approved by a licensed physician for the work to be performed under this Contract.

O. Water Service:

1. Temporary Water Service Connection: All connections to the Facilities water system shall include back flow protection. Valves shall be temperature and pressure rated for operation of the temperature and pressures encountered. After completion of use, connections and fittings shall be removed without damage or alteration to existing water piping, and equipment. Leaking or dripping fittings/valves shall be repaired and or replaced as required.

2. Water Hoses: Employ new heavy-duty abrasion-resistant hoses with a pressure rating greater than the maximum pressure of the water distribution system to provide water into each Work Area and to each Decontamination Enclosure Unit. Provide fittings as required for connection to existing wall hydrants or spouts, as well as temporary water heating equipment, branch piping, showers, shut-off nozzles and equipment.

3. Water Heater: Provide UL rated 40-gallon electric water heaters to supply hot water for Personal Decontamination Enclosure System Shower. Activate from 30 Amp Circuit breakers located within the Decontamination Enclosure sub panel. Provide relief valve compatible with water heater operations, pipe relief valve down to drip pan at floor level with type 'L' copper piping. Drip pans shall be 6-inch deep and securely fastened to water heater. Wiring of the water heater shall comply with NEMA, NECA, and UL standards.

P. Electrical Service:

1. General: Comply with applicable NEMA, NEC and UL standards and governing regulations for materials and layout of temporary electric service.

2. Temporary Power: Provide service to decontamination unit sub panel with minimum 60 AMP, two pole circuit breaker or fused disconnect connected to the building's main distribution panel. Sub panel and disconnect shall be sized and equipped to accommodate all electrical equipment required for completion of the work.

3. Voltage Differences: Provide identification warning signs at power outlets that are other than 110-120 volt power. Provide polarized outlets for plug-in type outlets, to prevent insertion of 110-120 volt plugs into higher voltage outlets. Dry type transformers shall be provided where required to provide voltages necessary for work operations.

4. Ground Fault Protection: Equip all circuits for any purpose entering Work Area with ground fault circuit interrupters (GFCI). Locate the GFCIs outside the Work Area so that all circuits are protected prior to entry to Work Area. Provide circuit breaker type ground fault circuit interrupters (GFCI) equipped with test button and reset switch for all circuits to be used for any purpose in Work Area, decontamination units, exterior, or as otherwise required by NECA, OSHA or other authority.

5. Power Distribution System: Provide circuits of adequate size and proper characteristics for each use. In general run wiring overhead and rise vertically where wiring will be least subject to damage from operations.

6. Temporary Wiring: In the Work Area shall be type UF non-metallic sheathed cable located overhead and exposed for surveillance. Provide liquid tight enclosures or boxes for all wiring devices. Do not wire temporary lighting with plain, exposed (insulated) electrical conductors.

7. Electrical Power Cords: Use only grounded extension cords; use hard service cords where exposed to traffic and abrasion. Use single lengths of cords only.

8. Temporary Lighting: All lighting within the Work Area shall be liquid and moisture proof and designed for the use intended.

    a. Provide sufficient temporary lighting to ensure proper workmanship everywhere; by combined use of daylight, general lighting, and portable plug-in task lighting.

    b. Provide lighting in the Decontamination Unit as required to supply a minimum 50-foot candle light level.

9. If electrical circuits, machinery, and other electrical systems in or passing though the work area must stay in operation due to health and safety requirements, the following precautions must be taken:

a. All unprotected cables, except low-voltage (less than 24 volts) communication and control system cables, panel boxes of cables and joints in live conduit that run through the work area shall be covered with three (3) independent layers of six (6) mil fire retardant polyethylene. Each layer shall be individually duct taped and sealed. All three (3) layers of polyethylene sheeting shall be left in place until satisfactory clearance air sampling results have been obtained.

## 2.04 CLEANING

A. Throughout the construction period, the asbestos abatement contractor shall maintain the building as described in this Section.

1. The asbestos abatement contractor shall prevent building areas other than the Work Area from becoming contaminated with asbestos-containing dust or debris. Should areas outside the Work Area become contaminated with asbestos-containing dust or debris as a consequence of the asbestos abatement contractor's work practices, the asbestos abatement contractor shall be responsible for cleaning these areas in accordance with the procedures appended in Title 15, Chapter 1 of RCNY and NYSDOL ICR56. All costs incurred in cleaning or otherwise decontaminating non-Work Areas and the contents thereof shall be borne by the asbestos abatement contractor at no additional cost to the City.

2. The asbestos abatement contractor shall provide to all personnel and laborers the required equipment and materials needed to maintain the specified standard of cleanliness.

B. General

1. Waste water from asbestos removal operations, including shower water, may be discharged into the public sewer system only after approved filtration is on operation to remove asbestos fibers.

2. Asbestos wastes shall be double bagged in six mil fire retardant polyethylene bags approved for ACM disposal and shall be properly labeled and handled before disposal.

3. All waste generated shall be bagged, wrapped or containerized immediately upon removal. The personal and waste decontamination enclosure systems and floor and scaffold surfaces shall be HEPA vacuumed and wet cleaned at the end of each work shift at a minimum.

4. The asbestos abatement contractor shall use corrugated cartons or drums for disposal of asbestos-containing waste having sharp edged components (e.g.,

nails, screws, metal lathe and tin sheeting) that may tear polyethylene bags and sheeting. The waste within the drums or cartons must be double bagged.

5. The asbestos abatement contractor shall transport all bags of waste to disposal site in thirty gallon capacity metal or fiber drums with tight lids, or in locked steel dumpster.

6. Dumping of debris, waste or bagged waste will not be permitted.

7. The waste decontamination enclosure system shall be wet cleaned twice using wet cleaning methods upon completion of waste removal. When the worker decontamination enclosure shower room alternates as a waste container wash room, the shower room shall be washed immediately with cloths or mops saturated with a detergent solution prior to wet cleaning.

8. Excessive water accumulation or flooding in the work area shall require work to stop until the water is collected and disposed of properly.

9. ACM shall be collected utilizing rubber dust pans and rubber squeegees.

10. HEPA vacuums shall not be used on wet materials unless specifically designed for that purpose.

11. Metal shovels shall not be used within the work area.

12. Mastic solvent when used will be applied in moderation (e.g., by airless sprayer). Saturation of the concrete floor with mastic solvent must be avoided.

13. The asbestos abatement contractor shall retain all items in the storage area in an orderly arrangement allowing maximum access, not impeding traffic, and providing the required protection of all materials.

14. The asbestos abatement contractor shall not allow accumulation of scrap, debris, waste material, and other items not required for use in this work. When asbestos contaminated waste must be kept on the work site overnight or longer, it shall be double bagged and stored in accordance with New York City Department of Sanitation (DSNY) regulation Title 16 Chapter 8, and Federal, State and City laws.

15. At least twice a week (more if necessary), the asbestos abatement contractor shall completely remove all scrap, debris and waste material from the job site.

16. The asbestos abatement contractor shall provide adequate storage space for all items awaiting removal from the job site, observing all requirements for fire protection and concerns for the environment.

17. All respiratory protection equipment shall be selected from the latest NIOSH Certified Equipment list.

18. Daily and more often, if necessary, the asbestos abatement contractor shall inspect the Work Areas and adjoining spaces, and pick up all scrap, debris, and waste material. All such items shall be removed to the place designated for their storage.

19. Weekly, and more often, if necessary, the asbestos abatement contractor shall inspect all arrangements of materials stored on the site; re-stack and tidy them or otherwise service them to meet the requirements of these Specifications.

20. The asbestos abatement contractor shall maintain the site in a neat and orderly condition at all times.

## PART 3 – EXECUTION

### 3.01 WORKER DECONTAMINATION FACILITY

A. Large Asbestos Projects:

1. Provide a worker decontamination facility in accordance with, Title 15, Chapter 1, OSHA Standard 29 CFR 1926.1101, 12NYCRR Part 56 and as specified herein. Unless approved by NYCDEP and the City, worker decontamination facilities shall be attached to the Work Areas

a. Structure:

(1) Use modular systems or build using wood or metal frame studs, joists, and rafters placed at a maximum of 16 inches on-center.

(2) When worker decontamination unit is located outdoors, in areas with public access, or in correctional facilities, frame work shall be lined with minimum 3/8” thickness fire rated plywood sheathing. Sheathing shall be caulked or taped airtight at all joints and seams.

(3) Interior shall be covered with two layers of fire retardant 6-mil polyethylene sheeting, with a minimum overlap of 12 inches at seams. Seal seams airtight using tape and adhesive. The

interior floor shall be covered with two (2) layers of reinforced fire-retardant polyethylene sheeting with a minimum overlap on the walls of 12 inches.

(4) Entrances to the decontamination unit shall be secured with lockable hinged doors. Doors shall be open at all times when abatement operations are in progress. Doors shall be louvered to allow for air movement through the decontamination units into Work Area.

b. Curtained Doorways: A device to allow ingress or egress from one room to another while permitting minimal air movement between the rooms.

c. Air Locks: Air locks shall consist of two curtained doorways placed a minimum of three feet apart. The curtained doorways shall consist of 3 overlapping sheets of fire retardant 6-mil polyethylene sheeting, with alternating entrances and weighted at the bottom.

d. Decontamination Enclosure System shall be placed adjacent to the Work Area and shall consist of three totally enclosed chambers, separated from Work Area and each other by airlocks, as follows:

(1) Equipment Room: The equipment room shall have a curtain doorway to separate it from the Work Area, and share a common airlock with the shower room. The equipment room shall be large enough to accommodate at least one worker (allowing them enough room to remove their protective clothing and footwear), and a fire retardant 6-mil disposal bag for collection of discarded clothing and equipment. The equipment room shall be utilized for the storage of equipment and tools after decontamination using a HEPA-vacuum and/or wet cleaning. A one-day supply of replacement filters, in sealed containers, for HEPA-vacuums and negative air machines, extra tools, containers of surfactant, and other materials and equipment required for the project shall be stored here. A walk-off pan filled with water shall be placed in the Work Area just outside the equipment room for persons to clean foot coverings when leaving the Work Area. Contaminated footwear and reusable work clothing shall be stored in this room.

(2) Shower Room: The shower room shall have two airlocks (one that separates it from the equipment room and one that separates it from the clean room). The shower room shall contain at least one shower, with hot and cold water adjustable

at the tap, per six workers. Careful attention shall be given to the shower to ensure against leaking of any kind and shall contain a rigid catch basin at least six inches deep. Asbestos abatement contractor shall supply towels, shampoo and liquid soap in the shower room at all times. Shower water shall be continuously drained, collected, and filtered through a system with at least a 5-micron particle size collection capacity. A system containing a series of several filters with progressively smaller pore sizes shall be used to avoid rapid clogging of the filters by large particles. Pumps shall be installed, maintained and utilized in accordance with manufacturer's recommendations. Filtered water shall be discharged in accordance with applicable codes. Contaminated filters shall be disposed of as asbestos waste.

(3) Clean Room: The clean room shall share a common airlock with the shower room and shall have a curtained doorway to separate it from outside non-contaminated areas. Lockers, for storage of workers' street clothing, and shelves, for storing respirators, shall be provided in this area. Clean disposable clothing, replacement filters for respirators, and clean dry towels shall be provided in the clean room. The clean room shall not be used for the storage of tools, equipment or other materials.

B. Small Asbestos Projects:

1. Provide a worker decontamination facility in accordance with, Title 15, Chapter 1, OSHA Standard 29 CFR 1926.1101, 12NYCRR Part 56 and as specified herein. Unless approved by NYCDEP and the City, worker decontamination facilities shall be attached to the Work Areas.

2. The worker decontamination enclosure system shall consist of, at a minimum, an equipment room, a shower room, and a clean room separated from each other and from the work area by curtained doorways. The equipment storage, personnel gross decontamination and removal of disposal clothing shall occur in the equipment room prior to entering the shower. All other requirements shall be the same as described above for a large asbestos project.

3. For small asbestos projects with only one exit from the work area, the shower room may be used as a waste washroom. The clean room shall not be used for waste storage. All other requirements shall be the same as described above for a large asbestos project.

C. Decontamination Enclosure System Utilities: Lighting, heat, and electricity shall be provided as necessary by the Asbestos abatement contractor, and as specified herein.

## 3.02 WASTE DECONTAMINATION FACILITY

A. Large Asbestos Project (Small Project Option)

1. Provide a worker decontamination facility in accordance with, Title 15, Chapter 1, OSHA Standard 29 CFR 1926.1101, 12NYCRR Part 56 and as specified herein. Unless approved by NYCDEP and the City, worker decontamination facilities shall be attached to the Work Areas.

a. Structure:

(1) Use modular systems or build using wood or metal frame studs, joists, and rafters placed at a maximum of 16 inches on-center.

(2) When worker decontamination unit is located outdoors, in areas with public access, or in correctional facilities, frame work shall be lined with minimum 3/8” thickness fire rated plywood sheathing. Sheathing shall be caulked or taped airtight at all joints and seams.

(3) Interior walls shall be covered with two layers of fire retardant 6-mil polyethylene sheeting, with a minimum overlap of 12 inches at seams. Seal seams airtight using tape and adhesive. The interior floor shall be covered with two (2) layers of reinforced fire-retardant polyethylene sheeting with a minimum overlap on the walls of 12 inches.

(4) Entrances to the decontamination unit shall be secured with lockable hinged doors. Doors shall be open at all times when abatement operations are in progress. Doors shall be louvered to allow for air movement through the decontamination units into the Work Area.

b. Curtained Doorways: A device to allow ingress or egress from one room to another while permitting minimal air movement between the rooms.

c. Air Locks: Air locks shall consist of two curtained doorways placed a minimum of three feet apart. The curtained doorways shall consist of 3 overlapping sheets of fire retardant 6-mil polyethylene sheeting, with alternating entrances and weighted at the bottom.

d. Decontamination Enclosure System shall be located outside the work area and attached to all locations through which ACM waste will be removed from the work area and shall consist of two totally enclosed chambers, separated from the Work Area and each other by airlocks, as follows:

(1) Washroom: An equipment washroom shall have two air locks (one separating the unit from the Work Area and one common air lock that separates it from the holding area). The washroom shall have facilities for washing material containers and equipment. Gross removal of dust and debris from contaminated material containers and equipment shall be accomplished in the Work Area, prior to moving to the washroom.

B. Holding Area: A holding area shall share a common air lock with the equipment washroom and shall have a curtained doorway to outside areas. A hinged, lockable door shall be placed at the holding area entrance to prevent unauthorized access into the Work Area.

C. Small Asbestos Project:

1. The worker decontamination enclosure system shall consist of, as a minimum, an equipment room, a shower room, and a clean room separated from each other and from the work area by curtained doorways. The equipment storage, personnel gross decontamination and removal of disposal clothing shall occur in the equipment room prior to entering the shower. All other requirements shall be the same as described above for a large asbestos project.

2. For small asbestos projects with only one exit from the work area, the shower room may be used as a waste washroom. The clean room shall not be used for waste storage. All other requirements shall be the same as described above for a large asbestos project.

D. Decontamination Enclosure System Utilities: Lighting, heat, and electricity shall be provided as necessary by the Asbestos abatement contractor, and as specified herein.

## 3.03 PERSONNEL ENTRANCE AND DECONTAMINATION PROCEDURES FOR REMOVAL OPERATIONS UTILIZING REMOTE DECONTAMINATION FACILITIES

A. All individuals who enter the Work Area shall sign the entry log, located in the clean room, upon each entry and exit. The log shall be permanently bound and shall fully identify the facility, agents, asbestos abatement contractor(s), the

project, each Work Area, and worker respiratory protection employed. The asbestos handler supervisor shall be responsible for the maintenance of the log during the abatement activity. The log shall be submitted to the NYC DDC within 48 hours of request.

B. Each worker shall remove street clothes in the clean room; wear two disposable suits, including gloves, hoods and non-skid footwear; and put on a clean respirator (with new filters) before entering the Work Area.

C. Each worker shall, before leaving the Work Area or tent, clean the outside of the respirators and outer layer of protective clothing by wet cleaning and/or HEPA-vacuuming. The outer disposable suit shall be removed in the airlock prior to proceeding to the Worker Decontamination Unit. The inner disposable suit and respirator shall be wet wiped and HEPA vacuumed thoroughly before removing and prior to aggressive shower.

D. Following showering and drying off, each worker or authorized visitor shall proceed directly to the clean room, dress in street clothes, and exit the decontamination enclosure system immediately.

## 3.04 PERSONNEL ENTRANCE AND DECONTAMINATION PROCEDURES FOR REMOVAL OPERATIONS UTILIZING ATTACHED DECONTAMINATION FACILITIES

A. All workers and authorized visitors shall enter the Work Area through the worker decontamination facility.

B. All individuals who enter the Work Area shall sign the entry log, located in the clean room, upon each entry and exit. The log shall be permanently bound and shall identify fully the facility, agents, asbestos abatement contractor(s), the project, each Work Area and worker respiratory protection employed. The site supervisor shall be responsible for the maintenance of the log during the abatement activity. The log shall be submitted to the NYC DDC within 48 hours of request.

C. Each worker or authorized visitor shall, upon entering the job site, remove street clothes in the clean room and put on a clean respirator with filters, and clean protective clothing before entering the Work Area through the shower room and equipment room.

D. Each worker or authorized visitor shall, each time he leaves the Work Area, remove gross contamination from clothing before leaving the Work Area; proceed to the equipment room and remove clothing except the respirator; still wearing the respirator, proceed to the shower room; clean the outside of the respirator with soap and water while showering; remove filters, wet them, and dispose of them in the container provided for that purpose; wash and rinse the inside of the respirator; and thoroughly shampoo and wash himself/herself.

E. Following showering and drying off, each worker or authorized visitor shall proceed directly to the clean room, dress in street clothes, and exit the decontamination enclosure system immediately. Disposable clothing of the type worn inside the Work Area is not permitted outside the Work Area.

## 3.05 MAINTENANCE OF DECONTAMINATION ENCLOSURE FACILITIES AND BARRIERS

The following procedures shall be followed during abatement activities.

A. All polyethylene barriers inside the work place and partitions constructed to isolate the Work Area from occupied areas shall be inspected by the asbestos handler supervisor at least twice per shift.

B. Smoke tubes shall be used to test the integrity of the Work Area barriers and the decontamination enclosure systems daily before abatement activity begins and at the end of each shift.

C. Damage and defects in the decontamination enclosure system shall be repaired immediately upon discovery. The decontamination enclosure system shall be maintained in a clean and sanitary condition at all times.

D. At any time during the abatement activity, if visible emissions are observed, or elevated asbestos fiber counts outside the Work Area are measured, or if damage occurs to barriers, abatement shall stop. The source of the contamination shall be located, the integrity of the barriers shall be restored and extended to include the contaminated area, and visible residue shall be cleaned up using appropriate HEPA-vacuuming and wet cleaning.

E. Inspections and observations shall be documented in the daily project log by the asbestos handler supervisor.

F. The daily inspection to ensure that exits have been checked against exterior blockage or impediments to exiting shall be documented in the log book. If exits are found to be blocked, abatement activities shall stop until the blockage is cleared.

## 3.06 MODIFICATIONS TO HVAC SYSTEMS

A. Shut down, isolate or seal, all existing HVAC units, fans, exhaust fans, perimeter convection air units, supply and/or return air ducts, etc., situated in, traversing or servicing the work zone.

B. Seal all seams with duct tape. Wrap entire duct with a minimum of two layers of

fire retardant 6-mil polyethylene sheeting. All shutdowns are to be coordinated with the Facility. Where systems must be maintained, i.e., traversing Work Areas to non-Work Areas, only supply ducts will be maintained, protect as described above. All returns must be blanked off in Work Area and adjacent areas, including floor above and below Work Area. When required Asbestos abatement contractor shall apply for a clarification from NYCDEP. The Asbestos abatement contractor shall implement the following engineering procedures:

1. Maintenance of a positive pressure within the HVAC system of 0.01 inch water gauge (or greater) with respect to the ambient pressure outside the Work Area. The conditions for this system shall be maintained and be operational 24 hours per day from the initiation of Work Area preparation until successful final air clearance. Positive pressurization of HVAC system shall be applied only under the direction and control of professional engineer, or other knowledgeable licensed professional;

2. The positive pressurization of the duct shall be tested, inspected and recorded both at the beginning and at the end of each shift;

3. The positive pressurization shall be monitored using instrumentation which will provide a written record of pressurization and that will trigger an audible alarm, if the static pressure falls below the set value;

4. The supply air fan and the supply air damper for the active positive-pressurized duct shall be placed in the manual “on” positions to prevent shutdown by fail-safe mechanisms;

5. The return air fan and the return air dampers shall be shut down and locked-out;

6. All the seams of the HVAC ducts that pass through the Work Area shall be sealed;

7. The HVAC ducts that pass through the Work Area shall be covered with two (2) layers of fire retardant 6-mil polyethylene sheeting, and all seams and edges of both layers shall be sealed airtight;

8. The supply air fans, return air fans, and all dampers servicing the Work Area itself shall be shut down and locked-out. All openings within the Work Area of supply and return air ducts shall be sealed with 3/8-inch fire rated plywood and two layers of fire retardant 6-mil polyethylene;

9. When abatement occurs during periods while the HVAC system is shut down an alternative method of pressurization of the duct passing through the Work Area should be employed (e.g., by low-pressure "blowers", etc., directly coupled into the duct). Item #4 above shall be deleted and shall be replaced by the requirement to set the dampers of the HVAC duct in the manual closed positions, in order to effect pressurization.

C. Asbestos abatement contractor to coordinate this item with the Facility and Construction Project Manager at the commencement of work. Where present HVAC systems (ducts) service an area and that air system cannot be shut down, asbestos abatement contractor shall isolate and seal the ducts, both supply and return, at the boundary of that zone.

1. To isolate, cap, or seal a duct, the asbestos abatement contractor shall remove insulation from duct (if necessary), then disconnect linkage to fold shut all fire dampers. Asbestos abatement contractor shall seal all edges and seams with caulk and duct-tape.

2. Asbestos abatement contractor shall then cut existing duct and fold metal in and secure with approved fasteners. Asbestos abatement contractor shall caulk and duct-tape all seams and edges.

3. All ducts shall then be completely wrapped and sealed with duct-tape and three (3) layers of reinforced polyethylene sheeting.

4. All ducts shall be restored to original working order at the end of the project.

D. Where present HVAC systems (ducts) service occupied areas (non-Work Areas), the Asbestos abatement contractor shall blank off the ducts.

1. To isolate or seal the return duct, the asbestos abatement contractor shall remove any insulation (if necessary) from the duct. Then disconnect linkage to fold shut all fire dampers and insert a fiberglass board within the duct. Asbestos abatement contractor shall seal all edges and seams with caulk, duct-tape and three (3) layers of reinforced polyethylene sheeting.

2. All isolation of return ducts and any other activity that requires removal of ceiling by the asbestos abatement contractor shall be conducted under controls. Work is to be coordinated with the Construction Project Manager and the Facility and is described as follows:

a. Work shall occur as scheduled.

b. Horizontal surfaces near the blanking operations shall be protected with fire retardant 6-mil polyethylene sheeting.

c. Plastic drapes shall be used to enclose the immediate area.

d. Asbestos abatement contractor to position and operate air filtration devices and HEPA-vacuums in the area to clean space after blanking operations.

e. All personnel involved with this work shall receive personal protection (i.e., respirators and disposable suits).

E. Upon loss of negative pressure or electric power, all work activities in an area shall cease immediately and shall not resume until negative pressure and/or electric power has been fully restored. When a power failure or loss of negative pressure lasts, or is expected to last, longer than thirty (30) minutes, the following sequence of events shall occur.

1. All make up air inlets shall be sealed airtight.

2. All decontamination facilities shall be sealed airtight after evacuation of all personnel from the Work Area.

3. All adjacent areas shall be monitored for potential fiber release upon discovery of and subsequently throughout, power failure.

## 3.07 LOCKOUT OF HVAC SYSTEMS, ELECTRIC POWER, AND ACTIVE BOILERS

Prior to the start of any prep work, the asbestos abatement contractor shall employ skilled tradesmen with limited asbestos licenses for the following work:

A. Disable all ventilating systems or other systems bringing air into or exhausting air out of the Work Area. Disable system by disconnecting wires removing circuit breakers, by lockable switch or other positive means to ensure against accidental re-starting of equipment.

B. Lock out power to the Work Area by switching off all breakers and removing them from panels or by switching and locking entire panel. Label panel with following notation: “DANGER CIRCUIT BEING WORKED ON”. Give all keys to Facility.

C. Lock out power to circuits running through Work Area whenever possible by switching off and removing breakers from panel. If circuits must remain live, the Facility shall notify asbestos abatement contractor in order that he may secure a variance from NYCDEP. The asbestos abatement contractor shall protect all conduit and wires to remain and label all active circuits at intervals not to exceed 3 feet with tags having the following notation: "DANGER LIVE ELECTROCUTION HAZARD". The asbestos abatement contractor shall label all circuits in all locations including hidden locations that may be affected by the work in a similar manner.

D. All boilers and other equipment within the work area shall be shut down, locked out, tagged out and the burner/boiler/equipment accesses and openings shall be sealed until abatement activities are complete. If the boiler or other exhausted equipment will be subject to abatement, all breeching, stacks, columns, flues, shafts, and double-walled enclosures serving as exhausts or vents shall be segregated from the affected boiler or equipment and sealed airtight to eliminate potential chimney effects within the work area.

## PART 4 – PREPARATION OF WORK AREA AND REMOVAL PROCEDURES

### 4.01 REMOVAL OF ASBESTOS-CONTAINING MATERIAL

A. Asbestos abatement contractor Responsibility

Asbestos abatement contractor shall be responsible for the proper removal of ACM from the Work Area using standard industry techniques. The Third-Party Air Monitor representative shall observe the Work.

1. General Requirements:

a. Removal of ACM shall be performed using wet methods. Dry removal of ACM is prohibited.

b. Spray ACM with amended water with sufficient frequency and quantity to enhance penetration. Sufficient time shall be allowed for amended water to penetrate the material to the substrate prior to removal. All ACM shall be thoroughly wetted while work is being conducted.

c. Accumulation of standing water on the floor of the Work Area is prohibited.

d. Apply removal encapsulants, when used, in accordance with the manufacturer's recommendations and guidelines.

e. Containerize ACM immediately upon detachment from the substrate. Alternately, ACM may be dropped in to a flexible catch basin and promptly bagged. Detached ACM is not permitted to lie on the floor for any period of time. Excess air within the bag shall be removed before sealing. ACM shall not be dropped from a height of greater than 10 feet. Above 10 feet, dust free inclined chutes may be used. Maximum inclination from horizontal shall be 60-degrees for all chutes.

f. Exits from the work area shall be maintained, or alternative exits shall be established, in accordance with section 1027 of the New York City Fire Code. Exits shall be checked at the beginning and end of each work shift against blockage or impediments to exiting.

g. Signs clearly indicating the direction of exits shall be maintained and prominently displayed within the work area.

h. No smoking signs shall be maintained and prominently displayed within the work place.

i. At least one fire extinguisher with a minimum rating 2-A:10-B:C shall be required for each work place. In the case of large asbestos projects, at least two such fire extinguishers shall be required.

j. If the containment area of an asbestos project covers the entire floor of the affected building, or an area greater than 15,000 square feet on any given floor, the installation of a negative air cut off switch or switches shall be required at a single location outside the work place, such as inside a stairwell, or at a secured location in the ground floor lobby when conditions warrant. The required switch or switches shall be installed by a licensed electrician pursuant to a permit issued by the Department of Buildings. If negative pressure ventilation equipment is used on multiple floors the cut off switch shall be able to turn off the equipment on all floors.

B. Removal of ACM Utilizing Full Containment Procedures shall be as follows:

1. Preparation Procedures:

a. Ensure that the Third-Party Air Monitor has performed area monitoring and established a background count prior to the preparatory operations for each removal area, as applicable.

b. Shut down, isolate, and lock out or tag heating, ventilating, and air conditioning (HVAC) systems which serve or which pass through the Work Area. Vents within the Work Area and seams in HVAC

components shall be sealed with tape and two layers of fire retardant polyethylene sheeting. Filters in HVAC systems shall be removed and treated as asbestos contaminated waste.

c. Shut down, disconnect, and lock out or tag all electric power to the Work Area so that there is no possibility of its reactivation until after clearance testing of the Work Area.

d. Provide and install decontamination enclosure systems in accordance with Sections 3.01 and 3.02 of this Section.

e. Remove ACM that may be disturbed by the erection of partitions using tent procedures and wet removal methods. Removal shall be limited to a one-foot wide strip running the length/height of the partition.

f. Pre-clean and remove moveable objects from the Work Area. Pre-cleaning shall be accomplished using HEPA-vacuum and wet-cleaning techniques. Store moveable objects at a location determined by the City.

g. Protect carpeting that will remain in the Work Area.

(1) Pre-clean carpeting utilizing wet-cleaning techniques.

(2) Install a minimum of two layers of fire retardant 6-mil reinforced polyethylene sheeting over carpeting.

(3) Place a rigid flooring material, minimum thickness of 3/8-inch, over polyethylene sheeting.

h. Pre-clean all fixed objects to remain within the Work Area using HEPA-vacuum and wet-cleaning techniques.

i. Seal fixed objects with two individual layers, minimum, of 6-mil fire retardant polyethylene sheeting.

j. Pre-clean entire Work Area utilizing HEPA-vacuum and wet-cleaning techniques. Methods of cleaning that raise dust; such as dry sweeping or use of vacuum equipment not equipped with HEPA-filters, is prohibited.

k. Install isolation barriers (i.e., sealing of all openings, including but not limited to windows, corridors, doorways, skylights, ducts, grills, diffusers, and other penetrations within the Work Area) using two layers of 6-mil fire retardant polyethylene sheeting and duct-tape.

l. Construct rigid framework to support Work Area barriers.

(1) Framework shall be constructed using 2-inch by 4-inch wooden or metal studs placed 16 inch on center when existing walls and/or ceiling do not exist for all openings greater than 32 square feet. Framework is not required except where one dimension is one foot or less or the opening will be used as an emergency exit.

(2) Apply a solid construction material, minimum thickness of 3/8-inch to the Work Area side of the framing. In secure interior areas, not subject to access from the public or building occupants, an additional layer of 6-mil fire retardant polyethylene sheeting may be substituted for the rigid construction material.

(3) Caulk all wall, floor, ceiling, and fixture joints to form a leak tight seal.

m. Seal floor drains, sumps, shower tubs, and other collection devices with two layers of 6-mil fire retardant plastic and fire rated plywood, as necessary, and provide a system to collect all water used by the asbestos abatement contractor. Collected water shall be passed through a water filtration system prior to being discharged into the sanitary sewer.

n. Remove ceiling mounted objects not previously sealed that will interfere with removal operations. Mist object and surrounding ACM with amended water prior to removal to minimize fiber dispersal. Clean all moveable objects using HEPA-vacuum and wet-cleaning techniques prior to removal from the Work Area.

o. Fiberglass insulation with intact coverings shall be protected in place during abatement activities. These materials shall be protected with two layers of 6-mil fire retardant polyethylene sheeting as isolation barriers and two additional layers of 6-mil fire retardant polyethylene sheeting serving as primary and secondary surface barriers.

p. Install and initiate operation of Air Filtration Devices (AFD)s to provide a negative pressure and a minimum of four air changes per hour within the Work Area relative to surrounding non-Work Areas. Do not shut down AFDs until the Work Area is released to the City following final clearance procedures. The use of HEPA-filtered vacuum to produce a negative air pressure inside the enclosure is prohibited.

q. Maintain emergency and fire exits from the Work Area or establish alternative exits satisfactory to the local fire officials. Emergency exits and routes shall be established and clearly marked with florescent paint or other effective designations to permit easy location from anywhere within the Work Area. Cutting tools (e.g., knife, razor) shall be attached to the work area side of the sheeting for use in the event that the barrier must be cut open to allow egress. Emergency exits shall be secured to prevent access from uncontaminated areas and yet permit emergency exiting. Exits shall be checked daily against exterior blockage or impediments to exiting.

r. Temporary lighting within the Work Area and decontamination system shall be provided as required to achieve minimum illumination levels.

s. Hand power tools used to drill, cut into, or otherwise disturb ACM shall be manufacturer-equipped with HEPA filtered local exhaust ventilation.

t. Prior to being plasticized, the Work Areas shall be cleaned using HEPA vacuum equipment and/or wet cleaning methods as appropriate. Methods that raise dust, such as dry sweeping or vacuuming with equipment not equipped with HEPA filters, shall not be used.

u. Plasticize the area after pre-cleaning, using the following procedures.

(1) Cover floors with one layer of 6-mil fire retardant polyethylene sheeting, turning layer a minimum of 6 inches up wall, and seal layer to wall.

(2) Cover walls with one layer of 6-mil fire retardant polyethylene sheeting, overlapping wall layer a minimum of 6 inches, and seal layer to floor layer.

(3) Cover floors with a second layer of 6-mil fire retardant polyethylene sheeting, turning layer a minimum of 12 inches up wall, and seal layer to wall.

(4) Cover walls with a second layer of fire retardant 6-mil polyethylene sheeting, overlapping wall layer a minimum of 12 inches, and seal layer to floor layer.

(5) In areas where demolition is required to access ACM, a layer of fire retardant 6-mil reinforced polyethylene sheeting shall be placed on the floor of the enclosure.

(6) Perform demolition required to access ACM. Debris resulting from demolition activities shall be disposed of as ACM waste as described in this Specification.

(7) Repeat preparation of areas accessed by demolition activities as described above.

v. Suspended ceiling tiles and T-grid components shall remain in place until the preparation of the Work Area below the ceiling tiles are completed and personnel and equipment decontamination enclosures have been constructed.

w. Scaffolds shall be provided for workers engaged in work that cannot safely be performed from the ground or other solid Work Area surface.

x. Means of egress shall not be obstructed by hardwall barriers.

y. Pre-Removal Inspections.

(1) Prior to removal of any ACM, the asbestos abatement contractor shall notify the Third-Party Air Monitor and request a pre-removal inspection. Posting of warning signs, building of decontamination enclosure systems, and all other preparatory steps have been taken prior to notification of the Third-Party Air Monitor.

(2) Asbestos abatement contractor shall correct any deficiencies observed by Third-Party Air Monitor at no additional cost to City.

(3) Following the Third-Party Air Monitor's approval of the Work Area preparations, removal of ACM may commence.

2. Removal of ACM Within Full Containment:

a. Mist material with amended water. Allow sufficient time for the amended water to penetrate the material to be removed.

b. Remove the material using hand tools such as scrapers or putty knives. Wire-mesh or wood lathe reinforcing, when present, shall be cut into manageable pieces and disposed of as ACM.

c. Remove any residual material from the substrate using wet cleaning methods and nylon-bristled hand brushes.

d. Place the removal material immediately into a properly labeled fire retardant 6-mil polyethylene bag. All material shall be properly containerized and decontaminated prior to removal from the Work Area.

e. Following the completion of removal of insulation, all visible residue shall be removed from the substrate.

3. Following Removal of ACM utilizing Full Containment Procedures:

a. First Cleaning:

(1) Remove any visible accumulation of asbestos material and debris. HEPA-vacuuming and wet cleaning shall be performed on all surfaces inside the Work Area. All sealed drums, plastic bags, and equipment used in the Work Area shall be removed from the Work Area.

(2) Upon request of the asbestos abatement contractor, the Third-Party Air Monitor will perform a visual inspection. Evidence of asbestos contamination identified during the inspection will necessitate further cleaning as heretofore specified.

(3) Remove first layer of plastic sheathing inside the Work Area. The isolation barriers and decontamination facility shall remain in place and be utilized.

b. Second Cleaning:

(1) After the first cleaning, the Work Area shall be vacated for twelve hours to allow fibers to settle.

(2) All objects and surfaces in the Work Area shall be HEPA - vacuumed and wet cleaned for a second cleaning.

(3) A thin coat of lockdown encapsulant shall be applied to all plastic covered surfaces in the Work Area.

(4) When the encapsulant is dry, second layer of polyethylene sheeting on the walls, ceiling and floors shall be removed. Do not remove seals from doors, windows, Isolation Barriers or disconnect the negative pressure equipment.

c. Third Cleaning:

(1) A minimum of four hours after the second cleaning, all the surfaces in the Work Area shall be HEPA-vacuumed and wet cleaned for a third cleaning.

(2) Upon the request of the asbestos abatement contractor, the Third-Party Air Monitor will do final visual inspection for re-occupancy. Evidence of asbestos contamination identified during the inspection will necessitate further cleaning as heretofore specified.

(3) When the Work Area passes the Third-Party Air Monitor's visual re-occupancy inspection, air sampling shall not begin until at least one hour after the completion of the third cleaning. The Third-Party Air Monitor shall perform air monitoring using aggressive testing techniques. The Third-Party Air Monitor will approve re-occupancy if the specified fiber count in the Work Area is achieved according to the Third-Party Air Monitor.

(4) When the Work Area passes the re-occupancy test, all controls and seals established shall be removed.

(5) The cleaned layer of the surface barriers shall be removed from walls and floors.

(6) The isolation barriers shall remain in place throughout cleanup. Decontamination enclosure systems shall remain in place and be utilized. A thin coat of lockdown encapsulant shall be applied to all surfaces in the work area which were not the subject of removal or abatement, including the cleaned layer of the surface barriers, but excepting sprinklers, standpipes, and other active elements of the fire suppression system.

d. Final Barrier Removal:

(1) Upon receipt of acceptable clearance testing results, polyethylene sheeting and Isolation Barriers shall be removed and disposed accordingly as asbestos-containing material.

(2) The area surrounding the abatement work place shall be cleaned of any visible debris utilizing HEPA vacuum and wet methods.

e. The Third-Party Air Monitor will conduct a final visual observation. Approval must be granted prior to break down of decontamination facility and asbestos abatement contractor demobilization.

C. Removal of ACM Roofing and Flashing Materials utilizing NYC DEP § 1-107 Foam Procedure for Roof Removal shall be as follows:

1. Preparation procedures:

a. These procedures apply only to the removal of asbestos-containing roofing material (ACRM) from exterior roof surfaces. The work area on the roof shall be cordoned off with clearly visible barriers such as caution tape, and only authorized persons shall have access.

b. The foam or viscous liquid shall be non-toxic, shall not require special respiratory protection for handling, and shall not affect the handling and disposal of the waste.

c. The foam or viscous liquid shall coat and maintain a stable blanket (minimum 1" thickness) for the duration of the removal process and shall leave an identifiable colored residue when it dissipates.

d. The foam or viscous liquid shall wet the ACRM. The ACRM shall be kept wet through the bagging process.

e. Persons entering the work area shall wear correctly-fitting, good traction rubber boots.

f. Abatement shall not be carried out during adverse weather conditions (e.g., precipitation, high winds, ambient temperature below 32 degrees Fahrenheit, etc.).

g. The worker decontamination unit may be attached to each work area at an entry/exit from each work area, or may be remote, in which case it shall be equipped with an airlock at the entrance. In addition to the shower head(s), the shower room shall be equipped with a flexible hose for waste decontamination for removal of less than 1,000 square feet of ACRM. For 1,000 square feet or more of ACRM removal, a separate waste decontamination facility shall be located at an entry/exit from each work area. Remote holding areas for the asbestos containing waste shall comply with Title 16, Chapter 8, Rules of t\he City of New York (16 RCNY 8 et seq.)

h. Movable objects shall be removed from the work area or kept in place and wrapped in one sheet of fire retardant 6 mil plastic sheeting.

i. Provisions shall be made to ensure a safe and adequate air supply to affected building(s). All vents, skylights, air intakes, windows and doors opening onto the roof, and all other openings shall be sealed with 2 layers of fire retardant 6 mil plastic or fitting with HEPA filters when appropriate. Temporary extensions may be installed to a height of 10 feet to ensure adequate air exchange instead of sealing vents, air intakes, etc., with 2 layers of plastic or HEPA filters. Drains may be equipped with 5-micron filtering system in lieu of being sealed.

j. Fixed objects including perimeter walls, bulkheads, cooling towers, ducts and other rooftop appurtenances shall be covered in one sheet of fire retardant 6 mil plastic up to a height of at least six feet.

k. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF THE INTERIOR SPACES BENEATH THE ROOF.

l. All office equipment and furniture, including but not limited to desks, chairs, computers, printers, cabinets, etc., carpeted, and wooden floors shall be covered with one layer of 6- mil plastic sheeting.

m. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE THAT MAY OCCUR IN THE INTERIOR SPACES, INCLUDING BUT NOT LIMITED TO OFFICE EQUIPMENT, FURNITURE, FLOORS, ETC., BENEATH THE ROOF DURING ALL PHASES OF THE ROOF ABATEMENT.

n. The Contractor shall provide temporary roof protection consisting of 10-mil polyethylene sheeting following abatement over the open roof areas. Strict coordination with the General Contractor, Construction Project Manager and/or Architect is required and necessary during this phase of abatement.

o. Preliminary examination shall be conducted, and precautions shall be taken to prevent damage to the interior of the building, including but not limited to office equipment, furniture, carpeted and wooden floors, etc., and to ensure no adverse effect on the structural stability of the roof due to the abatement activity.

p. Abatement activities shall not be carried out during adverse weather conditions (e.g., precipitation, heavy winds, etc.).

q. The floor area between the remote decontamination facility and the Work Area must be protected with 2 layers of 6-mil. polyethylene sheeting suitably anchored.

r. Provisions shall be made to ensure a safe and adequate air supply to affected building(s). All vents, skylights, air intakes, windows and doors opening onto the roof, and all other openings are to be sealed with two layers of 6-mil plastic or fitted with HEPA-filters where appropriate. In lieu of sealing vents, air intakes, etc., with two layers of plastic or HEPA-filters, temporary extensions may be installed to a height of 10 feet to ensure adequate air exchange. Drains may be equipped with 5-micron filtering systems in lieu of being sealed.

s. Pre-Removal Inspections:

(1) Prior to removal of any ACM, the Contractor shall notify the Third-Party Air Monitor and request a pre-removal inspection. Posting of warning signs, building of decontamination enclosure systems, and all other preparatory steps have been taken prior to notification of the Third-Party Air Monitor.

(2) Contractor shall correct any deficiencies observed by Third-Party Air Monitor at no additional cost to City.

(3) Following the Third-Party Air Monitor's approval of the Work Area preparations, removal of ACM may commence.

2. Removal of ACM Roofing and Flashing Materials:

a. The Contractor shall be responsible for the removal of all roofing components, including multiple layers of built-up membrane, tar, vapor barrier and/or flashing down to the substrate/deck.

b. Prior to actual removal, the built-up roofing shall be blanketed and wetted with a minimum 1" coating of the acceptable foam or viscous liquid which shall be maintained for the duration of the removal until the material is bagged. The foam or viscous liquid shall be confined to the work area.

c. Hand-held power tools used to drill, cut into, or otherwise disturb the ACRM shall be equipped with the HEPA-filtered local exhaust ventilation and operated to prevent potential fiber release.

d. Abatement shall not be performed in adverse weather conditions (e.g., precipitation, heavy winds, etc.) Contractor shall protect all exposed roof during adverse weather conditions.

e. Portable HEPA-vacuum machines shall be available during abatement.

After the ACM removal and bagging, the bagged waste shall be HEPA-vacuumed, and then wet-cleaned and transferred into the shower room for double bagging. The double-bagged waste shall be transferred outside the clean room for its final transfer for storage in an enclosed waste container.

3. Following Removal of ACM Roofing and/or Flashing:

   a. Upon completion of the abatement in roof work area, clean-up procedures shall involve removal and bagging of:

   b. The asbestos containing roofing material (ACRM)

   c. Visible accumulations of asbestos containing waste

   d. All excess foam or similar viscous liquid

   e. All debris and shall be followed by a thorough wet cleaning.

   f. All tools shall be wet cleaned and HEPA-vacuumed, and then removed from the work area upon completion.

   g. Following the removal of all debris, the work area shall be thoroughly wet cleaned. The work area shall be allowed to dry completely before the visual inspection is conducted. The inspection shall confirm the absence in the work area of:

      (1) ACM, debris, bagged ACM waste,

      (2) Excess foam or other viscous liquid.

   h. If the work area fails visual inspection, it shall undergo another wet cleaning and/or HEPA vacuuming until it passes the visual inspection.

   i. When the visual inspection and clearance testing is successful, all plastic may be removed.

Air monitoring shall be conducted in accordance with the relevant provisions of Air sampling shall be conducted in compliance with NYC DEP Title 15 Chapter 1, §1-41 Air Sampling Schedule.

## 4.02 MAINTENANCE OF CONTAINED WORK AREA AND DECONTAMINATION ENCLOSURE SYSTEMS

A. Ensure that barriers are installed in a manner appropriate to the expected weather conditions during the project and for its duration. Repair damaged barriers and remedy defects immediately upon their discovery. Visually inspect barriers at the beginning and end of each work period.

B. Visually inspect non-Work Areas and the decontamination enclosure system for water leakage. Check the floor below, ceiling and walls, and view beneath/or around the decontamination enclosure system, for signs of leakage. Perform the visual inspection a minimum of two times for each 8-hour work shift.

# PART 5 – ASBESTOS WASTE MANAGEMENT

## 5.01 ACM WASTE REQUIREMENTS

A. The asbestos abatement contractor and all sub-asbestos abatement contractors are specifically alerted to the illegal practice of combining asbestos-containing waste (ACW) from one project with the ACW of other projects without using the services of a permitted waste transfer station as defined by 6 NYCRR Part 360 and 364. As part of the shop drawing submittals, the asbestos abatement contractor must submit for approval the proposed method of transportation and disposal that will be utilized to manage the ACW of this Contract. If a permitted transfer station is to be used, the cost shall be included in the work. The asbestos abatement contractor must submit a waste manifest consistent with whatever approved method is utilized as part of the invoicing and payment procedures.

B. The asbestos abatement contractor shall maintain compliance with the strictest set of regulations of Title 15, Chapter 1 of RCNY, NYC LL 70/85, NYS DOL ICR 56, USEPA, Asbestos Regulation 40 CFR Section 61.152, 29 CFR 1926.1101, 29 CFR 1910.1200 (F) of OSHA's Hazard Communication Standards, and other applicable standards.

**NOTE:** Any penalties incurred for failure to comply with any of the above regulations will be the sole responsibility for fines imposed due to negligence of the Asbestos abatement contractor.

C. When presenting ACW for storage at the generation site, the asbestos abatement contractor shall:

1. Wet down ACW in a manner sufficient to prevent all visible emissions of dust into the air.

2. Seal material in a leak tight container while wet.

3. Keep ACW separate from any other waste.

D. When presenting ACW for storage away from the site of generation, the Asbestos abatement contractor shall:

1. Ensure that ACW has been properly packaged as per requirements above.

2. Examine the containers of ACW to ensure that there are no breaks in the containers and that no visible dust is being released into the air.

3. If examination reveals damage to a container of ACW the Asbestos abatement contractor or person accepting the waste shall immediately wet down the ACW and repackage it into a clean leak tight container. The subsequent repackaging shall be the financial responsibility of the Asbestos abatement contractor and occur at no extra cost to the City.

4. Keep ACW separate from any other waste.

E. When storing ACW – The Asbestos abatement contractor shall:

1. Ensure that the ACW has been sufficiently wetted down in tight containers.

2. Re-wet and repackage any damaged containers.

3. Maintain at storage site an adequate supply of spare leak tight containers.

4. Maintain at storage site an adequate supply of amended water.

5. Keep ACW separate from any other waste.

6. Keep ACW in a secured, enclosed, and locked container.

7. If the asbestos abatement contractor has intention of sorting a quantity of ACW greater than or equal to 50 cubic yards, the Asbestos abatement contractor shall:

a. Submit a written request and receive written approval from the City.

F. When presenting for transport, the asbestos abatement contractor shall:

1. Ensure that ACW has been sufficiently wetted down.

2. Examine the integrity of the container’s airtight seal.

3. Re-wet and repackage any damaged containers.

4. Keep ACW separate from all other waste.

5. Ensure that a person transporting asbestos waste holds a valid permit issued pursuant to law.

6. Frequency of Waste Removal:

   a. Properly packaged and labeled asbestos waste shall be removed from the site on a daily basis. Under no circumstance shall asbestos waste be stored on site without written approval from the City. The Waste Hauler and landfill shall be as indicated on the notifications to regulatory agencies.

G. Waste Load-out Through Equipment Decontamination Enclosure (Full Decontamination Facility): Place asbestos waste in disposal bags. Large items not able to fit into disposal bags shall be wrapped in one layer of 6-mil thick polyethylene sheeting. Clean outer covering of asbestos waste package by wet cleaning and/or HEPA-vacuuming in a designated part of the Work Area. Move wrapped asbestos waste to the equipment washroom, wet clean each bag or object and place it inside a second disposal bag, or a second layer of 6-mil polyethylene sheeting, as the item's physical characteristics demand. Air volume shall be minimized, and the bags or sheeting shall be sealed airtight with tape.

1. The clean containerized items shall be moved to the equipment decontamination enclosure holding area pending load-out to storage or disposal facilities.

2. Workers who have entered the equipment decontamination enclosure system from the uncontaminated non-Work Area shall perform load-out of containers from the decontamination enclosure holding area. Dress workers moving asbestos waste to storage or disposal facilities in clean overalls of a color different than from that of coveralls used in the Work Area. Ensure that workers do not enter from uncontaminated areas into the equipment washroom or the Work Area. Ensure that contaminated workers do not exit the Work Area through the equipment decontamination enclosure system.

3. Thoroughly clean the equipment decontamination enclosure system immediately upon completion of the waste load-out activities, and at the completion of each work shift.

4. Labeled ACM waste containers or bags shall not be used for non-ACM debris or trash. Any materials placed in labeled containers or bags, including those turned “inside-out”, shall be handled and disposed of as ACM waste.

H. All asbestos materials, wastes, shower water, polyethylene, disposable equipment

and supplies shall be disposed of as asbestos contaminated waste, in accordance with the EPA regulation (40 CFR, Section 61.150) and those requirements of the New York Department of Environmental Conservation and New York City Department of Sanitation.

I. All asbestos materials shall be prepared for transportation in accordance with this specification and all applicable Federal, State, County and City Regulations. asbestos abatement contractor shall submit the following documentation:

1. Where applicable, an EPA Generator's identification number which has been obtained from the EPA for all asbestos waste generated from the project.

2. Applicable State Waste Hauler license and registration numbers.

3. Federal Hazardous Materials Waste Hauler number.

4. Designated landfill EPA Permit numbers.

J. Prior to loading asbestos waste the enclosed cargo areas (dumpster) shall be prepared as follows:

1. Clean via HEPA-vacuum and wet wipe techniques the enclosed cargo areas of all visible debris prior to preparing with polyethylene.

2. Line the cargo area with two layers of 6-mil polyethylene sheeting to prevent contamination from damaged or leaking containers. Floor sheeting shall be installed first and extend up the walls a minimum of 24-inches. Wall sheeting shall be overlapped and taped securely into place.

K. Asbestos-containing waste shall be placed on level surfaces in the cargo area of the dumpster and shall be packed tightly to prevent any shifting or tipping of the waste during transportation.

L. Asbestos-containing waste shall not be thrown into or dropped from the dumpster. All material shall be handled carefully to prevent rupture of the containers.

M. All personnel engaged in handling and loading of asbestos contaminated waste outside of the Work Area shall wear protective clothing. The disposable clothing shall include head, body and foot protection and color of clothing shall be different from abatement personnel in the Work Area. Minimum respiratory protection shall be half face, dual cartridge, air purifying respirators with HEPA-filters.

N. Asbestos abatement contractor shall immediately clean debris or residue observed on containers or surfaces outside of the Work Area. Cleaning shall be via HEPA equipped wet/dry vacuums only.

O. All asbestos-containing waste shall be transported from the abatement site to the landfill by a registered Waste Hauler. When transporting ACW:

1. Ensure that the ACW has been sufficiently wetted down in a leak tight container.

2. Re-wet and repackage any damaged containers.

3. Maintain at storage site an adequate supply of spare leak tight containers.

4. Maintain at storage site an adequate supply of amended water.

5. Keep ACW separate from any other waste.

P. Keep ACW in a secured, enclosed, and locked container.

Q. Waste transport documents shall conform to the requirements of the U.S. Department of Transportation, Hazardous Materials Transportation Regulation, 49 CFR Part 173 and EPA 40 CFR 61.150 (d)(1)(2). Shipping documents shall be clearly marked with the required designation "RQ Asbestos". Asbestos abatement contractor shall provide a copy of this document to the City.

R. A uniform hazardous waste manifest shall be prepared by the asbestos abatement contractor and signed by the asbestos abatement contractor each time the asbestos abatement contractor ships a dumpster load of Asbestos-Containing Waste Material. The uniform hazardous waste manifest shall include the site of waste generation, the names and addresses of the Transporter, the asbestos abatement contractor, and the landfill operator with information on the type and number of asbestos-waste containers, time and date. Asbestos abatement contractor shall provide the Construction Project Manager, Third-Party Air Monitor or authorized designated representative with signed copies of the waste manifest before each departure.

S. Asbestos abatement contractor or his/her Waste Hauler shall transport asbestos-containing waste material from the abatement site directly to the specified disposal site. Asbestos abatement contractor or their Waste Hauler shall not accept material from any other site when transporting asbestos-containing waste material from the abatement site. The authorized DDC representative or Construction Project Manager reserves the right to travel with asbestos abatement contractor’s Waste Hauler to the waste disposal site. No intermediate storage of waste material (i.e., asbestos abatement contractor’s warehouse) shall be permitted.

T. Final or progress application for payments will not be processed unless all hazardous waste manifests generated to date have been received and reviewed by the Construction Project Manager.

U. All asbestos materials, wastes, shower water, polyethylene disposable equipment and supplies shall be disposed of as asbestos contaminated waste, in accordance with the EPA regulation (40 CFR, Section 61.150) and those requirements of the New York State Department of Environmental Conservation and the New York Department of Sanitation.

V. Asbestos abatement contractor shall transport all sealed drums to a landfill disposal site approved by the Department of Environmental Conservation and the EPA. Transportation shall be performed by a New York State registered Waste Hauler, where required. When presenting the ACW for disposal the Asbestos abatement contractor or sub Asbestos abatement contractor shall:

1. Ensure that waste container is properly labeled according to the National Emission Standard for Hazardous Air Pollutants (NESHAP); Asbestos Revision, 40 CFR, Part 61, Subpart M. The labels shall include the name of the waste generator and the location where the waste was generated.

2. Comply with all applicable orders issued pursuant to asbestos disposal.

3. Ensure that ACW has been sufficiently wetted down.

4. Re-wet and repackage any damaged containers.

5. Keep ACW separate from all other wastes.

W. Asbestos abatement contractor shall notify the waste disposal site, at least 24 hours prior to transportation of asbestos contaminated waste to be delivered. Asbestos abatement contractor shall determine if a larger notification period is required.

X. At the site asbestos abatement contractors or Waste Hauler trucks shall approach the dump location as close as possible for unloading asbestos waste. Containers shall be carefully placed in the ground. Do not throw containers from truck.

Y. Asbestos abatement contractor or Waste Hauler shall inspect containers as they are unloaded at the disposal site. Material in damaged containers shall be repacked in empty containers, as necessary.

Z. Asbestos abatement contractor or Waste Hauler shall not remove asbestos-containing waste Material from drums unless required to do so by the disposal site City. Used drums shall be disposed of as asbestos-asbestos contaminated waste.

AA. All personnel engaged in unloading of the containers at the waste site shall wear protective clothing. The disposable clothing shall include head, body and foot protection. Minimum respiratory protection shall be half face, dual cartridge, air purifying respirators with HEPA-filters. Workers shall remove their protective clothing at the disposal site, place it in labeled disposal bags and leave them with the deposited waste shipment.

BB. For the compaction operation, the asbestos abatement contractor shall ensure that disposal sites personnel have been provided with personal protective equipment by the disposal operator. If the disposal site City has not provided this protective equipment, the asbestos abatement contractor shall supply protective clothing and respiratory protection for the duration of this operation (PAPR respirators are mandatory).

CC. If containers are broken or damaged, the asbestos abatement contractor or Waste Hauler shall, using personnel who are properly trained and wearing proper protective equipment, shall repackage the waste in properly labeled containers. Asbestos abatement contractor shall then clean the entire truck and its contents using HEPA-vacuums and wet cleaning techniques until no visible residue is observed.

DD. Following the removal of all containerized waste, the asbestos abatement contractor shall decontaminate the truck cargo area using HEPA-vacuums and/or wet cleaning techniques until no residue is observed. All 6-mil polyethylene sheeting shall be removed and discarded as asbestos-containing waste material along with contaminated cleaning material and protective clothing, in containers at the disposal site.

EE. The transporter(s) of all asbestos waste shall not back-haul any items on his return from landfill/disposal site.

FF. All asbestos waste shall be disposed of in an approved Asbestos Landfill site only.

1. NO PERSON UNDER ANY CIRCUMSTANCES SHALL ABANDON ACW. The same shall be disposed of only by certified persons in approved landfills.

2. A manifest form will be signed by the Landfill documenting receipt and acceptance of the asbestos-containing waste. This manifest will be furnished to the City of New York within thirty calendar days from the project completion date.

3. It is the responsibility of the Asbestos abatement contractor to determine current waste handling, transportation and disposal regulations for the work site and for each waste disposal landfill. The Asbestos abatement contractor must comply fully with these regulations and all appropriate U.S. Department of Transportation, EPA and other Federal, State and Local entities' regulations and all other current legal requirements.

4. The asbestos abatement contractor shall obtain an agreement from the transporter (s) that the practice of "Back-Hauling" will not be engaged in, with respect to any and all waste loads taken from this site during the work.

5. The asbestos abatement contractor will document actual disposal of the waste at the designated landfill by having completed a Disposal Certificate and will provide a copy of the same to the Department of Design and Construction.

## PART 6 – ACCEPTANCE

### 6.01 ACCEPTANCE

Upon satisfactory completion of all decontamination procedures, a certificate will be issued by the Construction Project Manager with copies to all parties.

A. A letter of Compliance stating that all the work on the project was performed in accordance with the Specifications and all applicable Federal, State and Local regulations.

B. All warranties as stated in the Specifications.

**END OF SECTION 028213**

# SECTION 03 01 30 - MAINTENANCE OF 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. Section includes:

1. Provide labor, materials, equipment, and services for the restoration of the designated areas of existing cast-in-place concrete to ensure watertightness of the building's concrete, structural concrete and steel components as indicated on drawings; as required for completed work, and as specified herein including but not limited to:
    a. Spalls and cracks of concrete parapet walls at Main Roof
    b. Spalls and cracks at underside of concrete structural roof slab at 10th Floor Mechanical Floor

2. Restoration repairs of existing cast-in-place concrete must only use manufactured repair mortars specially formulated for these applications. Cast-in-place concrete restoration repairs must include:
    a. Sounding out the entirety of the following two areas designated for concrete crack and spall repairs:
        1) Inner side of parapet walls at Main Roof
        2) Underside of Main Roof slab
    b. Reporting to the Commissioner the results of sounding out these areas documented in a diagram as requested on the attached drawings.
    c. Reviewing with the Commissioner the amount of repair to be approved before proceeding with repairs.
    d. Restoring sounded out areas approved for repairs by removing all cracked/spalled/loose concrete and repairing them with specified specialty mortars.
    e. Repairing and restoring any encountered and deteriorated steel by scraping, wire brushing and coating, and when badly deteriorated or missing, replacing in accordance with the specifications.
    f. Forming and shoring as required to complete these repairs.

B. Related Sections

1. Section 02 41 19 Selective Site Demolition
2. Section 07 56 00 Fluid-Applied Roofing

C. Reference Standards - 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 must be deemed mandatory and applicable to the Work.

1. ASTM International (ASTM)
    a. C881 Specification for Epoxy-Resin Base Bonding Systems for Concrete
    b. C882 Test Method for Bond-Strength of Epoxy-Resin Systems Used with Concrete
    c. D570 Test Method for Water Absorption of Plastics
    d. D638 Test Method for Tensile Properties of Plastics
    e. D695 Test Method for Compressive Properties of Rigid Plastics
    f. D732 Standard Test Method for Shear Strength of Plastics by Punch Tool
    g. D790 Test Method for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials

2. Steel Structures Painting Council (SSPC)
    a. Hand Tool Cleaning - SP2
    b. Power Tool Cleaning - SP3

3. International Concrete Restoration Institute (ICRI)

1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures”.

1.4 SUBMITTALS

A. Submit manufacturers' data and instruction sheets for all products.

B. Submit project experience and references for applicators.

C. Mockup
    1. Contractor must fully complete one concrete repair and restore type: spall and crack to confirm quality of work as well as to obtain the Commissioner’s approval.

    2. Approved samples are to serve as guide.

1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Materials specified are to be delivered to the site in sealed, properly labeled containers. Containers must 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 material in hot sun and keep it from freezing. Store in dry location where temperature will not reach 90 F degrees.

D. Do not apply materials when air temperature is below 40 F or above 110 F degrees, or when rain is anticipated within three hours of application.

1.7 REMOVALS

A. The Contractor will be responsible for the legal removal from the site of all debris resulting from this work.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. For Top and Horizontal Applications - Two-component, polymer-modified, Portland cement based, fast-setting, trowel-grade mortar. High-performance repair mortar for horizontal and vertical surfaces with a penetrating corrosion inhibitor in the formula.
   1. Compressive Strength (ASTM C-109)
      a. 28 days 7,000 psi (48.3 MPa)
   2. Modulus of Elasticity in Compression (ASTM C-469)
      a. 28 days 3.0x106 psi
   3. Flexural Strength (ASTM C-293)
      a. 28 days 1,500 psi (10.3 MPa)
   4. Tensile Strength (ASTM C-882
      a. 28 days 2,000 psi (13.8 MPa)
   5. Splitting tensile strength (ASTM C-496)
      a. 28 days 500 psi (3.4 MPa)
   6. Pull-Out Resistance (ASTM C-1583)
      a. 28 days 400 psi (2.8 MPa)
   7. Shrinkage (ASTM C-157)
      a. 28 days 1”x1”x11-1/4” < 0.05 % specimen
         3”x3”x11-1/4” < 0.021 % specimen
   8. Freeze-Thaw Stability (ASTM C-666)
      a. 300 cycles 98 %

B. For Vertical and Overhead Applications – A two-component, polymer modified, Portland cement-based, fast-setting, non-sag mortar. High performance repair mortar for vertical and overhead surfaces with penetrating corrosion inhibitor included in its formulation.

1. Compressive Strength (ASTM C-109)
   a. 1 day 3,000 psi (20.7MPa)
   b. 7 days 4,000 psi (27.6 MPa)
   c. 28 days 6,000 psi (41.4 MPa)
2. Modulus of Elasticity in Compression (ASTM C-469)
   a. 28 days 106 psi
3. Flexural Strength (ASTM C-293) 73 °F
   a. 28 days 1,500 psi (10.3 MPa)
4. Splitting tensile strength (ASTM C-496)
   a. 28 days 900 psi (6.2 MPa)
5. Tensile Adhesion Strength (ASTM C-882
   a. 28 days 2,000 psi (13.8 MPa)
6. Pull-Out Resistance (ASTM C-1583)
   a. 28 days 500 psi (3.4 MPa)
7. Shrinkage (ASTM C-157, mod. ICRI 320.3R)
   a. 28 days 1x1x11-1/4"'0.05 %
   b. 28 days 3x3x11-1/4'' 0.038 %

C. For Crack Application - Two-component, 100 % solids, moisture-tolerant, low-viscosity, high-strength, multipurpose, epoxy resin adhesive. Conforming to ASTM C-881, Types I, II, and IV, Grade-1, Class "C" and AASHTO M-235 specifications.

1. Compressive Strength
   a. Neat (ASTM D-695)

| | | | |
|---|---|---|---|
| 1) Temp. | 40 °F (4 °C) | 73 °F (23 °C) | 90 °F (32 °C) |
| 2) 28 days | 12,400 psi | 13,000 psi | 10,500 psi |

   b. Epoxy Mortar (1: 5) (ASTM D-695)

| | | | |
|---|---|---|---|
| 1) Temp. | 40 °F (4 °C) | 73 °F (23 °C) | 90 °F (32 °C) |
| 2) 28 days | 7,000 psi | 8,600 psi | 8,800 psi |

2. Modulus of Elasticity in Compression (ASTM D-695)

| a. | Neat | Mortar |
|---|---|---|
| 1) 7 days | 3.2x105 psi | |
| 2) 28 days | 8.1 x 105 psi | |

3. Flexural Strength (ASTM D-790)

| a. | Neat | Mortar |
|---|---|---|
| 1) 14 days | 14,000 psi | 2,200 psi |

4. Modulus of Elasticity in Flexure (ASTM D-790)

| a. | Neat | Mortar |
|---|---|---|
| 1) 14 days | 3.7 x 105 psi | 9.5 X 105 |

5. Tensile Strength (ASTM D-638)

| a. | Neat | Mortar |
|---|---|---|
| 1) 7 days | 8,900 psi | 840 psi |

6. Tensile Modulus of Elasticity (ASTM D-638)
   a. Neat Mortar
      1) 14 days 4.1 X 105 psi 7.6 X 105 psi
7. Elongation at Break (ASTM D-638)
   a. Neat Mortar
      1) 7 days 5.4 % 0.3 %
8. Tensile Adhesion Strength (ASTM C-882)
   a. 14 days (moist cure) 2,900 psi
   b. 2 days (dry cure) 2,800 psi
9. Shear Strength (ASTM D-732)
   a. Neat Mortar
      1) 14 days 5,100 psi 2,300 psi

D. For Bonding - Cementitious epoxy resin compensated 3-component, solvent-free, coating material with corrosion inhibitor, to be used as bonding primer and reinforcement corrosion protection.
   1. Compressive Strength (ASTM C-109)
      a. 28 days 8,500 psi (58.6 MPa)
   2. Flexural Strength (ASTM C-348)
      a. 28 days 1,250 psi (8.6 MPa)
   3. Splitting Tensile Strength (ASTM C-496)
      a. 28 days 600 psi (4.1 MPa)
   4. Tensile Adhesion Strength (ASTM C-1583)
      a. Bond of steel reinforcement on concrete 110 625 psi (4.3 MPa)
   5. Slant Shear Strength (ASTM C-882)
      a. Bonding agent properties (14-day, moist cure, plastic to hardened concrete)
         1) Wet on wet 2,800 psi (19.3 MPa)
         2) 24 hr. open time 2,600 psi (17.9 MPa)
   6. Permeability to Water Vapor
      a. Control 7.32 x 10-10 ft/sec
      b. 145 psi (10 bar) 8.92 x 10-15 ft/sec
   7. Diffusion Resistance to Water Vapor
      a. μ H2O ~100
   8. Permeability to CO2
      a. μ CO2 ~14,000
   9. Corrosion Test
      a. Reduces corrosion rate by over 40 %

2.2 MANUFACTURERS:

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Sika Corp

2. BASF
**3.** SpecChem
4. Or approved equal.

2.3 MATERIALS

A Repair Mortar for Top and Horizontal Applications

1. Mortar to repair top and horizontal concrete spall repairs are to be a two-component, polymer modified, Portland cement based, fast-setting, trowel grade mortar. Must be high-performance repair mortar offering additional penetrating corrosion inhibitor in its formula. Compatible with coefficient of thermal expansion of concrete - Passes ASTM C-884.

B. Repair Mortar for Overhead and Vertical Applications

1. Mortar to repair overhead and vertical concrete spalls is to be a two-component, polymer modified, Portland cement-based, fast-setting, non-sag mortar. Must be high-performance repair mortar offering additional penetrating corrosion inhibitor included in its formulation. Compatible with coefficient of thermal expansion of concrete conforming to ASTM C-884.

C. Structural Epoxy to Repairs Cracks and Set Re-bars

1. Structural epoxy to repair concrete cracks and set re-bars, is to be a two-component, high-modulus, low viscosity, high strength, multi-purpose, 100% solids, moisture-tolerant epoxy resin adhesive conforming to ASTM C-881 and AASHTOM-235.

D. Protection & Bonding Agent for Steel Reinforcement

1. Bonding agent to protect and set reinforcing steel in new mortar repairs is to be a two-component, epoxy-modified, cementitious product. Bond Strength: 14-day moist cure, plastic concrete to hardened concrete: (ASTM C-882) Wet on wet: 2800 psi. Independent test data verifies ability to triple the time-to-corrosion and reduce rate of corrosion by over 40% (40 mil film thickness).

E. Gravel for Repairs Deeper than 1"

1. Gravel not greater than 2" size clean, saturated surface dry, well graded, high density, low absorption aggregate.

F. Reinforcement for Spall Repair Deeper than 2"

1. Galvanized steel wire mesh; WWR 4x4 W1.4xW1.4 fastened with DNI 72 Power Actuated Fastener, diameter 0.145". Approximate penetration into base concrete: 1.5". Allowable tension: 190 lbs. Use approved type spacers to hold wire mesh at center of new (repair) concrete.

G. Wood for Shoring
1. Douglas fir or southern pine select structural No. 2 or better, and is to develop the following allowable stresses:
a. $F_b$ = 1,350 psi (Bend ng)
b. $F_v$ = 95 psi (horizontal shear)
c. E = 1,700,000 psi modulus of elasticity

H. Formwork
1. Rigid material is to resist distortion when fastened in place and is to result in smooth and even surfaces.

## PART 3 - EXECUTION

### 3.1 EXECUTION REQUIREMENTS

A. Refer to DDC General Conditions for execution requirements.

### 3.2 PROTECTION, REMOVALS AND PREPARATION

A. Protection
1. Ensure that all necessary protective measures have been implemented, are maintained and monitored in the area of work and adjacent areas.

B. Removals and Surface Preparation
1. With a rubber mallet, sound out designated areas of work. Remove any loose, spalling, crumbling or flaking concrete.
2. Contractor must, on a frequent basis, collect, sweep, contain, legally haul and dispose of removed material and debris, particularly during sounding out and removal work.
3. Where concrete is removed from reinforcing steel, the steel is to be fully scraped and wire brushed clean of all rusted and flaking areas, in preparation for the Commissioner's inspection.
4. All exposed existing reinforcing steel is to be cleaned and coated with steel reinforcement epoxy primer in accordance with manufacturer’s instructions.
5. When/if applied sealants are encountered, these are to be fully removed in advance of proceeding with concrete repairs.
6. Spall areas of repair and restore, are to have surface aggregate fractured; perimeter of patch must be cut 95° to adjacent surface for a minimum 2" depth. Prepared patch area must have geometric patterning.

3.3 TOP AND HORIZONTAL CONCRETE SPALL REPAIRS

A. Spall areas of repair and restore are to be made with mortar formulated for horizontal locations. Mix and apply the repair mortar in strict accordance to manufacturer's instructions.

B. Mix by plant proportioned ratio -- pouring 4/5 1-gal jug "Component A" resin into pail, adding 61.5-lb "Component B" mixing for no greater than 3 minutes and mixing in slightly additional Component A liquid for looser consistency. Mix an amount that will be applied no later than within 15 minutes. Use a paddle mortar mixing drill [low speed/400-600 rpm] to attain a smooth, lump free, stiff-plastic consistency. Do not retemper with added water. The average yield will be .5 cubic feet per manufacturer's proportioned package unit.

C. Mechanically roughen substrate to a minimum 1/16" fractured aggregate surface using scabbler and/or pneumatic needle.

D. Dampen concrete to saturated surface dry; Scrub repair material into substrate forcing the material into the roughened surfaces. Consolidate by forcing material at edges of repair and working inward with hand trowel, but do not overwork. Screed, then compact thoroughly to bond securely.

E. Spall areas of repair and restore are to be made in lifts no less than 1/8" and no greater than 1" allowing for adequate setting up between lifts. For application greater than 1", add approved aggregate to extend cement mortar in a ratio of no greater than 42 lbs. per 3-gal loose volume of gravel to One mixed unit of repair mortar.

F. Adhere to manufacturer's instructions for this type of application.

3.4 OVERHEAD AND VERTICAL CONCRETE SPALL REPAIRS

A. Overhead and vertical spall areas of repair and restore are to be made with special mortar specifically formulated for these applications. Mix and apply overhead repair mortar in accordance to manufacturer's instructions.

B. Mechanically roughen substrate to minimum 1/16" fractured aggregate surface using scabbler or pneumatic needle.

C. Dampen concrete to saturated surface dry; Scrub repair material into substrate forcing the material into the roughened surfaces. Consolidate by forcing material at edges of repair and working inward with hand trowel, but do not overwork. Screed, then compact thoroughly for secure bonding.

D. Overhead and vertical spall areas of repair and restore are to be made in lifts no less than 1/8" and no greater than 1", scratching/scoring surface between lifts and allowing for adequate setting up between lifts.

E. Adhere to manufacturer's instructions for this type of application.

3.5 CONCRETE CRACK REPAIRS

A. For Cracks Less Than 1/32”
1. For minor cracks less than 1/32" in width, cutting will not be required.
2. Apply surface filler material over the center of the crack at a wet film thickness of One-sixteenth of an inch.
3. Feather the material to zero on either side.
4. Wait twenty-four hours (at 73°F) before overcoating.

B. Concrete Repair Guidelines for Cracks Between 1/32" And 1/4"

1. Important Technical Note: All cracks between 1/32" and 1/4" are to be routed to 1/4" wide to 1/4" deep “V” shape. Remove all loose material.

a. Mixing
1) Proportion 1 part Component ‘B’ to 2 parts Component ‘A’ by volume into a clean pail.
2) Mix thoroughly for 3 minutes with paddle on low-speed (400- 600 rpm) drill until uniformly blended.
3) Mix only that quantity that can be used within its pot life.

b. Application to gravity feed cracks
1) All cracks between 1/32 and 1/4' are to be fully routed to 1/4" wide to 1/4" deep prior to any repairing work.
2) Blow vee-notched crack clean with oil-free compressed air.
3) Pour neat repair product into vee-notched crack.
4) Continue placement until completely filled.

c. Limitations
1) Do not inject cracks greater than 1/4 in. (6 mm)
2) Minimum substrate and ambient temperature 40°F (4°C).
3) Do not thin with solvents.
4) Epoxy mortar is for interior use only.

C. Concrete Crack Repair Guidelines for Cracks Between 1/4" and ½"
1. Cracks are to be adequately filled using procedures specified under “B” above except that a small amount of sand is to be added to the adhesive mixture to create an epoxy mortar.

3.6 REBAR REPAIRS

A. Contractor must coordinate all phases of steel repair and restore work with the necessary inspection and monitoring by the Commissioner.

B. Exposed portions of steel rebars are to be wire brushed and/or scaled with a pneumatic needle to clean all surface rust.

C. Exposed steel that is badly corroded, broken, crumbling or reduced by more than 10% in cross section, is to be reinforced or replaced with the same size and spacing.

D. After mechanical cleaning is completed, the steel should be high-pressure washed prior application of priming.

E. All exposed and cleaned reinforcing steel is to be coated with protection/bonding agent in accordance with manufacturer's instructions. New rebars are also to be coated with same agent.

F. Length of new steel rebars must accommodate the full length of deteriorated or missing steel and must extend a minimum of 3" past each end of deteriorated steel area, to be mechanically wire fastened to adjoining steel. Where called for or directed by the Commissioner, new reinforcing bars are to be furnished and installed by welding to the existing exposed reinforcing bars.

G. In spalled areas greater than 6" depth, where steel is not visible, embed new steel bars in holes drilled 3" minimum into the slab and embedded in quick setting high modulus low viscosity structural epoxy.

H. Ensure that there is no less than one inch of cover over all steel.

3.7 CURING

A. As per ACI recommendations for Portland cement concrete, curing is required.

B. Moist cure with wet burlap and polyethylene, a fine mist of water or a water compatible curing compound meeting ASTM C-309.

C. Curing compounds adversely affect the adhesion of following lifts of mortar, leveling mortar or protective coatings. Pretesting of curing compound is recommended.

D. Moist curing should commence immediately after finishing.

E. Protect freshly applied mortar from direct sunlight, wind, rain and frost.

F. To prevent from freezing, cover with insulating material.

3.8 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.

3.9 FIELD QUALITY CONTROL

A. The Commissioner will inspect surfaces and reject any that contain cracks or other defects. The newly repaired areas will be tested for soundness and structural integrity. Any defective areas are to be fixed at Contractor's expense.

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. Any required fees from the manufacturer's representative are to be covered by the Contractor.

END OF SECTION 03 01 30

# SECTION 03 01 50.61 - RESURFACING OF CAST DECKS AND UNDERLAYMENT

## 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. Provide labor, materials, equipment, and services to repair the existing screed of the poured-in-place roof concrete and pitching slabs to ensure flow towards the drains with manufactured mortar as indicated on drawings, as required for completed work, and as specified herein.

2. To repair the existing surfacing/screed of the existing poured-in-place concrete /pitching slabs use only manufactured repair mortars specially formulated for these applications must be used. Repairs must include:
    a. Sounding out entirety of all designated areas for repair and removing all cracked/spalled/loose concrete
    b. Rebuilding damaged horizontal and top areas
    c. Repairing any encountered and deteriorated steel by scraping, wire brushing and coating, and when badly deteriorated or missing, replacing in accordance with the specifications.
    d. Forming and shoring as required to complete these repairs.

B. Related Sections:

1. Section 02 41 19 Selective Demolition
2. Section 07 56 00 Fluid-Applied Roofing

C. Reference Standards: 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 are to 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)

### 1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures”.

1.4 SUBMITTALS

A. Product Data

1. Provide manufacturer's information on the bonding agent and screed mortar, including application instructions and specifications.

1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Materials specified are to be delivered to the site in sealed, properly labeled containers. Containers must 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$^{o}$F or above 85$^{o}$F unless the material manufacturer is consulted for recommendations. Follow hot-weather and cold-weather practices as recommended by ACI 305R and 306R respectively.

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 PERFORMANCE REQUIREMENTS

A. A one-component, rapid hardening, early strength gain, cementitious, patching mortar for concrete, low dust version formula.

1. Compressive Strength (ASTM C 109)
   a. 28 days 7,000 psi
2. Modulus of Elasticity in Compression (ASTM C-469)
   a. 28 days 4.6 x 106 psi (32 GPa)
3. Flexural Strength (ASTM C 293)
   a. 28 days 1,000 psi (6.9 MPa)
4. Splitting Tensile Strength (ASTM C 496)
   a. 28 days 400 psi (2.8 MPa)
5. Tensile Adhesion Strength (ACI 503R)
   a. 28 days Approximately 300 psi (2.1 MPa)

6. Shrinkage (ASTM C 157 modified per ASTM C-928)
   a. 28 days 0.06%
7. Abrasion Resistance (ASTM C 779)
   a. 28 days 0.026 inch (0.66 mm) of wear at 1 hour
8. Freeze-Thaw Stability (ASTM C 666)
   a. 28 days 98%
9. Freeze Thaw De-Icing Salt Resistance (ASTM C 672)
   a.50 cycles 0.080 lb / $ft^2$ (391 grams/$m^2$)

2.2 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Sika Corp
2. Sto Concrete Restoration Div.
3. Master Builders
4. Or approved equal.

2.3 MATERIALS

A. Screed Mortar
   1. Material is to be of high strength capable of receiving a vapor barrier/vent base sheet within 6 hours @ 72°F after installation (i.e. will no longer emit water vapor from the drying process after 6 hours). Material is to be capable of being extended with the use of 3/8" aggregate.
      a. Minimum compressive strength of 4,000 psi in 28 days when tested in accordance with ASTM C109.
      b. Minimum slant bond strength of 2,900 psi in 7 days when tested in accordance with ASTM C882.
      c. Minimum flexural strength of 1000 psi in 7 days when tested in accordance with ASTM C348 or ASTM C78.
      d. Rapid Chloride permeability of less than 1000 coulombs when tested in accordance with AASHTO T277/ASTM C1202.

B. Bonding Agent
   1. Corrosion-inhibiting, epoxy/acrylic resin, protective coating for steel reinforcing bars and bonding agent that will not form a vapor barrier or bond break with the screed 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.

C. Miscellaneous Materials
   1. Water: Potable water, ASTM C94
   2. Epoxy paste adhesive: ASTM C882

3. Coarse aggregate: Clean, washed crushed No. 8 stone, 3/8" maximum size, conforming to ASTM C33.

2.4 PRODUCTS

A. Manufactured Screed: Subject to compliance with requirements, provide one of the following:

1. Sika; SikaQuick 1000
2. Sto Concrete; Sto Rapid Screed Mortar
3. Master Builders; EMACO T415 or T430
4. Or approved equal.

B. Manufactured bonding: Subject to compliance with requirements, provide one of the following:

1. Sika; Armatec 110
2. Sto Concrete; Sto Bonding and Anti-corrosion Agent
3. Master Builders; EMACO ADH 326
4. Or approved equal.

PART 3 - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 EXAMINATION

A. Examine all adjoining work on which this work is in anyway dependent for proper installation and workmanship. Report to the Commissioner of any condition that prevents the performance of this work.

3.3 PROTECTION, REMOVALS, AND PREPARATION

A. Protection

1. Protect adjacent surfaces not in contract. Protect sills, ledges, and projections from material droppings.

B. Removals and Surface Preparation

1. Remove any disturbed and weak concrete fill and screed as well as all loose and foreign material. Create a new chip substrate by bush hammering or other mechanical means acceptable to the screed concrete/mortar manufacturer to obtain a minimum surface profile of ICRI CSP 4. At cinder fill areas, remove immediately loose material on the surface. Thickness and perimeter of material is to be a minimum of 1/4" in depth. Feather edging is not permitted.

2. Do not disturb the existing structure during removal of the existing material. Any disturbance to the slab or areas below must be removed to install new at no cost to the City of New York.

3.4 SCREED MORTAR APPLICATION

A. Mix structural screed concrete/mortar in accordance with manufacturer's instruction. Follow time limits set by manufacturer to prevent hardening of material prior to placement. Working time of material is approximately 45 minutes @ 70ºF.

B. Prior to application of material, thoroughly saturate concrete surface with water. Remove any standing water prior to patching. On cinder fill, lightly wet the substrate.

C. Apply a scrub coat of the screed material of proportions determined by manufacturer (indicate in written procedure). While still damp, apply screed mortar. Do not retemper scrub coat. As an alternate, apply manufacturer’s recommended bonding agent. Apply to dry concrete surface 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. Allow to dry a minimum of 30-45 minutes between coats or screed concrete/mortar application. However, apply screed material within 24 hours after last coating. If 24-hour period elapses, reapply bonding agent and allow to dry as above.

D. Pour or trowel screed mortar onto area to be removed and re-installed or re-pitched until it is to the same level and at the same pitch (if adequate) as the surrounding slab or to the new required pitch. Darby and float surface. Leave surface free from depressions, bulges, rough spots, and other defects. For applications over 1/2" (and required for those over 1"), extend material with the addition of 55% clean pea gravel, 3/8" in size.

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 is not to be waved unless manufacturer does not permit it.

3.6 PROTECTION AND CLEANING

A. Clean all adjacent areas of excess material and clean all floors and walls of powder and droppings. Remove misplaced materials from surfaces immediately.

B. Protect material from freezing and from rainfall prior to final set.

3.7 FIELD QUALITY CONTROL

A. The Commissioner will inspect surfaces and reject any that contain cracks or other defects. The newly installed screed areas will be tested for soundness and structural integrity. Any defective areas are to be fixed at Contractor's expense.

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. Any required fees from the manufacturer's representative must be covered by the Contractor.

END OF SECTION 03 01 50.61

# SECTION 03 10 00 - CONCRETE FORMWORK

## 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. Provide forms wherever necessary to confine concrete and shape it to required dimensions. Provide special formwork or formliners for concrete with smooth or special finishes.

B. Related Sections:

1. Structural Cast-in-Place Concrete Forming.....Section 03 11 13

C. Design Requirements:

1. The design and engineering of the formwork, as well as its construction, is the responsibility of the Contractor.

2. As per BC 1906.1 of the 2022 NYC Building Code, design formwork in accordance with Section BC 3305.3 and Section 26.11.2 of ACI 318.

D. References: 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 are mandatory and applicable to the Work.

1. American Concrete Institute (ACI) standards, latest editions.

a. . ACI 301 Specifications for Structural Concrete for Buildings.

b. ACI 318-14 Building Code Requirements for Reinforced Concrete (With modifications per Section BC 1908 of the 2022 NYC Building Code).

c. ACI 347 Guide to Formwork for Concrete.

1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures”.

1.4 SUBMITTALS

A. Product Data - Submit manufacturers' information for the following:

1. Overlaid plyform formwork or formliners
2. Ties, each type and where to be used
3. Form-release agent. Form-release agent to be submitted for review only.

B. Samples

1. Submit 12” x 12” samples of the following items:
2. Overlaid plyform formwork or formliners

1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Protection

1. Protect formwork materials before, during and after installation.

2. Protect installed work and materials of other trades.

B. Replacement

1. Repair or replace damaged formwork as approved by the Commissioner.

2. Repair overlaid plyform formwork as per manufacturer's instructions. Replace pieces when number of manufacturer recommended reuses is up or when finish deteriorates.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Overlaid Plyform Formwork: Subject to compliance with requirements, provide products by one of the following:

1. Simpson Timber Company.
2. Dayton Richmond Concrete Accessories.
3. Pacific Wood Laminates
4. Or approved equal.

B. Form Liners: Subject to compliance with requirements, provide products by one of the following:

1. Greenstreak.
2. Architectural Polymers.
3. Fitzgerald Formliners.
4. Or approved equal.

C. Release Agent: Subject to compliance with requirements, provide products by one of the following:

1. Cresset Chemical Company.
2. Kaufman Products, Inc.
3. W.R Meadows.
4. Or approved equal.

2.2 MATERIALS

A. Rough Formwork

1. Commercial Douglas Fir, DFPA: 5/8" thick minimum or modular metal units.

B. Overlaid Plyform Formwork

1. Plywood with thermosetting phenolic resin or urethane coating bonded to it to provide a flat matte finish.

C. Smooth Form Finish Formliner

1. #340 Smooth Face

2. Nails and staples used to attach formliner to formwork are to be Type 304 stainless steel.

D. Release Agent

1. VOC compliant material for coating forms.

E. Form Ties

1. Form ties for exposed concrete must be adjustable.

2. Form ties for exposed concrete and concrete to receive membranes must be a break-off type and leave no metal closer than $1^1/_2$" to the surface.

3. Form ties for concrete stated in 2 above must be free of devices which leave holes or depressions larger than 7/8" back of exposed surface.

4. Wire ties are not permitted.

PART 3 - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 PREPARATION OF FORMWORK SURFACES

A. Clean all surfaces of forms and embedded items of any accumulated mortar or grout from previous concrete pours and other foreign material before concrete is placed in them. Repair or replace any formwork as required.

B. Before placing either reinforcing steel or concrete, cover the surfaces of the rough or overlaid plyform formwork (when used) with an approved form release agent that will effectively prevent absorption of moisture, prevent bond with the concrete, and which will not stain the concrete surfaces. Material must be carefully applied at the amount recommended by the release agent manufacturer to obtain the desired finish. Do not apply oil or release agents on formwork for concrete to receive coatings such as membrane waterproofing, plaster, or additional concrete (such as at construction joints). Follow manufacturer's recommendations for alternatives. For the overlaid plyform formwork, release agent should be a chemically reactive agent compatible with the factory treatment. Do not allow excess form coating material to stand in puddles in the forms nor allow coating to come in contact with hardened concrete against which fresh concrete is to be placed.

3.3 CONSTRUCTION AND DETAILS

A. Adequately support and substantially brace formwork to hold lines and shape.

B. Formwork must be tight-jointed to prevent leakage of mortar from the concrete.

C. Place chamfer strips in the corners of forms to produce beveled edges (chamfers) on permanently exposed surfaces (such as exposed columns). Do not provide beveled edge for interior corners of such surfaces and where members are flush with partitions or walls, unless required by Drawings or specified elsewhere.

D. Set slab-forms with camber of 1/4" per 10 feet of span to maintain tolerances. For two way slabs the lesser span dimension will govern.

E. Provide positive means of adjustment (wedges or jacks) for shores and struts to take up all settlement during concrete placing operations. Fasten wedges used for final adjustment of forms prior to concrete placement in position after final check. Securely brace forms against lateral deflection.

F. Provide mud sills where shores rest on compressible materials.

G. Provide temporary openings to permit cleaning and inspection. Provide ample time for proper inspection before placement of concrete.

H. Provide "Rough Form Finish" for surfaces not exposed to view. Use plywood or metal forms coated with a release agent.

I. Form holes for pipes, pipe sleeves, electric outlets, electric conduits, etc. as required. Construct woodforms for wall forms to facilitate loosening, if necessary, to counteract swelling of forms.

J. Provide runways for moving equipment with struts or legs, which must be supported directly on the formwork or structural member without resting on the reinforcing steel.

K. Provide for rebates, reglets, grooves keys, pockets, ground nailers, projections and other built-in work prior to placement of concrete. Install reglets as per manufacturer's instructions.

L. Install dovetail slots, concrete inserts, and other metal fabrications. Secure to inside forms and space as specified in Section 055000 or as shown on Drawings.

M. At construction joints, contact surface of the form sheathing for flush surfaces exposed to view must overlap the hardened concrete in the previous placement by not more than 1". The forms must be held against the hardened concrete to prevent offsets or loss of mortar at the construction joint and to maintain a true surface.

N. Form accessories to be partially or wholly embedded in the concrete, such as ties and hangers, must be of a commercially manufactured type. Use of non-fabricated wire is not permitted. Construct form ties so that the ends or end fasteners can be removed without causing appreciable spalling at the faces of the concrete. After the ends or end fasteners of the form ties have been removed, terminate the embedded portion of the ties not less than 2 diameters or twice the minimum dimension of the

tie from the formed faces of concrete to be permanently exposed to view, except that in no case this distance be less than 3/4". When the formed face of the concrete is not to be permanently exposed to view, form ties may be cut off flush with the formed surfaces.

O. Carefully check all forms before placement of concrete. Give special care to suspended first floor slabs resting on compressible material to prevent settlement.

P. Notify the Commissioner if openings are required but not shown on the Drawings, who will issue instructions accordingly.

3.4 REMOVAL OF FORMS AND SHORING

A. Remove forms in such a manner as to assure the complete safety of the structure as required by Section BC 3305.3.5. In no case remove forms or shoring supporting the weight of concrete in beams, slabs or structural members until the members have reached the minimum compressive strength specified on the Drawings or as permitted by the Commissioner.

B. Formwork for columns, walls, sides of beams, and other parts not supporting the weight of the concrete may be removed as soon as the concrete has hardened sufficiently to resist damage from removal operations and as required by C below. For normal temperature conditions, this will be a minimum of 12 hours. For cold weather conditions, this will be increased to 24 hours. Concrete must remain protected at all times.

C. When repair of surface defects or finishing is required at an early age, remove forms as soon as the concrete has hardened sufficiently to resist damage from removal operations.

D. Remove top forms on sloping surfaces of concrete as soon as the concrete has attained sufficient stiffness to prevent sagging. Perform any needed repairs or treatment required on such sloping surfaces at once and follow it with the specified curing.

E. Loosen wood forms for wall openings as soon as this can be accomplished without damage to the concrete.

F. Proper safe shoring, number of shores, adequacy, size and location of these shores and forms must be in accordance with acceptable good construction practice and it is the sole responsibility of the Contractor to provide safe conditions at all times during stripping.

G. Floors supporting shores under wet concrete must be reshored or must have their original shore left in place. The reshores must have at least one-half the load capacity of the shores above and must be distributed in approximately the same pattern as above. Tighten reshores to carry the required loads without overstressing the construction. Leave reshores in place until the freshly placed concrete has

reached 75% of its 28-day strength, unless otherwise specified.

H. When reshoring of beam and girder construction is required, do not remove forms from more than one girder at a time and reshore the girder before any other supports are removed. After the supporting girders are reshored, remove the forms from one beam with its adjacent slab (half slab on each side) and reshore the beam and slab before any other supports are removed.

I. When reshoring of flat slab construction is required, leave the shores for the area within the intersection of the middle strip of each panel in place at all times until the concrete has attained sufficient strength to support the loading to which it will be subjected. After the other shores in each panel have been removed (within the bay), place reshores on the column lines at the midpoints between columns, before the next panel is stripped.

J. Stripping and reshoring must conform to the requirements of Section BC 3305.3.6. Perform control tests as per Section BC 3305.3.5.6 for the removal of forms and shoring without simultaneous reshoring. Proper number, adequacy, size, and location of reshores must be in accordance with acceptable good construction practice and it is the sole responsibility of the Contractor to provide safe conditions at all times during stripping and reshoring operations.

## 3.5 TOLERANCES

A. Construct formwork so that concrete surfaces will conform to the tolerance limits listed in ACI 117.

B. Establish and maintain in an undisturbed condition and until final completion and acceptance of the project sufficient control points and bench marks to be used for reference purposes to check tolerances.

C. Regardless of the tolerances listed, do not extend any portion of the concrete work beyond the lot or street line.

## 3.6 INSPECTION

A. Under the requirements of Section BC 3305.3.3.1, formwork, including shores, reshores, braces, and other supports must be inspected by a qualified person engaged by the Contractor. The qualified person must make inspections prior to placement of steel to verify correct sizes of members formed and subsequently periodically after placement and during placement of concrete to detect incipient problems. Maintain a record of all inspections.

B. Under the requirements of Section BC 1705.3, the City of New York will assign a Special Inspector to inspect formwork for size of members and to verify in-situ concrete strengths prior to removal of formwork and shores from beams and slabs.

C. During and after concrete placement, check elevations, camber, and vertical alignment of formwork systems using tell-tale devices.

D. Keep a record of all inspections, the name of the persons making them, and the name of the foreman in charge of formwork at the site. Submit to the Commissioner a copy of the inspection records prior to each concrete placement.

END OF SECTION 03 10 00

# SECTION 03 11 13 – STRUCTURAL CAST-IN-PLACE CONCRETE FORMING

## 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 SUUMMARY

A. Section Includes:

1. Provide forms wherever necessary to confine concrete and shape it to required dimensions.

B. Related Sections

1. Miscellaneous Cast-in-Place Concrete.....Section 03 30 53

C. References - 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 must be deemed mandatory and applicable to the Work.

1. ACI 301 Specifications for Structural Concrete for Buildings.
2. ACI 318-14 Building Code Requirements for Reinforced Concrete (With modifications per Section BC 1908 of the 2022 NYC Building Code).
3. ACI 347 Guide to Formwork for Concrete.

D. Design Requirements

1. The design and engineering of the formwork, as well as its construction, is the responsibility of the Contractor.

2. As per BC 1906.1 of the 2022 NYC Building Code, design formwork in accordance with Section BC 3305.3 and Section 26.11.2 of ACI 318.

E. Regulatory Requirements

1. Building Code

a. Work of this Section must conform to all requirements of the NYC Building Code. Where more severe requirements than those contained in

the Building Code are given in this Section and ACI 347, the requirements of this Section and ACI 347 must govern.

2. Industrial Code Rule #23 of the Department of Labor, paragraphs 23.10.1 to 23-10.5 inclusive.

3. ACI 347.

1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures”.

1.4 SUBMITTALS

A. Product Data: Submit manufacturers' information for the following:

1. Overlaid plyform formwork or formliners

2. Ties, each type and where to be used

3. Form-release agent. Form-release agent to be submitted for review only.

B. Samples: Submit 12” x 12” samples of the following items:

1. Overlaid plyform formwork or formliners

C. Shop Drawings

1. Prepare and submit formwork shop drawings and calculations prepared and sealed by a Professional Engineer licensed in the State of New York for review when required by Section NYC BC 3305.3.2.1.

1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Protection

1. Protect formwork materials before, during and after installation.

2. Protect installed work and materials of other trades.

B. Replacement

1. Repair or replace damaged formwork as approved by the Commissioner.

2. Repair overlaid plyform formwork as per manufacturer's instructions. Replace pieces when number of manufacturer recommended reuses is up or when finish deteriorates.

PART 2 - PRODUCTS

2.1 MANUFACTURERS/PRODUCTS

A. Overlaid Plyform Formwork; Subject to compliance with requirements, provide one of the following:

1. Simpson Timber Company; Symons Symply
2. Dayton Richmond Concrete Accessories; HDO Plyform
3. TDG Corp; Formdo Pro
4. Or approved equal

B. Release Agent: Subject to compliance with requirements, provide one of the following:

1. Cresset Chemical Company; Crete-Lease 880
2. Kaufman Products, Inc.; Form Kote
3. SpecChem; Spec Strip VOC 100
4. Or approved equal

2.2 MATERIALS

A. Rough Formwork - Must be Commercial Douglas Fir, DFPA: 5/8" thick minimum or modular metal units.

B. Overlaid Plyform Formwork - Plywood with thermosetting phenolic resin or urethane coating bonded to it to provide a flat matte finish.

C. Smooth Form Finish Formliner

1. Smooth.

2. Nails and staples used to attach formliner to formwork are to be Type 304 stainless steel.

D. Release Agent

1. VOC compliant material.

E. Form Ties

1. Form ties for exposed concrete must be adjustable.

2. Form ties for exposed concrete and concrete to receive membranes must be a break-off type and leave no metal closer than $1^{1}/_{2}$" to the surface.

3. Form ties for concrete stated in 2 above must be free of devices which leave holes or depressions larger than 7/8" back of exposed surface.

4. Wire ties not permitted.

PART 3 - PROCEDURES

3.1 EXECUTION REQUIREMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 PREPARATION OF FORMWORK SURFACES

A. Clean all surfaces of forms and embedded items of any accumulated mortar or grout from previous concreting and other foreign material before concrete is placed in them. Repair or replace any formwork as required.

B. Before placing either reinforcing steel or concrete, cover the surfaces of the rough or overlaid plyform formwork (when used) with an approved form release agent that will effectively prevent absorption of moisture, prevent bond with the concrete, and which will not stain the concrete surfaces. Material must be carefully applied at the amount recommended by the release agent manufacturer to obtain the desired finish. Do not apply oil or release agents on formwork for concrete to receive coatings such as membrane waterproofing, plaster, or additional concrete (such as at construction joints). Follow manufacturer's recommendations for alternatives. For the overlaid plyform formwork, release agent should be a chemically reactive agent compatible with the factory treatment. Do not allow excess form coating material to stand in puddles in the forms nor allow coating to come in contact with hardened concrete against which fresh concrete is to be placed.

3.3 CONSTRUCTION AND DETAILS

A. Adequately support and substantially brace formwork to hold lines and shape.

B. Formwork must be tight jointed to prevent leakage of mortar from the concrete.

C. Place chamfer strips in the corners of forms to produce beveled edges (chamfers) on permanently exposed surfaces (such as exposed columns). Do not provide beveled edge for interior corners of such surfaces and where members are flush with partitions or walls, unless required by Drawings or specified elsewhere.

D. Set slab-forms with camber of 1/4" per 10 feet of span to maintain tolerances. For two way slabs the lesser span dimension must govern.

E. Provide positive means of adjustment (wedges or jacks) for shores and struts to take up all settlement during concrete placing operations. Fasten wedges used for final adjustment of forms prior to concrete placement in position after final check. Securely brace forms against lateral deflection.

F. Provide mud sills where shores rest on compressible materials.

G. Provide temporary openings to permit cleaning and inspection. Provide ample time for proper inspection before placement of concrete.

H. Provide "Rough Form Finish" for surfaces not exposed to view. Use plywood or metal forms coated with a release agent.

I. Form holes for pipes, pipe sleeves, electric outlets, electric conduits, etc. as required. Construct woodforms for wall forms to facilitate loosening, if necessary, to counteract swelling of forms.

J. Provide runways for moving equipment with struts or legs, which must be supported directly on the formwork or structural member without resting on the reinforcing steel.

K. Provide for rebates, reglets, grooves keys, pockets, ground nailers, projections and other built-in work prior to placement of concrete. Install reglets as per manufacturer's instructions.

L. Install dovetail slots, concrete inserts, and other metal fabrications. Secure to inside forms and space as specified in Section 05 50 00 or as shown on Drawings.

M. At construction joints, contact surface of the form sheathing for flush surfaces exposed to view must overlap the hardened concrete in the previous placement by not more than 1". The forms must be held against the hardened concrete to prevent offsets or loss of mortar at the construction joint and to maintain a true surface.

N. Form accessories to be partially or wholly embedded in the concrete, such as ties and hangers, must be of a commercially manufactured type. Use of non-fabricated wire is not permitted. Construct form ties so that the ends or end fasteners can be removed without causing appreciable spalling at the faces of the concrete. After the ends or end fasteners of the form ties have been removed, terminate the embedded portion of the ties not less than 2 diameters or twice the minimum dimension of the tie from the formed faces of concrete to be permanently exposed to view, except that in no case must this distance be less than 3/4". When the formed face of the concrete is not to be permanently exposed to view, form ties may be cut off flush with the formed surfaces.

O. Carefully check all forms before placement of concrete. Give special care to suspended first floor slabs resting on compressible material to prevent settlement.

P. Notify the Commissioner if openings are required but not shown on the Drawings, who will issue instructions accordingly.

3.4 REMOVAL OF FORMS AND SHORING

A. Remove forms in such a manner as to assure the complete safety of the structure as required by Section BC 3305.3.5. In no case remove forms or shoring

supporting the weight of concrete in beams, slabs or structural members until the members have reached the minimum compressive strength specified on the Drawings or as permitted by the Commissioner.

B. Formwork for columns, walls, sides of beams, and other parts not supporting the weight of the concrete may be removed as soon as the concrete has hardened sufficiently to resist damage from removal operations and as required by C below. For normal temperature conditions, this must be a minimum of 12 hours. For cold weather conditions, this must be increased to 24 hours. Concrete must remain protected at all times.

C. When repair of surface defects or finishing is required at an early age, remove forms as soon as the concrete has hardened sufficiently to resist damage from removal operations.

D. Remove top forms on sloping surfaces of concrete as soon as the concrete has attained sufficient stiffness to prevent sagging. Perform any needed repairs or treatment required on such sloping surfaces at once and follow it with the specified curing.

E. Loosen wood forms for wall openings as soon as this can be accomplished without damage to the concrete.

F. Proper safe shoring, number of shores, adequacy, size and location of these shores and forms must be in accordance with acceptable good construction practice and it is the sole responsibility of the Contractor to provide safe conditions at all times during stripping.

G. Reshoring is subject to the approval of the Special Inspector. While reshoring is underway, do not permit live load on new construction. Members must never be left unsupported until concrete has attained required strength to be left unsupported as verified by the Special Inspector and if approved by the Commissioner.

H. Floors supporting shores under wet concrete must be reshored or must have their original shore left in place. The reshores must have at least one-half the load capacity of the shores above and must be distributed in approximately the same pattern as above. Tighten reshores to carry the required loads without overstressing the construction. Leave reshores in place until the freshly placed concrete has reached 75% of its 28-day strength, unless otherwise specified.

I. When reshoring of beam and girder construction is required, do not remove forms from more than one girder at a time and reshore the girder before any other supports are removed. After the supporting girders are reshored, remove the forms from one beam with its adjacent slab (half slab on each side) and reshore the beam and slab before any other supports are removed.

J. When reshoring of flat slab construction is required, leave the shores for the area within the intersection of the middle strip of each panel in place at all times until the concrete has attained sufficient strength to support the loading to which it will be subjected. After the other shores in each panel have been removed (within the

bay), place reshores on the column lines at the midpoints between columns, before the next panel is stripped.

K. Stripping and reshoring must conform to the requirements of Section BC 3305.3.6. Perform control tests as per Section BC 3305.3.5.6 for the removal of forms and shoring without simultaneous reshoring. Proper number, adequacy, size, and location of reshores must be in accordance with acceptable good construction practice and it is the sole responsibility of the Contractor to provide safe conditions at all times during stripping and reshoring operations.

3.5 TOLERANCES

A. Construct formwork so that concrete surfaces will conform to the tolerance limits listed in ACI 117.

B. Establish and maintain in an undisturbed condition and until final completion and acceptance of the project sufficient control points and bench marks to be used for reference purposes to check tolerances.

C. Regardless of the tolerances listed, do not extend any portion of the concrete work beyond the lot or street line.

3.6 INSPECTION

A. Under the requirements of Section BC 3305.3.3.1, formwork, including shores, reshores, braces, and other supports must be inspected by a qualified person engaged by the Contractor. The qualified person must make inspections prior to placement of steel to verify correct sizes of members formed and subsequently periodically after placement and during placement of concrete to detect incipient problems. Maintain a record of all inspections.

B. Under the requirements of Section BC 1705.3, the City of New York will assign a Special Inspector to inspect formwork for size of members and to verify in-situ concrete strengths prior to removal of formwork and shores from beams and slabs.

C. During and after concrete placement, check elevations, camber, and vertical alignment of formwork systems using tell-tale devices.

D. Keep a record of all inspections, the name of the persons making them, and the name of the foreman in charge of formwork at the site. Submit to the Commissioner a copy of the inspection records prior to each concrete placement.

END OF SECTION – 03 11 13

# SECTION 03 30 53 – MISCELLANEOUS 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. Section includes:

1. Furnish material, equipment, labor, services required to provide for new cast-in-place concrete. Work includes but is not limited to:

    a. Casting-in-place new concrete footings to support the new antenna metal dunnage
    b. Casting-in-place new concrete pedestals to support existing individual antennas.
    c. Casting-in-place new concrete curbs to support existing four-legged dish antenna.
    d. Casting-in-place new portion of concrete encasement at designated existing steel components

2. Casting-in-place of new concrete components must only use concrete specially formulated for these applications. Casting new portions of concrete must include:

    a. Sounding out entirety of all designated areas of work and removing all cracked/spalled/loose concrete.
    b. Casting-in-place vertical, horizontal, top, and underside work areas at designated locations.
    c. Repairing any encountered and deteriorated steel by scraping, wire brushing and coating, and when badly deteriorating or missing, replacing in accordance with the specifications.
    d. Forming and shoring as required to complete this work.

3. Allow ample time and facility for the Work of other Divisions to be installed.

B. Related sections:

1. Section 03 01 30 Maintenance of Cast-In-Place Concrete
2. Section 07 56 00 Fluid-Applied Roofing

C. Products Installed but Not Furnished Under This Section

1. Products to be installed include, but are not limited to, the following:
    a. Sleeves for the antenna dunnage, pipes, conduits, anchor bolts and other items cast into concrete under Section 05 50 00.

D. References

1. 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 must be deemed mandatory and applicable to the Work.

   a. American Society of Testing and Materials (ASTM) standards, latest editions.
      1) C31 Std. Practice for Making and Curing Conct. Test Specimens in the Field.
      2) C33 Std. Specifications for Conct. Aggregates.
      3) C39 Std. Test Method for Compressive Strength of Cylindrical Conct. Specimens.
      4) C42 Std. Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.
      5) C78 Std. Test Method for Flexural Strength of Conct.(Using Simple Beam with Three-point Loading)
      6) C94 Std. Specification for Ready-Mixed Concrete.
      7) C127 Std. Test Method for Density, Relative Density (Specific Gravity) and Absorption of Course Aggregate.
      8) C131 Std. Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angles Machine.
      9) C138 Std. Test Method for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Conct.
      10) C143 Std. Test Method for Slump of Hydraulic Cement Concrete.
      11) C150 Std. Specification for Portland Cement.
      12) C172 Std. Method of Sampling Freshly Mixed Concrete.
      13) C173 Std. Test Method for Air Content of Freshly Mixed Conct.by the Volumetric Method.
      14) C192 Std. Practice for Making and Curing Conct. Test Specimens in the Laboratory.
      15) C231 Std. Test Method for Air Content of Freshly Mixed Conct.by the Pressure Method.
      16) C260 Std. Specifications for Air-Entraining Admixtures for Concrete.
      17) C309 Std. Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
      18) C330 Std. Specification for Lightweight Aggregates for Structural Concrete.
      19) C387 Std. Specification for Packaged, Dry, Combined Materials for Mortar and Concrete.
      20) C494 Std. Specification for Chemical Admixture for Concrete.
      21) C496 Std. Test Method for Splitting Tensile Strength of Cylindrical Conct. Specimens.
      22) C567 Std. Test Method for Density of Structural Lightweight Concrete.
      23) C685 Std. Specification for Conct. Made by Volumetric Batching and Continuous Mixing.
      24) C882 Std. Test Method for Bond Strength of Epoxy-Resin Systems used with Conct.by Slant Shear

25) C1315 Std. Specification for Liquid-Forming Compounds Having Special properties for Curing and Sealing Concrete
26) E96 Std. Test Methods for Water Vapor Transmission of Materials
27) E154 Std. Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs
28) E329 Std. Specification for Agencies Engaged in the Testing and/or Inspection of Materials used in Construction
29) E1155 Std. Test Method for Determining $F_F$ Floor Flatness and $F_L$ Floor Levelness Numbers
30) E1643 Std. Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Conct. Slabs
31) E1745 Std. Specification for Plastic Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Conct. Slabs.

b. American Concrete Institute (ACI) standards, latest editions.
1) ACI 117 Standard Tolerances for Concrete Construction and Materials
2) ACI 211.1 Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete.
3) ACI 211.2 Standard Practice for Selecting Proportions for Structural Lightweight Concrete.
4) ACI 212.3R Chemical Admixtures for Concrete.
5) ACI 214 Evaluation of Results of Tests Used to Determine the Strength of Concrete.
6) ACI 301 Specifications for Structural Concrete for Buildings.
7) ACI 302.1R Guide for Concrete Floor and Slab Construction.
8) ACI 304R Guide for Measuring, Mixing, Transporting and Placing Concrete.
9) ACI 305R Guide to Hot Weather Concreting.
10) ACI 306R Guide to Cold Weather Concreting.
11) ACI 308 Standard Practice for Curing Concrete.
12) ACI 309R Guide for Consolidation of Concrete.
13) ACI 311.4R Guide for Concrete Inspection.
14) ACI 318-14 Building Code Requirements for Reinforced Concrete (With modifications per Section BC 1908 of the 2022 NYC Building Code).

c. American Association of State Highway and Transportation Officials
1) T318-07 Water Content of Freshly Mixed Concrete Using Microwave Oven Testing

1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures”.

1.4 SUBMITTALS

A. Product Data - Submit manufacturers' information for the following:
1. Admixtures
2. Curing compounds
3. Hardener
4. Bonding Agent

5. Beam clips
6. Vapor barrier
7. Vapor retarder
8. Waterstop

B. Samples - If shown on construction details, submit samples of the following items
   1. Vapor Barrier
   2. Vapor Retarder
   3. Beam clips
   4. Waterstop

C. Quality Control Submittals
   1. Design Data: Submit design mixes for concrete, including list of admixtures to be used. Design mix for lightweight concrete must include both the dry and saturated (SSD) weights of the aggregate.
   2. Test Reports: Strength Test Report for preliminary trial mix (with all admixtures).
   3. Certificates
      a. Building Department form TR3, signed and sealed by the licensed concrete laboratory and concrete producer.
      b. Admixture manufacturer's certificate stating that the chloride content of the admixture will not exceed 0.05% by weight.
      c. Concrete laboratory license number and certification of meeting ASTM E329 standards.
      d. Concrete producer’s certificate stating the plant and trucks are NYSDOT approved.
      e. Concrete producer's Computer Batch Ticket in accordance with Section BC 1905.8.2.3.1 of the 2022 NYC Building Code must be presented at site to the Special Inspector before concrete is placed for every load of concrete delivered.
      f. Aggregate suppliers certificate attesting that aggregates proposed are not alkali-silica reactive or provide NYS Department of Transportation approval of the aggregate source.
   4. Manufacturer’s Instructions - Waterstop manufacturer's instructions for proper installation of waterstop, including manner in which splices are to be made.

1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Assurance”.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Protect material from the elements and from other damage on the site.

B. Replace and pay for material and work damaged to the satisfaction of the Commissioner.

1.7 ENVIRONMENTAL REQUIREMENTS

A. Adequately protect concrete placed during rain, sleet, or snow, or when the mean daily temperature falls below 40°F or rises above 90°F as provided in Article 3.6.

PART 2 – PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Performance Characteristics:
1. Minimum concrete strengths and other characteristic design requirements as per Article 1.4 to meet minimum durability and finish requirements of Section BC 1904. Revise strengths if required by design. Verify strength given on Drawings and in Specifications match.

2. Site structures (portions of slab, footings, curbs, encasements, etc.): Normal weight concrete with a minimum compressive strength of 4000 psi, air entrained, and a maximum water to cementitious ratio of 0.40.

B. Normal weight concrete - Concrete for which density is not a controlling attribute, made with aggregates of the types covered by ASTM C33 and usually having unit weights in the range of 135 to 160 lb/ft$^3$.

2.2 MATERIALS

A. Cementitious Materials
1. Portland cement must conform to ASTM C150 and must be of the non air-entrained types:
a. Unless otherwise specified or approved by the Commissioner, cement must be Type I or II.
b. Type II must be used for exterior pavements.
c. Cement must not contain ingredients that would result in more than two percent air being entrained in the concrete.
2. Ground Granulated Blast-Furnace Slag (Slag cement) must conform to ASTM C989, Grade 100 or 120.
3. No other alternate cementitious materials may be utilized.

B. Admixtures
1. General
a. The use of admixtures must comply with the requirements of Section BC 1903.7.
b. The final soluble chloride content in concrete, percent by weight of cement, due to the addition of admixtures and other ingredients must not exceed 0.05 at 28 days. All admixtures must be non-corrosive.
c. The amount of cement required by the Building Code may be reduced by 40% as per the code with the use of slag cement that has been reviewed and approved by the Commissioner.

2. Air-entraining admixture: Must conform to ASTM C260.

3. Water-reducing admixture: Must conform to ASTM C494, Type A or D, and contain no more chloride ions than found in drinking water.

4. High range, water-reducing admixture (super- plasticizer): Must conform to ASTM C494, Type F or G, and contain no more chloride ions than found in drinking water.

5. Water reducing, accelerating admixture: Must conform to ASTM, Type C or E, and contain no more chloride ions than found in drinking water. The admixture manufacturer must have long term non-corrosive test data from an independent testing laboratory of at least a year's duration using an acceptable accelerated corrosion test method such as that using electrical potential measures.

6. Water reducing, retarding admixture: Must conform to ASTM C494, Type D, and contain no more chloride ions than found in drinking water.

C. Water
1. Must be clean potable water free of injurious foreign matter conforming to the requirements of Section BC 1903.5.

D. Aggregates
1. Fine and coarse aggregates must be regarded as separate ingredients. Each size of coarse aggregate, as well as the combination of sizes when two or more are used, must conform to the appropriate grading requirements of the applicable ASTM specifications. Maximum size of coarse aggregate must conform to Section 26.4.2.1 (a)(4) of ACI 318.
2. Aggregates for normal weight concrete must conform to ASTM C33 and be of Size No.57, No.67 and/or No.8.
3. Aggregates for lightweight concrete must conform to ASTM C330 and be of sizes 3/4" to No.4, 1/2" to No.4, and/or 3/8" to No.8.

2.3 MANUFACTURERS / PRODUCTS

A. Non-Strippable Curing Compounds: Subject to compliance with requirements, provide one of the following:
1. Euclid Chemical Co.; Super Aqua Cure VOX or "Super Diamond Clear VOX
2. Master Builders; Masterkure 100W
3. Kaufman Products, Inc.; Krystal 25 Emulsion
4. Or approved equal.

B. Strippable Curing Compounds: Subject to compliance with requirements, provide one of the following:
1. Euclid Chemical Co.; Kurez DR Vox or Kurez W Vox
2. Master Builders; "Masterkure N-Seal VOC"
3. Kaufman Products, Inc.; Thinfilm 420
4. Or approved equal.

C. Concrete Joints Waterstops: Subject to compliance with requirements, provide one of the following:
   1. BBZ USA-Greenstreak; Duroseal Gasket
   2. Sika Corp; SikaSwell Profile
   3. DeNeef (Grace); Swellseal 8
   4. Or approved equal.

D. Bonding Agent: Subject to compliance with requirements, provide one of the following:
   1. Sika Corp.; Armatec 110
   2. Kaufman Products, Inc.; SurePoxy HM24
   3. Euclid Chemical Co.; DuralPrep AC
   4. Or approved equal.

E. Densifier/Sealer: Subject to compliance with requirements, provide one of the following:
   1. Euclid Chemical Co.; Euco Diamond Hard
   2. Curecrete Chemical Co.; Ashford Formula
   3. Kaufman Products, Inc.; Sure Hard 464
   4. Or approved equal.

F. Vapor Barrier: Subject to compliance with requirements, provide one of the following:
   1. Stego Industries; Stego Wrap 15 mil Vapor Barrier
   2. Reef Industries; Griffolyn 15 mil Gree
   3. W.R. Meadows; Perminator 15 mil
   4. Or approved equal.

G. Vapor Retarder: Subject to compliance with requirements, provide one of the following:
   1. Stego Industries; Stego Wrap 10 mil Vapor Retarder
   2. Reef Industries; Griffolyn 10 mil Green
   3. W.R. Meadows; Perminator 10 mil
   4. Or approved equal.

H. Expansible Reed Clips for Concrete Encased Structural Steel: Subject to compliance with requirements, provide one of the following:
   1. Clarck Dietrcih; Extended Fast Clips
   2. JD Russell Co.; EZ-Strip Form Clips
   3. IWI; Encore Clinch Clips
   4. Or approved equal.

2.4 MIXES

A. The contractor will be responsible for, and bear all costs associated with the filing and securing of approvals, if any, for Form TR3: Technical Report Concrete Design Mix, including, but not limited to, engaging the services of a New York City licensed Concrete Testing Lab for the review and approval of concrete design mix, testing, signatures and professional seals, etc., compliant with NYC Department of Buildings requirements, for each concrete design mix.

B. General
1. Concrete for all parts of the Work must be of the specified quality capable of being placed without excessive segregation and, when hardened, of developing all characteristics required by the Specifications and Drawings.

C. Strength
1. Given strength requirements on attached drawings are based on 28-day compressive strength, unless high early strength is specified, in which case required strengths are based on 7-day compressive strength. Mixes with slag will have a slower initial set time, which must be taken into account when finishing.

D. Method of Proportioning
1. Proportion, batch, and mix concrete in accordance with Section BC 1905. The licensed concrete laboratory is responsible for running the mix and signing the TR3 for filing with the Building Department. Proportion concrete mix in accordance with Section BC 1905.3.

2. Mix designs are specific to material used, concrete producer, and method of placement. Each mix design must be reviewed by the Commissioner and accepted prior to placement along with accompanying TR3 signed by the lab and concrete producer.
3. The recycled content in the concrete mix must be 40% of the cementitious content or a minimum of 6% of the dry weight.

E. Normal Weight Concrete
1. Unless otherwise specified, proportion and produce normal weight concrete to have a maximum slump of 4” or less. A tolerance of up to 1" above the indicated maximum must be allowed for individual batches provided the average for all batches or the most recent 10 batches tested, whichever is fewer, does not exceed the maximum limit. The slump must be determined by ASTM C143. Concrete containing High Range Water Reducer must have a slump not exceeding 9”, unless otherwise approved by the Commissioner. The concrete must arrive at the job site with a water slump of 2" to 3" prior to addition of HRWR, which must be verified prior to HRWR being added. The HRWR admixture must be added at the site to increase the slump to the approved level.
2. The concrete producer must provide a re-dosage chart onsite to maintain proper slump or slump-flow. The chart must indicate dosage per remaining concrete and expected slump or slump flow increase. This proposed chart must be approved by the Commissioner.

3. Where Normal weight concrete is indicated to be air-entrained, provide the following air content for the grading size of coarse aggregate as follows:

   a. No.8.....$7^1/_2$%
   b. No.57 or 67.....6%

4. Tolerance on air content as delivered must be $\pm$1.5%.

2.5 SOURCE QUALITY CONTROL

A. Tests
   1. A NYC Licensed Testing Laboratory will review and/or check test proposed materials for compliance with the Specifications prior to construction.
   2. The Testing Laboratory will perform field tests as work progresses as listed in "Field Quality Control".

B. Inspection
   1. Testing Laboratory
      a. The City of New York will engage a Licensed Concrete Testing Laboratory to inspect batching of the concrete at their discretion to perform all field tests. The Laboratory will perform the following services:
         1) Review and/or check-test the Contractor's proposed materials for compliance with the Specifications.
         2) Review and/or check-test the Contractor's proposed mix design.
         3) Secure production samples of materials at plants or stock-piles during the course of the Work and test for compliance with the Specifications.
         4) Perform tests during construction as required by Section BC 1905.6.2. The Laboratory will obtain samples at the mixer and when directed by the Commissioner at the point of placement by the following methods:
            a) Secure composite samples in accordance with ASTM C172. Each sample must be obtained from a different batch of concrete on a random basis, avoiding any selection of the test batch other than by a number selected at random before commencement of concrete placement.
            b) Mold and cure specimens from each sample in accordance with ASTM C31 and perform strength tests.
      b. The City of New York may assign a qualified concrete technician to be stationed at the batch plant depending on the size of the project or evidence of poor concrete breaks. At least one qualified concrete technician will be stationed at the site to obtain the test specimens.
      c. The Laboratory will be responsible to and under the supervision of the Special Inspector.

2. Special Inspector
   a. The City of New Yok will assign, under the requirements of Section BC 1705.3, a Special Inspector who will supervise the testing of the materials and the inspection of concrete construction. The Special Inspector is responsible for any required filing with the Building Department, as well as maintaining a logbook of the concrete work.
   b. The Special Inspector will check that all required tests are made and the results submitted. The Special Inspector will also report to the Building Department Superintendent any deviation from the requirements of the Code, as indicated by records of inspection and reports of tests.
3. Notification
   a. Notify the Special Inspector in writing at least forty-eight hours in advance of each concrete placement. Contractor will notify the Testing Laboratory immediately to order out the necessary concrete technicians to cover the work.
   b. During the placement of the concrete, notify the inspector immediately of any delay at the concrete plant or at the job site. Where the City of New York decides to provide a technician at the plant, do not mix concrete or add admixtures unless the Technician is present. Do not add admixtures to be added at the site unless the Technician is present.
4. Contractor’s Responsibility for Quality Control
   a. The Contractor will receive a copy of all reports prepared by the Laboratory and/or Special Inspector. Copies of the daily concrete reports prepared by the Special Inspector will be available for reference.
   b. The Contractor will therefore be afforded an opportunity to review all reports and mix data and submit to the Special Inspector any recommendations in changing the mixes provided they conform to the Code and Specifications. Any testing required because of changes in materials or proportions of the mix requested by the Contractor, as well as any extra testing of concrete or materials occasioned by the failure to meet Specification requirements must be at the Contractor's expense. The Contractor, at any time, can arrange to have independent tests made at own expense by an approved laboratory and submit the reports and recommendations to the Commissioner.
   c. The tests and inspections, as provided in the Code, do not in any way relieve the Contractor of responsibility to construct the Work in accordance with the Drawings and Specifications and to use safe, standard methods of construction at all times, safeguarding the public, workmen, and structure. The Contractor must be solely responsible for the physical control of the materials and concrete mixes, and must see that such mix designs, tests, and controls are in accordance with the Code and Specifications.
   d. It is the Contractor's complete responsibility to adjust, alter, and/or correct any controls necessary in materials and/or concrete operation based upon tests and inspections made by the Special Inspector or the Contractor's independent tests. If, during the course of the concrete operations, a lower water content or more cement is needed

per cubic yard above that used in the approved design mix, provide same at no additional cost to the City of New York.

e. If the Contractor requests any deviation from the Specifications and Drawings, or makes or causes to be made any change of construction from Drawings and Specifications, and such request requires the time and investigation of the Commissioner, pay all costs incurred relating to such time and investigation.

PART 3 - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 EXAMINATION

A. Prior to placement of concrete, verify that the concrete cover over the reinforcement is that specified on Drawings.

B. Prior to placement of concrete, verify that the edge of deck and slab are within the required tolerance from theoretical. If not within tolerance, concrete must not be placed until the slab edge is corrected.

C. Verify that anchor bolts, reinforcement, and all other embedded items are provided and held securely, positioned accurately, and will not be a detriment to concrete placement.

D. Examine all adjoining work on which this Work is in any way dependent for proper installation and workmanship. Report to the Commissioner any condition that prevents the performance of this Work.

3.3 PROTECTION

A. Protect concrete members on grade and the subgrade from freezing before and after installation. Provide blankets and other items necessary.

B. Protect adjacent finish materials and previously poured concrete against spatter during concrete placement.

C. Provide and maintain barricades and safeguards around openings, etc. to protect workmen from injury and to comply with all requirements and regulations set forth by the NYC Building Code, OSHA, NYC Fire Code, and NYC Department of Environmental Protection (DEP).

3.4 PREPARATION

A. Remove ice, excess water, trash, and rubbish from forms.

B. Remove hardened concrete from inner surfaces of conveying equipment and all formwork, reinforcement, and dowels.

C. Prepare previously placed concrete to be in contact with new concrete in the manner described under "Construction Joints".

D. Prepare existing concrete to be in contact with new concrete by roughening and cleaning the surface and applying a bonding agent. Surface must be free of laitance. Concrete must be placed after agent cures and within 20 hours of applying the bonding agent. If time elapses, apply a new application in accordance with the directions of the manufacturer.

E. In case a conflict arises between concrete as poured and other Work that requires cutting into concrete beams, columns, walls, or slabs, submit requests to the Commissioner, who will issue instructions accordingly. Cutting of concrete is otherwise prohibited.

F. Do not place concrete on frozen ground.

3.5 JOINTS AND EMBEDDED ITEMS

A. Construction Joints
1. Make joints not shown on Drawings at locations that will least impair the strength of the structure and comply with requirements of Section 26.5.6 of ACI 318, as required by Section BC 1906.4. Such location is subject to the approval of the Commissioner.
2. Continue reinforcement across joints. Provide longitudinal keys at least $1^1/_2$" deep in walls and provide other keys as required. Drawings indicate keys or roughened surface at interface of walls and footings.
3. Thoroughly clean concrete surface of oil, grease, and other contaminants and remove all laitance prior to placement of adjoining concrete. Roughen surface of the concrete in an approved manner that will expose the aggregate uniformly to a 1/4" amplitude and will not leave laitance, loosened particles of aggregate, or damaged concrete at the surface. Dampen surface immediately prior to placement.
4. Properly install all embedded items where required.

B. Expansion Joints
1. Do not extend reinforcement or other embedded metal items bonded to concrete continuously through expansion joint. Provide smooth dowels greased on one end at the joints with end cap or insert into pvc sleeve of length greater than the dowel length by .75” minimum.
2. Provide joint filler of type specified in Section 079200 at the expansion joint of the sizes indicated on the Drawings or specified herein.

C. Waterstops
1. Provide waterstops at all joints and all penetrations of foundation wall and slabs (all interior slabs on grade) of type indicated in Part 2 of this Section. All surfaces onto which material is placed must be clean and smooth. Do not let materials come in contact with water by covering waterstops, forms, or other means necessary. Provide minimum clearance from edge of concrete as per manufacturer’s recommendations, typically 3”.

2. Provide maximum practical lengths for each piece so that the number of end joints will be held to a minimum.
3. Make joints in such a manner that they develop effective watertightness fully equal to that of the continuous material. All joints to be lapped as per manufacturer's instructions.
4. Use manufacturer's adhesive or swelling paste type for applying gasket type to previously poured concrete and/or waterproofing membrane. Surface onto which waterstop is placed must be smooth.
5. Provide swelling paste type at all pipe penetrations, conduits, drains, steel members, and other areas where items penetrate the concrete foundation system and at uneven concrete surfaces.
6. If water penetrates joints in which waterstops are placed at locations or at cracks and cold joints, the Contractor must remediate the crack with injection material recommended by the Commissioner that will stop the water seepage at no cost to the City of New York.

D. Other embedded items
1. Place post sleeves, pipe sleeves, inserts, anchors, anchor bolts, and other embedded items prior to concreting and as indicated on details. Install link-seal watertight sleeves through foundation walls and slabs and other locations where watertight construction is required and where indicated on Drawings as per manufacturer's instructions. Coordinate with other trades, all Drawings, and manufacturer for sizes, location, and quantity.
2. Provide ample notice and opportunity for items of other Divisions to be introduced and/or furnished for installation before concrete is placed. Coordinate the Work of the other Divisions so all items are placed in their proper location.

E. Placement of Embedded Items
1. Position expansion joint material, waterstops, and other embedded items accurately and support against displacement. Fill voids in sleeves, anchor slots, and inserts temporarily with readily removable material to prevent the entry of concrete into the voids.

3.6 MIXING AND PLACING CONCRETE

A. General
1. Notify the Commissioner at least 48 hours in advance of each concrete placement. Do not place concrete without approval of the Special Inspector.
2. Do not allow rainwater to increase mixing water nor damage surface finish.
3. When placing concrete in cold weather (air temperature below 40ºF), concrete must contain either an accelerating admixture or use Type III cement.

B. Mixing
1. Batch, mix, and transport ready-mixed concrete in accordance with the appropriate sections of ASTM C94 and Section BC 1905.8.2. Truck mixers and agitators must meet the requirements of the Truck Mixers Manufacturer's Bureau or must comply with Section 11 of ASTM C94 and must be NYSDOT approved. All trucks must have working revolution counters and site gages.

Batch all other concretes in accordance with subsection 4.3.1 of ACI 301 only if permitted by the Commissioner and Special Inspector.

2. Batch ready-mixed concrete only in plants that are NRMCA certified and NYSDOT approved. Only plants that are NYSDOT approved with current certification meeting the requirements for certification of the NRMCA for automatic batching and automatic recording will be permitted. Concrete must be batched by the use of automation.
3. Unless otherwise approved by the Commissioner, concrete must be deposited within $1^1/_2$ hours or 300 revolutions of the mixing drum, whichever comes first, after introduction of water to the cement or cement to the aggregate. When the ambient temperature rises above 90°F, the time must be decreased to 1 hour.
4. Tempering and control of mixing water
   a. Mix concrete only in quantities for immediate use. Concrete that has started to set must not be retempered, but must be discarded. Water must not be added at the site.

5. Weather Conditions
   a. Cold weather (Air Temperatures below 40°F)
      1) Concrete must have either an accelerating admixture or use Type III cement.
      2) The temperature of concrete delivered at the site must conform to the temperature limitations given in Section 5 of ACI 301.
      3) If water or aggregate is heated above 100°F, combine the water with the aggregate in the mixer before cement is added. Cement must not be mixed with water or with mixtures of water and aggregate having a temperature greater than 100°F.
      4) Detailed requirements are given in ACI 306R.

   b. Hot Weather (Air Temperatures above 90°F)
      1) Cool the ingredients before mixing, or substitute flake ice or well-crushed ice of a size that will melt completely during mixing for all or part of the mixing water if, due to high temperature, low slump, flash set, or cold joints are encountered.
      2) Detailed requirements are given in ACI 305.
6. Admixtures - General
   a. Add all admixtures prior to mixing unless otherwise specified or directed.
   b. Air-entraining admixtures and other chemical admixtures must be charged into the mixer as solutions and must be measured by means of an approved mechanical dispensing device. The liquid must be considered a part of the mixing water. Admixtures that cannot be added in solution may be weighed or may be measured by volume if recommended by the manufacturer. The accuracy of measurement of any admixture must be within $\pm$3 percent.

c. If two or more admixtures are used in the concrete, add them separately to avoid possible interaction that might interfere with the efficiency of either admixture or adversely affect the concrete. Do not charge admixtures into the mixer in such a manner that they will come in direct contact with the cement.

d. Use of accelerating admixtures or Type III cement must not relax cold weather placement requirements.

e. Use of retarding admixtures in hot weather must be approved by the Special Inspector. Use of such admixtures will not relax hot weather placement requirements.

C. Placing

1. General: Place concrete in accordance with ACI 304R, ACI 318, and Sections BC 1905.9 and BC 1905.10.

2. Conveying

a. Handle concrete from the mixer to place of final deposit as rapidly as practicable by methods that will prevent separation or loss of ingredients and in a manner that will assure that the required quality of concrete is obtained.

b. Conveying equipment must be approved and must be of a size and design such that detectable setting of concrete must not occur before adjacent concrete is placed. Conveying equipment must be cleaned at the end of each operation or workday. Conveying equipment and operations must conform to the following additional requirements:

1) Truck mixers, agitators, and non-agitating units and their manner of operation must conform to the applicable requirements of ASTM C94.

2) Belt conveyors must be horizontal or at a slope which will not cause excessive segregation or loss of ingredients. Concrete must be protected against undue drying or rise in temperature. An approved arrangement must be used at the discharge end to prevent apparent segregation. Mortar must not be allowed to adhere to the return length of the belt. Long runs must be discharged into a hopper or through a baffle.

3) Chutes must be metal or metal-lined and must have a slope not exceeding 1 vertical to 2 horizontal and not less than 1 vertical to 3 horizontal. Chutes more than 20' long and chutes not meeting the slope requirements may be used provided they discharge into a hopper before distribution.

4) Pumping or pneumatic conveying equipment must be of suitable kind with adequate pumping capacity. Pneumatic placement must be controlled so that segregation is not apparent in the discharged concrete. The loss of slump in pumping or pneumatic conveying equipment must not exceed 2". Pumping is permitted only if a pump mix is approved. Concrete must not be conveyed through pipe made of aluminum or aluminum alloy.

3. Depositing: Detailed recommendations are given in ACI 304R.
   a. General
      1) Deposit concrete continuously, or in layers of such thickness that no concrete will be deposited on concrete that has hardened sufficiently to cause the formation of seams or planes of weakness within the section. If a section cannot be placed continuously, locate construction joints at points as provided for in the Drawings, shop drawings, or as approved.
      2) Carry out placement at such a rate that the concrete that is being integrated with fresh concrete is still plastic. Do not deposit concrete that has partially hardened or has been contaminated by foreign material.
      3) Place concrete in a manner that uniformly distributes the material over the metal deck in order to avoid overloading the deck joints.
      4) Remove temporary spreaders in forms when the concrete placing has reached an elevation rendering their service unnecessary. They may remain embedded in the concrete only if made of metal or concrete and if prior approval has been obtained.
      5) Placing of concrete in supported elements must not be started until the concrete previously placed in columns and walls is no longer plastic.
   b. Segregation: Deposit concrete as nearly as practicable in its final position to avoid segregation due to rehandling or flowing. Do not subject concrete to any procedure that will cause segregation. The maximum drop height must be five feet, 10 feet for concrete containing a high range water reducing admixture. Provide drop tubes for placement in forms and other locations where drop height exceeds the indicated maximum.

   c. Consolidation
      1) Consolidation of concrete and the use and type of concrete must be in accordance with ACI 309R.
      2) Where a surface mortar is to be the basis of the finish, the coarse aggregate must be worked back from the forms with a suitable tool so as to bring a full surface of mortar against the form, without the formation of excessive surface voids.
      3) Consolidate all concrete by vibration so that the concrete is thoroughly worked around the reinforcement, around embedded items and into corners of forms, eliminating all air or stone pocket or weakness. Internal vibrators must be the largest size and most powerful that can be used in the Work, as described in Section 5.1 of ACI 309R, with a minimum frequency of 7000 revolutions per minute and must be operated by competent workmen. Over vibrating and use of vibrators to transport concrete within forms is not permitted. Insert and withdraw vibrators at many points, from 18" to 30" apart. At each insertion, the duration must be sufficient to consolidate the concrete but not sufficient to cause

segregation, generally from 5 to 15 sec duration, and must reach the bottom of the pour. Keep a spare vibrator on the job site during all concrete placing operations.

4. Cold Weather Concrete Placement and Protection: Detailed requirements are given in ACI 306R.
   a. When the mean daily temperature of the atmosphere is less than 40ºF during concreting, or within 72 hours there after (or the air temperature is not greater than 50ºF for more than one-half of any 24-hr period for a period of 3 consecutive days), follow the procedures outlined in ACI 306R to protect the concrete. Provide a cold weather concreting plan as well as list of equipment and material (e.g., thermometers, blankets) to be used to the Special Inspector. Temperature of the plastic concrete must be no lower than 55ºF. Heat all forms, reinforcing steel, and surfaces to receive concrete above the freezing point and keep them completely free of frost, snow, and ice. Protection must consist of insulating boards, blankets, or heated enclosures. Underside of slabs must be heated during placement and protection period. Initial protection period must be as indicated in tables 5.1 and 5.3 of ACI 306R. Maximum temperature drop of concrete surface after protection is removed must follow table 5.5 of ACI 306R.
5. Hot Weather Placement and Protection: When the mean daily temperature of the atmosphere is over 90ºF during concreting, follow the procedures outlined in ACI 305R to protect the concrete.
   a. All concrete, at the time it is actually deposited in the forms, must have a temperature not lower than 50ºF but never above 90ºF.
   b. Cover reinforcement with water-soaked burlap to cool steel so its temperature will not exceed the ambient air temperature immediately before concrete placement.
   c. Dry surfaces that are to receive concrete should be wet down before commencing placement of concrete and the temperature of such surfaces should not exceed the temperature of the concrete being placed.
6. All concrete washout water, if washed out on site, must be collected in water-tight containers placed on the site for holding prior to legal disposal off site. Wash water is not permitted to be disposed of in storm, sanitary, or combined sewers.

## 3.7 FINISHING OF FORMED SURFACES AND REPAIR OF SURFACE DEFECTS

A. General
   1. Remove forms as soon as practicable. Refer to Section 03 10 00 and Section BC 3305.3.5.
   2. Repair surface defects, including tie holes and cracks, immediately after form removal. Patches must be of quality to match the specified finish.
   3. Remove oil, grease, compounds, and other contaminants from surfaces and areas to be repaired, those surfaces in contact with sprayed fireproofing, and those receiving coatings (i.e., plaster, waterproofing, paint, and membranes of any kind).
   4. Provide finishes specified below immediately after form removal.

5. Provide curing and protection.

B. Repairing Surface Defects

1. Remove all honeycombed and other defective concrete down to sound concrete. If chipping is necessary, the edges must be perpendicular to the surface or slightly undercut. Undercut all cracks a minimum of 1" x 1". No featheredges will be permitted. Dampen the area to be patched and an area at least 6" wide surrounding it to prevent absorption of water from the patching mortar. A bonding grout must be prepared using a mix of approximately 1 part cement to 1-part fine sand passing a No. 30 mesh sieve, mixed to the consistency of thick cream, and then well brushed into the surface.

2. The patching mortar must be made of the same materials and of approximately the same proportions as used for the concrete, except that the coarse aggregate must be omitted and the mortar must consist of not more than 1 part cement to $2^1/_2$ parts sand by damp loose volume. Substitute white Portland cement for a part of the gray Portland cement on exposed concrete in order to produce a color matching the color of the surrounding concrete, as determined by a trial patch. If the material color cannot be matched properly, the Contractor must use a specialty repair mortar of the Commissioner's choice. The quantity of mixing water must be no more than necessary for handling and placing. Mix the patching mortar in advance and allow it to stand with frequent manipulation with a trowel, without addition of water, until it has reached the stiffest consistency that will permit placing.
3. After surface water has evaporated from the area to be patched, brush the bond coat well into the surface. When the bond coat begins to lose the water sheen, apply the premixed patching mortar. The mortar must be thoroughly consolidated into place and struck off so as to leave the patch slightly higher than the surrounding surface. To permit initial shrinkage, leave it undisturbed for at least 1 hr. before final finishing. Keep the patched area damp for 7 days. Do not use metal tools for finishing a patch in a formed wall that will be exposed.

C. Tie Holes and Other Repairs

1. Remove ties, nails, and other form accessories below the concrete surface when the surface is exposed to view, the elements, or for surfaces to receive waterproofing or damp proofing. For surfaces not exposed to view or the above-mentioned conditions, remove metal to the surface. Refer to Section 03 10 00.
2. Undercut surfaces of holes. After cleaning and thoroughly dampening the holes, fill them solid with the patching mortar. The mortar must match the color of the existing concrete for concrete exposed to view as specified in paragraph B.2 above.

D. Formed Finishes

1. Rough Form Finish
   a. Provide for concrete not exposed to view unless otherwise indicated under "Finishing" below.
   b. Formwork material given in Section 03 10 00.
   c. Repair surface as indicated in B. and C. above.

d. Chip or rub off fins exceeding 1/4" in height.

2. Smooth Form Finish
   a. Provide for concrete exposed to view, concrete receiving sheet membrane waterproofing, or as indicated under "Finishing" below. Areas exposed to view must have a CS 3 or better finish as developed by the Cresset Chemical Company.
   b. Formwork material is given in Section 03 10 00.
   c. Repair surfaces as indicated in B. and C. above.
   d. Chip or rub off fins completely and grind smooth.
   e. Provide smooth rubbed finish unless otherwise indicated below.

E. Finishing
   1. Smooth Rubbed Finish
      a. Provide for smooth form finish except for those items listed in 2 below.
      b. Produce on newly hardened concrete no later than the day following form removal.
      c. Wet the surfaces and rub with a No. 16 carborundum brick or other equal abrasive to obtain a smooth, even surface of uniform appearance without applying any cement or other coating.
      d. Obtain the final finish by thoroughly rubbing with a No. 30 carborundum brick. The surface must be wet for a period of 3 days. The Commissioner must be the sole judge of whether the finish is proper.
   2. Beams and Columns
      a. Non-painted Concrete
         1) Locations: See Architectural Drawings or Schedule of Room Finishes on Drawings.
         2) Work Required: Provide smooth form finish without rubbing.

      b. Painted Concrete (CRP)
         1) Locations: See Architectural Drawings or Schedule of Room Finishes on Drawings.
         2) Work Required: In addition to smooth form finish, machine rub with carborundum or other approved abrasive to produce smooth finished surface. Cement wash not permitted.
         3) Option: The Contractor has the option of substituting a white coat of plaster in lieu of providing rubbing for concrete ceilings.
      c. Acoustical Tile Ceiling: When the Drawings indicate that the tile is to be applied directly to the underside of concrete slabs, provide the non-painted concrete finish. However, exposed beam haunches and exposed columns must be "CRP".
      d. Hung Ceiling: Where hung ceilings are indicated on Drawings or specified, provide a rough form finish.
      e. Columns: Exposed concrete surfaces of columns must be non-painted concrete finish or "CRP" as determined by the required ceiling finish of the room in which columns are located.

F. Acceptance of Concrete Finish

1. If the finish produced is not acceptable to the Commissioner, the Contractor must be responsible for all costs incurred to produce an acceptable finish by whatever means determined by the Commissioner.

3.8 SLAB

A. Placement
1. Mixing and placing must be carefully coordinated with finishing. Do not place concrete on the subgrade or forms more rapidly than it can be spread, straight edged, and darbied or bull floated. Provide leveling, floating, troweling, etc. at the correct time interval after pouring to prevent dusting and provide a durable surface as specified in ACI 302.1R. These operations must be performed before bleeding water has an opportunity to collect on the surface.
2. To obtain good surfaces and avoid cold joints, the size of finishing crews must be planned with due regard for the effects of concrete temperature and atmospheric conditions on the rate of hardening of the concrete.
3. Provide extra concrete as required to make up for any deflections in the metal deck and steel beams in order to provide a level surface using a laser. The beam, girder, and deck deflections may total up to $1^1/_2$".

B. Leveling and Finishing
1. General
a. Carefully provide slab depressions as required for the finishes indicated on the Drawings.
b. Unless otherwise indicated on the Drawings or specified herein, make all slabs even and uniform in appearance and, where no slope is required, level. Utilize FL screeds or screed rails and other methods to achieve the required results.
1) Floor Levelness:
a) Slabs on grade and formed slabs must be placed level to an $F_L$=35.
b) Slabs placed on metal deck must be placed level to an $F_L$=20
c) Slabs placed on stair pans and treads must be placed level to an $F_L$=35

2) Floor Flatness
a) Slabs on grade and formed slabs must be finished flat to an $F_F$=50 based on 3/16".
b) Slabs placed on metal deck must be finished flat to an $F_F$=25 based on 3/16".
c) Slabs of stair pans and treads must be finished flat to an $F_F$=50 based on 1/8".

3) Floor flatness and levelness must be measured in accordance with ASTM E1155 within 72 hours of placement.
c. Where floor drains or floor slopes are indicated, slope slabs uniformly to provide even fall for drainage.
d. Follow detailed recommendations for finishing given in ACI 301, Section 5, and ACI 302.1R.

e. Protect finishes from contamination from time of placing until time of acceptance, placement of topping, etc.

f. Remove defects of sufficient magnitude to show through floor coverings or that do not meet tolerances by grinding.

2. Finishes

a. Surfaces which receive bonded applied cementitious applications such as full-set vitreous ceramic tile, self-leveling underlayment, concrete fills and toppings, crystalline waterproofing: Strike off and level to the proper elevation. After the concrete has stiffened sufficiently to permit the operation, float the surface to a uniform sandy texture. The surface must then be broomed to a texture as approved by the Commissioner.

b. Surfaces to receive floor coverings, such as resilient flooring, thin-set terrazzo and vitreous ceramic tile, carpeting, wood floors, or surfaces that are exposed or painted finishes such as at auditorium floors and stairs, unless specified otherwise: Steel trowel surface to a smooth dense finish, free of trowel marks, grooves, depressions and ripples. Exposed or painted slabs are to have a “hard trowel” finish (two or more steel troweling operations). Apply densifier/sealer to slabs exposed or painted, except for those specified below to have no finish. Apply in accordance with the manufacturer's instructions at the proper time.

c. Surfaces intended to receive roofing, water-proofing membranes: Level and wood float surface. Leave surface free from depressions, bulges, rough spots, and other defects.

d. Surfaces with no finishes: Areaways, pipe and duct, and crawl spaces; Level and wood float surface level or toward drains if required.

e. Pavements: Finish surface to a true smooth plane and texture with a toothed roller or float with a wood float. Score concrete pavement in squares of approximately 5'-0" and/or as shown on Drawings. Each rectangular slab must have all edges neatly rounded with proper tools and be bounded on all sides by a troweled border about 1" in width.

f. Ramps, Driveways, Exterior Concrete Steps: Level and float surface. Follow with a broom finish perpendicular to direction of traffic.

## 3.9 MISCELLANEOUS CONCRETE WORK

A. Provide curbs, footings and other miscellaneous concrete items.

## 3.10 CAST-IN-PLACE CONCRETE FIREPROOFING OF STRUCTURAL STEEL

A. Location

1. Type of fireproofing is indicated on Drawings.

B. Construction

Where structural steel is to be partially or fully encased in concrete, provide 2" of concrete unless otherwise shown on Drawings. Type and strength of concrete is

indicated on Drawings. Refer to "Finishing of Formed Surfaces" of this Section for the finish.

1. Unless otherwise indicated on Drawings, provide expansible reed clips on beam and column flanges for those members encased in concrete. Rest the loops on the edge of the flange to place the reinforcement at the center of the fireproofing. Bend the projecting wire around the flanges to hold the clip securely in place.
2. On beams and girders over 2'-0" deep, provide a 6 x 6-W1.4 x W1.4 WWF cage to bond encasement to steel.

3.11 PATCHING AND BONDING TO EXISTING CONCRETE

A. Provide bonding agent whenever new concrete is to be poured against existing concrete, whenever the time between concrete pours is longer than that allowed for proper bond, and wherever bonding agent is indicated on the Drawings to be applied.

B. Remove loose concrete from surface to be bonded with new concrete and clean. Remove rust from reinforcement and structural steel by power chipping and power-driven brushes.

C. Apply bonding agent in accordance with manufacturer's specifications. Pour concrete as soon as bonding agent has cured and within 20 hours after application. If the 20-hour period has elapsed, then the bonding agent must be reapplied.

3.12 CURING AND PROTECTION

A. General
1. Begin curing concrete immediately after placement and finishing. Protect all freshly deposited concrete from premature drying and excessively hot or cold temperatures and maintain it with minimal moisture loss at a relatively constant temperature for the period of time necessary for the hydration of the cement and proper hardening of the concrete. Detailed procedures are given in ACI 308 and Section BC 1905.11.
2. Cure floor surfaces in accordance with ACI 308.
3. Provide 7-day moist curing or provide strippable curing compounds to surfaces receiving waterproofing, adhesives, membranes or additional concrete. The compound must be removed in an approved manner prior to subsequent installation of the material.

B. Procedure
1. Concrete surfaces not in contact with forms:
   a. Ponding or continuous non-manual sprinkling.
   b. Absorptive mat or fabric, sand, or other covering kept continuously wet.
   c. Curing compounds conforming to ASTM C1315 or strippable curing compound conforming to ASTM C309.
2. Concrete surfaces in contact with forms:
   a. Minimize moisture loss from forms exposed to heating by the sun by keeping forms wet until they are removed.

b. After form removal, cure with one of the methods listed in 1 above.

3. Continue curing until a total of 7 days has elapsed during which the temperature of the air in contact with concrete has remained above 50ºF. Prevent rapid drying during and at the end of the curing period.
4. Remove all curing compounds with cleaners recommended by curing compound manufacturer.

C. Cold Weather Curing
1. Concrete must be protected from water loss. This must be accomplished by the application as soon as possible without harm to the concrete surfaces of either (a) exhaust steam, or vapor-resistant paper or polyethylene film, or (b) curing compounds. In all other respects, curing must conform to applicable provisions of this Section. Concrete temperature must be maintained between 50ºF and 70ºF.

D. Hot Weather Curing
1. During the period June 1 to October 1 or when hot weather conditions require it, maintain continuous water curing for a minimum period of twenty-four hours. Provide for windbreaks, shading, and other necessary provisions.
2. After 24 hours, curing must be by one of the methods specified under B above. In all other respects, curing must conform to applicable provisions of this Specification. Upon termination of the specified moist curing, every effort should be made to reduce the rate of drying by avoiding air circulation.

E. Protection from mechanical injury: Protect concrete from mechanical disturbances during curing period as described under "Protection and Cleaning".

3.13 FIELD QUALITY CONTROL

A. Tests - Tests to be performed by the Contractor's Testing Laboratory during construction are as follows:
1. Compliance of materials to Specifications tested from production samples.

2. Determination of the slump of the concrete for each sample taken and whenever consistency of the concrete appears to vary using ASTM C143. The Special Inspector will reject any concrete that does meet the slump requirements.
3. Determination of water content of freshly mixed normal weight concrete utilizing the procedure of AASHTO T318. Concrete that does not meet the maximum water to cement ratio or the proportions given in the approved design mix will be immediately rejected regardless of slump.
4. Strength tests on the specimens in accordance with ASTM C39:
a. The frequency of conducting strength tests of concrete must be in accordance with Section BC 1905.6.2, with additional cylinders taken for an additional strength test and one cylinder for a 7-day break. Strength tests must be performed for each 50 cubic yards, or portions thereof, of concrete placed in any one day's concreting. Specimens will be stored at the site in the insulated curing box provided by the Contractor. Each group of specimens is considered one strength test.

One cylinder will be broken at 7 days for information. A strength test must be performed at 28 days for acceptance. The remaining cylinders for the additional strength test will be tested only if the 28-day breaks are low or durability of the concrete is in question.

b. If one specimen in a test manifests evidence of improper sampling, molding, or testing, it must be discarded and the average strength of the remaining cylinders must be considered the test result. Should all specimens in a test show any of the above defects, the entire test must be discarded.

5. Determination of air content and unit weight of normal weight concrete sample for each strength test in accordance with ASTM C173 or C231 and ASTM C138.
6. Determination of air content and unit weight of lightweight concrete sample for each strength test in accordance with ASTM C173 or C231 and ASTM C567.
7. Determination of temperature of concrete sample for each strength test.

B. Inspection
1. Refer to "Source Quality Control" for responsibility and procedure.
2. The Contractor must cooperate in the making of all tests by the Laboratory Technician by:
   a. Providing a well-constructed shanty, to be approved by the Commissioner. This shanty must have an area of not less than 50 sq ft, be well lighted, and provided with a table for mixing concrete, shelves for storage of the Laboratory's equipment, molds, etc., one chair, hinged door with suitable lock.
   b. Providing the field storage curing facility as defined in ASTM C31 as per Section BC 1905.6.3.3.1 of sufficient size and strength to contain all specimens made in any two consecutive working days. The Contractor must furnish an outlet to provide the necessary temperature in the storage box, pending delivery to the Laboratory of the test cylinders.
   c. Providing a buggy for transporting the concrete taken from the mixer (and/or point of placement) to the shanty for testing and the preparation of specimens.
   d. Protecting the property of the Laboratory to be stored in the shanty and keeping test specimens free from vibration and other disturbances.
   e. Providing a microwave oven of the size specified in AASHTO T318 and a portable generator.

C. Evaluation and Acceptance of Concrete
1. Strength tests on structural concrete will be evaluated according to Section BC 1905.6.3.4.
2. When the average strength of the test cylinders, as defined in Section BC 1905.6.3.4 falls consistently below the specified strength (f'c), the Commissioner must have the right to order the Contractor to change the proportions or the water content of the concrete to secure the required strength for the remaining portion of the structure, all at the Contractor's

expense. It is the Contractor's complete responsibility to modify the concrete mix design, material controls, and/or concrete operations where necessary to obtain the compressive strength required by the design and Specification.

3. When the average strength of test cylinders for any portion of the structure is less than that required by the design or Specification, or where there is other evidence that the quality of the concrete is below Specification requirements, the adequacy of the concrete will be checked according to the requirements of Section BC 1905.6.5 either by structural analysis or by core or load tests or by any combination of these procedures. The Commissioner will determine which procedures to use:
   a. Structural Analysis Computations (Section BC 1905.6.5.5), by a professional structural engineer licensed in the State of New York engaged by the Contractor.
   b. Core Tests (Section BC 1905.6.5.2) - Performed in accordance with ASTM C42.
   c. Load Tests (Section 27.4 of ACI 318 or Section BC 1708).
4. Exterior concrete exposed to the elements with low strength test results or other evidence of poor durability will be rejected.
5. Low Strength Tests of Concrete or evidence of poor durability - Results
   a. Pay for additional costs of labor and materials required at the job for all damages resulting from load tests and the taking of cores. Remove and replace concrete work that is not of adequate strength or durability and cannot be made to work by remedial methods acceptable to the Commissioner at own cost. The Contractor will be held responsible for all delays and damages to the work of other Divisions that occur as a result of non-conformance.
   b. Pay for all expenses resulting from low strength test procedures or evidence of poor durability (such as high slump) specified above.

D. Contractor’s Surveys
1. After immediate completion of foundation work, and then retaining wall/curb work, perform a location survey of the perimeter walls/grade beams and retaining walls/ curbs in relation to the lot and street lines. Each survey must be submitted as that work is complete. The surveyor must be different than the surveyor who laid out the foundation for installation.
2. Provide surveys of finished concrete elevations for all building slabs. Provide elevations taken on a 10-foot grid pattern. Indicate discrepancies between contract elevation and actual elevation. Interpolate sloped areas such as roof slabs. Do not proceed with finish work until slabs are repaired.

## 3.14 PROTECTION AND CLEANING

A. General
1. During the curing period, and thereafter as conditions may require, protect the concrete from damaging mechanical disturbances, particularly excessive load stresses, heavy shock, and excess vibration. Protect all finished concrete surfaces from damage caused by construction equipment, materials or methods, and by rain or running water. Self-supporting structures must not be loaded in such a way as to overstress the concrete.

B. Floors
1. Floors that have received their final finish must be closed to all traffic for at least 48 hours following the completion of troweling. Avoid damage to the floor, restore if damaged, clean, and prep floor for finishes.

3.15 ACCEPTANCE OF CONCRETE WORK

A. General
1. Completed concrete work that meets all applicable requirements will be accepted without qualification.
2. Completed concrete work which fails to meet one or more requirements but which has been repaired to bring it into compliance will be accepted without qualification.
3. Completed concrete work which fails to meet one or more requirements and which cannot be brought into compliance may be accepted or rejected as provided in these Specifications or in the Contract Documents. In this event, modifications may be required to assure that remaining work complies with the requirements.
4. Concrete work judged inadequate by structural analysis, core test, results of load test or deemed unacceptable due to appearance or durability concerns must be repaired and reinforced with additional construction or replaced if directed by the Commissioner at the Contractor's expense.
5. Pay all costs incurred in providing additional testing and/or analysis required by this Section.

B. Dimensional Tolerances
1. Formed surfaces resulting in concrete outlines smaller than permitted by the tolerances of Section 031 00 00 must be considered potentially deficient in strength and subject to the provisions of paragraph D below.
2. Formed surfaces resulting in concrete outlines larger than permitted by the tolerances of Section 03 10 00 may be rejected and the excess material subject to removal. If removal of the excess material is permitted, it must be accomplished in such a manner as to maintain the strength of the section and to meet all other applicable requirements of function and appearance.
3. Concrete members cast in the wrong location may be rejected if the strength, appearance, or function of the structure is adversely affected or if misplaced items interfere with other construction.
4. Inaccurately formed concrete surfaces exceeding the limits on Section 03 10 00 and which are exposed to view may be rejected and must be repaired, or removed and replaced if required.

5. Slab tolerance from theoretical elevation is 1/2" plus or minus in accordance with ACI 117. Finished slabs exceeding the tolerances, including specified levelness tolerances, may be repaired provided that the strength or appearance is not adversely affected. High spots may be removed with a terrazzo grinder, low spots filled with a structural repair mortar, or other remedial measures performed as permitted. Provide self-leveling cement-based materials for large expanses of deficient areas. All materials must be approved by the Commissioner and installed by the Contractor at its cost.

6. For tolerances not specifically indicated in the Contract Document, follow requirements of ACI 117.

C. Appearance
   1. Concrete exposed to view with defects that adversely affect the appearance of the specified finish may be repaired only by approved methods.
   2. Concrete not exposed to view is not subject to rejection for defective appearance.

D. Strength of Structure
   1. The strength of the structure in place will be considered potentially deficient if it fails to comply with any requirements that control the strength of the structure, including but not necessarily limited to the following conditions:
      a. Low concrete strength as described under "Field Quality Control".
      b. Reinforcing steel size, quantity, strength, position, or arrangement at variance with the requirements of Section 03 11 13 or the Contract Documents.
      c. Concrete that differs from the required dimensions or location in such a manner as to reduce the strength.
      d. Curing less than that specified.
      e. Inadequate protection of concrete from extremes of temperature during early stages of hardening and strength development.
      f. Mechanical injury as defined under "Protection and Cleaning", construction fires, accidents, or premature removal of formwork likely to result in deficient strength.
   2. Structural analysis and/or additional testing may be required when the strength of the structure is considered potentially deficient.
   3. Core tests may be required when the strength of the concrete in place is considered potentially deficient.
   4. If core tests are inconclusive or impractical to obtain or if structural analysis does not confirm the safety of the structure, load tests may be required and their results evaluated in accordance with Chapter 27 of ACI 318.

END OF SECTION 03 30 53

# SECTION 04 01 20.51 - UNIT MASONRY MAINTENANCE

## 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. Provide brick masonry, concrete masonry unit and any related masonry Work as specified herein, as shown on the Drawings, and as needed for a complete and proper installation. This Section includes, but is not limited to, the following:
      a. Selective replacement and full repointing of CMU walls at:
         1) Inner side of N+W CMU walls of Cooling Tower Courtyard
         2) Interior CMU wall below roof stair

      b. Selective replacement and full repointing of clay masonry (brick) units at:
         1) Elevator bulkhead walls
         2) Chimneys walls.

   2. Maintenance of masonry unit must use mortars and masonry units compatible with the existing masonry work. Masonry unit maintenance repair work must include:
   3. Sounding out entirety of all designated areas for repair, and removing all cracked/spalled/loose masonry units.
      Rebuilding damaged vertical, horizontal, top, and underside areas
   4. Repairing any encountered and deteriorated steel by scraping, wire brushing and coating, and when badly deteriorated or missing, replacing in accordance with the specifications.
   5. Shoring as required to complete any and all repair work.

B. Related Sections
   1. Section 02 41 19 Selective Demolition
   2. Section 07 56 00 Fluid-Applied Roofing
   3. Section 07 64 13 Standing Seam Sheet Metal Wall Cladding

C. References
   1. 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 must be deemed mandatory and applicable to the Work.

a. ASTM International (ASTM) standards, latest editions.
   1) A153 Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Products.
   2) A240 Standard Specification for Heat-Resisting Chromium and Chromium Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels.
   3) A615 Standard Specification for Deformed and Plain Billet - Steel Bars for Concrete Reinforcement.
   4) A706 Standard Specifications for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement.
   5) A951 Standard Specification for Steel Wire for Joint Reinforcement.
   6) C33 Standard Specification for Concrete Aggregates.
   7) C55 Standard Specification for Concrete Building Brick.
   8) C62 Standard Specification for Building Brick (Solid Units Made from Clay or Shale).
   9) C67 Standard Methods of Sampling and Testing Brick and Structural Clay Tile.
   10) C90 Standard Specification for Hollow, Load-Bearing Concrete Masonry Units.
   11) C109 Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-inch or 50 MM Cube Specimens).
   12) C129 Standard Specification for Non-Load-Bearing Concrete Masonry Units.
   13) C140 Standard Methods of Sampling and Testing Concrete Masonry Units.
   14) C144 Standard Specifications for Aggregate for Masonry Mortar.
   15) C150 Standard Specification for Portland Cement.
   16) C207 Standard Specification for Hydrated Lime for Masonry Purposes.
   17) C216 Standard Specification for Facing Brick (Solid Units made from Clay or shale).
   18) C270 Standard Specification for Mortar for Unit Masonry.
   19) C404 Standard Specifications for Aggregates for Masonry Grout.
   20) C476 Standard Specification for Grout for Reinforced and Nonreinforced Masonry.
   21) C652 Standard Specification for Hollow Brick
   22) C780 Standard Test Method for Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry.
   23) C979 Standard Specification for Pigments for Integrally Colored Concrete.
   24) C1019 Method of Sampling and Testing Grout

b. Industry Standards.
   1) "Standard for Concrete Masonry Units" - UL 618- Underwriters Laboratory.

2) Brick Industry of America (BIA): BIA Technical Notes

1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures”.

1.4 SUBMITTALS

A. Product Data - Submit Product Data to show compliance with specified requirements.
   1. Submit complete data for concrete and clay masonry units.
   2. Submit complete data for reinforcement and ties of each type.
   3. Portland Cement: Brand and manufacturer's name.
   4. Lime: Brand and manufacturer's name.
   5. Mortar Pigments: Brand and manufacturer's name.
   6. Packaged Products: Manufacturer's specifications and application instructions.
   7. Sand: Location of pit, name of owner, and previous test data.
   8. Masonry reinforcement, anchors
   9. Masonry cleaner, including specific masonry manufacturer’s recommended cleaning procedure for the product selected.

B. Samples - Deliver to the site for comparison with existing masonry.
   1. Masonry Units: Each required type, full size, showing finish and full color range. Remove one clay unit to allow for full size comparison.
   2. Mortar for Exposed Joints and Cracks: Each required type, minimum 12" long by full thickness, showing finish and color.
   3. Masonry reinforcement and anchors.

C. Shop Drawings
   1. If bracing/shoring of the masonry is required, submit stability drawings and calculations prepared, signed and sealed by a New York State licensed professional structural engineer.

D. Quality Control Submittals
   1. Schedule of Uses:
      a. By mortar type.
   2. Tests:
      a. Provide test reports on masonry units utilized showing conformance to specification requirements. Reports must be dated within two years of project.

1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to project site in undamaged condition per ASTM guidelines. Store in an enclosed location or off the ground with waterproof covering as needed to protect all materials from moisture, contaminants, corrosion, deleterious temperature changes, and other harmful conditions.

B. Packaged Products
1. Deliver materials to the site in manufacturer's original, sealed containers. Do not deliver materials which have exceeded shelf-life limitation set forth by the manufacturer. Material containers must bear the manufacturer's label indicating manufacturer's name, trade name of product, lot number, shelf life of product, and mix ratio (if applicable). This includes individual bags of pre-bagged mortar mixes.
2. Comply with manufacturer's printed instructions for storing and protecting materials.

C. Bulk Aggregate
1. Store in a manner which will keep aggregate clean and protected from the weather elements.

1.7 ENVIRONMENTAL REQUIREMENTS

A. Cold Weather Construction Requirements
1. Per Section BC 2104.2, cold weather construction provisions of Article 1.8C of TMS 602 must be implemented when either the ambient temperature falls below 40°F or the temperature of masonry units is below 40°F.
2. Salt or other chemicals for lowering the freezing temperature of the mortar or grout must not be used.

B. Hot Weather Construction Requirements
1. Per the requirements of Section BC 2104.3, hot weather construction provisions of Article 1.8D of TMS 602 must be implemented when temperatures exceed 100°F, or 90°F with a wind velocity greater than 8 mph.

C. Wetting of Clay Masonry Units
1. Provide prewetting of masonry for units with initial rates of absorption that require their wetting before laying (21.42 grams per 30 square inches or 0.025-ounce psi).

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. No air-entraining admixtures or material containing such must be permitted in the mortar. Also, no anti-freeze compounds, calcium chloride, or other compounds, unless expressly permitted otherwise, must be permitted in the mortar.

B. Mortar types to be used at the following locations, unless otherwise stated:
   1. Face brick and CMU
      a. Type N

2.2 CMU MANUFACTURERS / DISTRIBUTORS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   1. Old Castle
   2. Westbrook Concrete Block
   3. Superior Block, Glenwood Mason Supply
   4. Or approved equal.

2.3 FACE BRICK MANUFACTURERS / DISTRIBUTORS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   1. Belden Tri-State Building Materials
   2. All Boro Mason Supply
   3. Glenwood Mason Supply
   4. Or approved equal.

2.4 AGREGATE FOR CONCRETE MASONRY UNITS (CMU)

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

   1. Northeast Solite Corporation
   2. Norlite Corporation
   3. Nettleton Concrete
   4. Or approved equal.

2.5 REINFORCEMENT AND TIES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

   1. Hohmann & Barnard
   2. Wire-Bond
   3. Prosoco
   4. Or approved equal.

2.6 INSULATION

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

   1. Dupont
   2. Owens Corning

3. The Cary Company
4. Or approved equal.

2.7 INSULATION ADHESIVE, ADHESIVES, MASTICS, COMPATIBLE WITH AIR BARRIER SYSTEMS AND OTHER CONTACTED MATERIALS:

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Henry Company
2. W. R. Grace & Co.
3. Sika
4. Or approved equal.

2.8 MORTAR COLORING

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Solomon Grind-Chem Services, Inc.
2. Davis Colors, Rockwood Industries, Inc.
3. Cathedral Products
4. Or approved equal.

2.9 MORTAR ADDITIVES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. ACM Chemistries
2. Master Builders, Inc.
3. Sika Corp.
4. Or approved equal.

2.10 MORTAR DROPPING COLLECTION NET

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Advanced Building Products Inc.
2. Mortar Net USA, Ltd.
3. Hohmann and Barnard, Inc.
4. Or approved equal.

2.11 MORTAR WEEPS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Mortar Net USA, Ltd.
2. Hohmann and Barnard, Inc.
3. Wire-Bond
4. Or approved equal.

2.12 MATERIALS

A. Base Materials
   1. Portland Cement
      a. Type I — ASTM C150
      b. Type II (for manholes) — ASTM C150
   2. Slag cement (only use for Manufacturer of concrete block) — ASTM C989, Grade 100 or 120.
   3. Sand for Mortar Mix — ASTM C144
      a. Sand must be washed natural sand with 100% passing the No. 8 sieve.
   4. Mix must not contain chlorides.
   5. Aggregate for CMU — ASTM C331
      a. 100% light- weight aggregate, expanded clay shale or slate (rotary kiln process). To meet recycled content, lightweight recycled aggregate of up to 20% of total material that will maintain the same fire resistance equivalent thickness of 100% expanded shale, clay, or slate without a decrease in block strength may be used.
   6. Aggregate for Masonry Grout — ASTM C404
   7. Hydrated Lime — ASTM C207 Type "S"
   8. Water: Must be clean potable water free of injurious foreign matter conforming to the requirements of Section BC 1903.5.
   9. Premixed sand and lime for mortar mixes is not permitted. The use of pre-batched material and factory-packaged cement-lime-pigment by major mortar manufacturers is permitted. Each individual bag of material must have the manufacturer's label identifying the mortar type.

B. Brick
   1. Modular Face Brick: Clay or shale, ASTM C216 (solid), grade SW, type FBX, or ASTM C652 (hollow), grade SW, type HBX of size $3^5/_8$" x 2¼" x $7^5/_8$" (nominal dimensions 4" x $2^2/_3$" x 8"). Core holes must be a minimum of 1" from faces of brick. Colors and textures as selected by the Commissioner. Brick must be tested for efflorescence in accordance with ASTM Test Methods C67 and the rating must be "Not Effloresced".
   2. Building Brick (Common Brick): Clay or shale, ASTM C62 (solid), grade SW, or ASTM C652 (hollow), grade SW, modular size unless indicated otherwise on Drawings. Special sizes and shapes as shown on the Drawings or specified herein.

C. Concrete Masonry Units (CMU)
   1. Types
      a. Hollow Load-Bearing: ASTM C90. Aggregate must conform to ASTM C331.

2. Size
   a. Nominal face dimension 8" x 16" or 8"x18"**,** except as noted otherwise.
   b. Provide half units, corner units, half-high units, "U" shaped lintel/bond beam units, and units of special size and shape or with multiple grinds, e.g., two faces, two ends, or any faces as required by the Drawings to accomplish the work.
3. Unit weight: Unit weight of concrete for CMU not to exceed 90 pcf when tested in accordance with ASTM C140 (105 pcf for the high strength CMU).
4. Fire ratings: Units manufactured with equivalent solid thicknesses, face shell thicknesses, web thicknesses, and other characteristics to obtain any existing fire rating or as indicated on the Drawings.
5. Concrete masonry units must be manufactured with a minimum of 3% pre-consumer content materials. A maximum ratio of 40% slag to Portland cement is permitted for cementitious materials and 20% recycled lightweight material to expanded clay shale, or slate for aggregate, as long as the required strength to meet ASTM C90 is met, the weights are the same, and the equivalent thickness to meet fire-resistance ratings is the same as block with 100% expanded clay, shale, or slate.

D. Joint Reinforcement and Ties
   1. Material
      a. Reinforcement and Ties for Exterior Walls (includes back-up walls of cavity wall systems): Formed from stainless steel, 18-8, type 304.
         1) Sheet steel: (No. 2B Finish), cold-rolled, annealed, ASTM A240.
         2) Wire steel: ASTM A951.
      b. Reinforcement and Ties for Interior Walls: ASTM A951, hot-dip galvanized (after fabrication), ASTM A153.
      c. Provide factory-fabricated corners and tees at corners and intersecting walls for continuous type reinforcing, such as truss type, except as indicated otherwise.
      d. Width of truss and mesh reinforcement to place edge of reinforcement 1” from each face of masonry.
      h. Expansion and Control joints: Slip-set stabilizer type with wire-bond control joint anchor.

E. Reinforcing Steel
   1. Deformed bars conforming to ASTM A615, Grade 60. Reinforcement to be welded must conform to the requirements of ASTM A706, Grade 60.
   2. Reinforcement in exterior construction, such as parapets, must be galvanized in accordance with ASTM A767 or epoxy coated in accordance with ASTM A775. Touch up coating for galvanized material must be in accordance with ASTM A780. Touch-up epoxy coating in accordance with coating manufacturer’s instructions.

F. Insulation
1. Extruded polystyrene, rigid, ASTM C578 Type X with R-value (aged) of 5.0/inch at 75ºF mean temperature when tested in accordance with ASTM C518.
a. Minimum compressive strength: 15 psi in vertical direction when tested in accordance with ASTM D1621.
b. Maximum water absorption: 0.3% by volume when tested in accordance with ASTM C272.
c. Surface Burning Characteristics in accordance with UL tests): Flame Spread - 15, Smoke Developed - 165.
2. Product must not be produced with or contain any of the U.S. EPA regulated CFC compounds which are listed in the 2022 NYC BC, and the Montreal Protocol, and manufactured meeting manufacturing requirements for sale in New York.
3. Adhesive: Type recommended by insulation manufacturer and air barrier manufacturer. Compatible with insulation and substrates.

G. Masonry Cleaner
1. Masonry cleaner capable of cleaning masonry without degrading the masonry material or mortar. Cleaner must be approved by the masonry manufacturer.

2.13 MIXES

A. Mortar (basic) - Must conform to ASTM C270 and BIA M1-88. Provide Type I Portland cement (Type II Portland Cement when used for manholes). Masonry cement and masonry mortar must not be used as a substitute.
1. Type N: 1-part gray cement, 1 part lime, 6 parts dry sand. Minimum compressive strength must be 750 psi at 28 days.

B. Mortar Color
1. Proportion mortar coloring with other mortar mix ingredients to obtain desired color, as approved by the Commissioner. Provide white cement instead of gray cement where required to meet the desired color. Do not exceed 1 part pigment to 10 parts cement, by weight. If consistent color cannot be obtained, provide as a minimum premixed Portland cement and coloring from major cement manufacturer.

C. Grout for Masonry
1. Mixes
a. Fine Grout: 1 part Portland Cement, 0-1/10-part Hydrated Lime, $2^{1}/_{4}$-3 times the sum of volumes of cementitious materials of fine aggregate (Proportions by volumes).
b. Coarse Grout: 1 part Portland Cement, 0-1/10-part Hydrated Lime, $2^{1}/_{4}$-3 times the sum of volumes of cementitious materials of fine aggregate, and 1-2 times the sum of the volumes of cementitious materials of coarse aggregate (Portions by volume).
c. Aggregates for Mixes: ASTM C 404.
d. Slump: 8" minimum, 11" maximum.

e. Compressive Strength: At least equal to the strength of the masonry, and not less than 2000 psi as determined by ASTM C1019 - Method of Sampling and Testing Grout.

2. Location
   a. For spaces less than 2" in any direction, use fine grout.
   b. For spaces 2" and more in any direction, use coarse grout.

PART 3 - EXECUTION

3.1 EXECUTION REQUIRMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 EXAMINATION

A. Examine all adjoining Work on which this Work is in anyway dependent for proper installation and workmanship. Report to the Commissioner any conditions that prevent the performance of this Work.

3.3 PROTECTION

A. Cover top of masonry wall with waterproof plastic membrane at the end of the work period**,** when work is not in progress**,** and at other times when Work needs to be protected from rain and other precipitation. Extend cover down sides as needed to thoroughly protect the Work.

B. During cold weather, do not use wet masonry units and frozen masonry units.

C. Do not use frozen materials or lay masonry on frozen materials; remove frozen materials from wall. Refer to Part 1 of this Section, "Environmental Requirements" for temperature restrictions.

D. Remove excess mortar from walls as soon after laying units as practicable to prevent staining and to facilitate cleaning of wall.

E. Brace walls as needed until sufficiently set, or until intersecting walls provide lateral support.

F. Prevent masonry cleaners from coming in contact with adjacent glass, metal, and other masonry surfaces such as cast stone. Protect adjoining glass and metal surfaces and all other adjacent materials and property from masonry operations.

3.4 MIXING PROCEDURES FOR MORTAR

A. Measure material by volume or equivalent weight. In measuring by volume, measure ingredients by container. Do not measure by shovel.

B. Mix ingredients in a clean mechanical mixer for a minimum of 3 minutes, maximum of 5, with the minimum amount of water to produce a workable consistency. Water retentivity must be appropriate for the IRA of the brick. Bricks of 3 grams per minute per 30 sq in require a lower water retentivity property to maintain production by allowing the mortar to give up the water easier to the brick.

C. Mortar that has stiffened because of evaporation of water from the mortar may be retempered only once, and only during the first hour of placement to restore the required consistency. Do not over water to make mortar “soupy” as water retentivity must be appropriate for the IRA of the brick. Mortar must be used within $2^1/_2$ hours after initial mixing. Limit amount of mortar batched at one time to stay within these requirements.

3.5 LAYING - GENERAL

A. Lay units true to dimensions, plumb and level, square; exterior and interior bond work in bond indicated on the Drawings or specified herein. Lay courses level and in plane with joints uniform; vertical joints spaced properly for plumb alignment. Provide masonry lines, plumb bobs, and utilize a 4-foot level to maintain wall within 1/4” of theoretical dimensions.

B. Adjoining faces of brickwork sections, such as at expansion joints, relieving angles, etc., must be flush with each other, unless specifically indicated otherwise on drawings.

C. Fill bed joints and cross joints solid with mortar. Furrowed bed and spotted cross joints not permitted. For hollow block units, apply mortar full length on all bearing surfaces.

D. "Tooth" temporary openings in exposed masonry walls, to maintain proper bond when closed.

E. Horizontal and Vertical Face Joints
   1. Make joints uniform and 3/8" thick, unless otherwise indicated. Joints may be slightly smaller or larger depending on brick coursing and brick fabrication tolerances.
   2. Shove vertical joints tight.
   3. Tool joints in exposed masonry with a concave smooth, non-staining tool, that when thumb print hard provides a neat, smooth, compacted surface.

F. Rough cut joints in masonry that are to receive plaster, to provide good plaster bond.

G. Remove excess mortar, leaving masonry surface clean.

H. Cut brick and concrete masonry units with circular masonry wet saw.

I. Build-in miscellaneous metal inserts and other items not furnished under this Section but specified to be installed under this Section.

J. Lay brick in bond patterns as shown on the Drawings. If bond is not indicated on Drawings, use running bond, all stretchers.

3.6 FACE BRICK WORK

A. Lay face brick from scaffolding erected on face brick side of wall. Do not build or attach scaffolding into the brick face.

B. Use face brick for exterior walls, chimneys, bulkheads, and backs of parapets**,** except where concrete parapets are indicated.

C. At exterior relieving angles/lintels or other brick projections on exterior face of building, brick must be placed such that the cores are not visible. Ensure lintels and relieving angles are placed such that cores will not be visible when brick is placed at its correct location.

D. Wet clay and shale brick which have initial rates of absorption of more than 30 grams for each 30 square inches per minute (ASTM C67). Wet brick sufficiently to prevent excess absorption of mortar moisture, but keep surface dry enough to obtain bond.

E. Lay with shoved joints, avoiding dry contacts between brick.

F. Lay not more than 5 courses before setting backup units.

G. Clean loose mortar from wall as brick is laid.

H. Leave openings for mechanical trades work, then close up solid after mechanical installations are completed.

I. Provide weep holes in the head joints of the first two courses of masonry above wall flashing (space at 24" o.c. linear in each course, staggering the first course with the second course). Provide weep holes at other locations as denoted on the Drawings.

3.7 CAVITY WALL

A. Keep the cavity free of mortar droppings. Do not permit mortar to collect on ties and bridge across the cavity.

B. Provide continuous row of mortar mesh at base of wall, over relieving angles and lintels, at all locations with flashing and weep holes, and as indicated, directly on flashing. Flashing must extend above top of mortar mesh except where indicated otherwise. Trim mortar mesh to size indicated on the Drawings.

C. In laying up the wall, keep the cavity clean of mortar droppings by temporarily placing a wood strip 2" high and full width of cavity on each succeeding course of anchors as they are installed, removing the strip, cleaning it off, and reinserting it on the next course of anchors before laying up the next portion of wall. Do not leave any wood strips in the cavity.

D. Prepare CMU backup for application of fluid applied membrane air/vapor barrier specified in Division 7. Mortar joints must be completely filled and struck flush with unit masonry. Leave surfaces clean, and without projections, voids, cracks, contaminants, or other irregularities that would hinder proper application of the membrane. Clean mortar droppings from surfaces and brick ties.

E. Provide reinforcement between brick and backing.

F. Upon inspection and when directed by DCAS after the wall has been topped out at each level below the flashing or lintel line, flood the cavity with water prior to installation of the brick above to verify that all weeps drain freely and no water passes the backing.

3.8 INSULATION

A. Prior to installation of cavity insulation, verify that:
   1. Substrate is properly prepared.
   2. Wall is clean.
   3. A liquid membrane provided under Section 07 56 00 has sufficiently cured, as recommended by the membrane manufacturer.

B. Application
   1. Install insulation horizontally within cavity space, against concrete block wall and other substrates, butt edges tightly, with vertical joints staggered. Cover wall completely**,** forming a continuous enclosure of the building envelope without gaps.
   2. Adhere insulation as recommended in writing by the air barrier manufacturer for the specific air barrier system provided for this Project:
      a. Upon completion of the air barrier membrane system, and after a curing period recommended by the membrane manufacturer, apply insulation adhesive in a serpentine pattern over the air barrier membrane using a notched trowel. Immediately after application of the adhesive, or within the time period recommended by the manufacturer, embed insulation board into the adhesive and press firmly into place to ensure full contact and adhesion over entire area of board. Apply additional adhesive if allowed to skin over.
   3. In addition to adhesive attachment of insulation to all substrates, provide an insulation retainer washer at each brick tie.
   4. Fabricate insulation panels by means of saw, knife or other sharp tool to fit around obstructions across cavity such as vents, louvers, piping, conduits, and other penetrations. Make insulation continuous, filling all voids. Use largest pieces of insulation possible to minimize joints. Fill cracks with material compatible with insulation, air barrier, and masonry.

3.9 BUILDING BRICK (COMMON BRICK) WORK

A. Use building brick or face brick for infilling walls of solid brick construction such as at piers, filling around structural members, solid brick parapets, and for all masonry where brick work is indicated, and for which face brick, SFT, concrete block, or other

material is not shown or specified. All joints within the solid masonry construction must be filled solid.

B. Lay up with Type N mortar, except when within 8" of cut stone work, use Type N "White" mortar.

C. When exterior door frames are not in place at the time adjacent walls are being erected, set hot-dip galvanized steel anchors in masonry every sixth course to provide adequate anchorage for door frames to masonry when door frames are installed.

D. When brick is used for back-up wall for limestone, laying of brick must not commence until parging for limestone is dry.

E. Provide weep holes or open side joint as required.

3.10 CONCRETE MASONRY UNITS (CMU)

A. General
1. Lay blocks with cells vertical. Provide running bond unless shown otherwise on the Drawings or as indicated below, bonded at corner angles. Fill cores containing vertical reinforcement with masonry grout for full height**,** as the wall is erected.
2. Where interior partitions intersect other partitions or walls, bond together with metal wall ties spaced 2'-0" o.c. min., vertically. Refer to Article 3.12 "Reinforcement".
3. Where interior walls are to be furred with soap units, secure furring with steel ties, spaced one for each 4-square feet.
4. Provide grout in cores of blocks at jambs, parapets, under lintels, and where indicated on the Drawings.
5. Bond beam units must be filled with lightweight concrete having a minimum compressive strength of 3000 psi and reinforced as shown on details.

B. Horizontal and Vertical Face Joints
1. Make joints uniform and 3/8" thick, unless otherwise indicated.
2. Shove vertical joints tight.
3. Tool joints with a concave smooth, non-staining tool, when thumb print hard, at surfaces to be painted or exposed.
4. Point joints tight with a trowel, in unparged masonry below grade.
5. Strike mortar joints flush in surfaces to be plastered, stuccoed, covered with other masonry, or which are otherwise concealed from view. Prepare masonry for application of fluid applied membrane air/vapor barrier as indicated herein in Article 3.7 “Cavity Wall”.

C. Control Joints
1. Construct 1/2" wide vertical control joints in partitions. Provide control joints at a distance not more than 1.5 times the height of the wall or 25’-0” on center, whichever is less, and where indicated on the Drawings.
2. Joints to extend full height of partition (floor to underside of slab or beam).

3. Continue control joints through wainscoting.
4. Filler
   a. Polyethylene Foam Bar, or
   b. Polyurethane Type Filler
   c. Width as required for partition thickness, minus 1".
   d. Install filler as partition is erected.
   e. Filler to extend full height of joint.

3.11 GENERAL - CUTTING, FITTING AND LAYING

A. Cut units with motor-driven carborundum wet-saw; provide smooth, straight edges.

B. Provide necessary cuts to fit tightly in and around mechanical installations.

C. Where split block units are used to conceal piping or other installations, provide reinforcement for bonding the split units together.

D. Drill holes neatly for attachment of handrail brackets and for other items to be attached.

E. Reinforce first two courses above all door openings with a layer of truss type reinforcement extending 12" beyond jambs, in addition to the rebars required for seismic reinforcement.

F. Remove mortar protrusions that extend into cells or cavities which are to be reinforced and filled.

G. Set block up with special care for plane, jointing, pattern, and cutting.

H. Keep faces of units clean; clean off mortar droppings on block face immediately.

I. Defective units will be rejected. Replace defective units with perfect units at no extra cost to the City of New York.

J. At exposed surfaces tool joints with a smooth, non-staining tool to produce a smooth and slightly concave surface.

K. See Drawings for thickness of block.

3.12 REINFORCEMENT

A. General
   1. Brick ties: Must be embedded a minimum of the midpoint of the brick to 2” into brick, exclusive of the seismic clip and wire. Wire must be 3/4” to 1” back from the face of the joint.
   2. Block ties: Must be embedded a minimum of 2/3 the block width

B. Exterior Walls - Brick with concrete back-up:
   1. Provide ties at 16" o.c. vertical spacing, 24" o.c. horizontal spacing.

C. Exterior Walls - Brick with concrete masonry unit (CMU) back up:
   1. Provide truss/ladder type horizontal joint reinforcement/box tie system between block and veneer brick, continuous at alternate block courses (16" o.c.), with loops spaced at 16" o.c. horizontally, maximum. Provide seismic interlock system, including seismic clips, and continuous wire. Provide retainer washer at each set of loops to lock insulation in place**.**
   2. Provide column anchor to anchor block masonry to steel columns when columns are not encased in concrete. Provide anchors in pairs, spaced 16" o.c. maximum vertically.
   3. Provide ties with interior partitions at 16” o.c.
   4. Provide spandrel anchor to anchor block masonry to steel spandrels. Provide anchors spaced 16” o.c. maximum vertically.
   5. Install reinforcing bars in cells and bond beams at locations and spacing indicated on Drawings.

D. Expansion joints and control joints
   1. Install “slip-set” stabilizer at 24” o.c. vertically in all masonry control and expansion joints of masonry partitions, CMU walls, and multi-wythe brick walls/parapets.

3.13 FIELD QUALITY CONTROL

A. The City of New York will assign under the requirements of Section BC 1705.4 a Special Inspector who will inspect the masonry construction.

B. Where post-installed anchors are utilized, the Special Inspector will perform Special Inspection on post-installed anchors as per Section BC 1705.37. Adhesive anchors installed in concrete in a horizontal or upwardly inclined position supporting sustained tension loads must be installed under continuous Special Inspection as required by paragraph D9.2.4 of ACI 318-11.

C. The Special Inspector will make inspections and any testing deemed necessary. Testing of mortar properties must be in accordance with ASTM C780. Mortar suspected or tested to be too strong or too weak will be subject to petrographic analysis or other methods deemed necessary by the Commissioner and the Special Inspector. Testing of masonry grout must be in accordance with ASTM C1019. The Contractor must pay for all tests if they verify improper work. Inspections will include, but not be limited to, the following:
   1. Proper installation of reinforcement and placement of brick on angles.
   2. Proper installation of mortar, including proportioning and mixing. Those mortar properties listed in the Appendix of ASTM C780 are to be tested at the discretion of the Special Inspector or the Commissioner. Mortar strengths, when tested, will be determined in accordance with ASTM C780 using cylinders.
   3. Proper installation of weeps, flashing, drip edges, mortar mesh, cleaning of cavity (if cavity wall construction), etc.
   4. For cavity wall construction, all bed and head joints are filled completely. At solid masonry construction, all bed, head, and collar joints are filled completely.

D. If any results are found to be not in conformance with the applicable ASTM, industry practice, and the Specifications the masonry in question must be removed and redone. Pay for testing if results of testing verify improper workmanship or proportions not in conformance with the specifications and ASTM standards.

3.14 CLEANING

A. Before cleaning masonry walls, examine faces for holes, cracks, and other defects. If corrections cannot be made to provide an appearance acceptable to the Commissioner, replace defective units.

B. Exterior Masonry
1. After completion of laying and the completion of other adjacent work liable to soil masonry, clean face work and point all open joints.
2. Start cleaning operations at top and proceed downward, using solution not detrimental to material or mortar.
3. Use only masonry cleaners approved by the manufacturer of the specific face brick and follow the brick manufacturer's instruction for use of the product. Perform a mock-up of the cleaning procedure in the presence of the cleaner manufacturer’s representative and the Commissioner. The use of muriatic acid is not approved.

C. Concrete Masonry Units
1. Clean wall surfaces to be painted; rub with carborundum stone: remove mortar from surfaces; remove rough edges from joints.
2. Point up holes and joints. Brush with stiff bristle brush. Leave surface in condition to receive paint.
3. Clean other wall surfaces with stiff-bristle brush.
4. Do not use wire brush.

D. Structural Facing Tile (SFT), Acoustic Block, Glazed Concrete Block (GCB)
1. As work progresses, clean mortar off all surfaces with cloth or burlap. Do not allow mortar to harden. Upon completion of installation, clean glazed surfaces to satisfaction of the Commissioner.
2. Point up holes and joints.
3. Scrub surfaces with soap and water solution or cleaning solution approved by the manufacturer with stiff fiber brushes.
4. After scrubbing, drench thoroughly with clean water.
5. Use of sand blasting, wire brushes, steel wool, or acids not permitted.

END OF SECTION 04 01 20.51

# SECTION 04 01 40.51 – STONE MAINTENANCE

## 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. Provide labor, materials, and equipment to execute maintenance of stone assemblies work as specified herein, as shown on the Drawings, and as needed for a complete and proper installation. This Section includes, but is not limited to, the following:
   a. Full mortar repointing of:
      1) All coping stones at all parapet walls at Main Roof levels
      2) All coping stones at all low parapets at all other roofs
      3) All window stone sills in areas of roofing work
   b. Selective repairs of existing limestone units:
      1) Coping stone replacement as per Unit Prices
      2) Sill stone replacement as per Unit Prices
      3) Stone cladding repair as per Unit Prices

B. Related Sections
1. Section 02 41 19 Selective Demolition
2. Section 07 56 00 Fluid-Applied Roofing

C. References
1. 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 must be deemed mandatory and applicable to the Work.
2. Indiana Limestone Institute of America (ILI).
3. National Building Granite Quarries Association, Inc. (NBGQA).
4. Brick Institute of America (BIA).
5. ASTM International (ASTM).

### 1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures.”

### 1.4 SUBMITTALS

A. Product Data: For each variety of stone, stone accessory, and other

manufactured products indicated.
1. Stone fabricator's installation instructions.

B. Limestone Samples for Verification: A set of two or more samples to show color, grade, finish, and variety; not less than 8 inches square.

C. Mortar Samples: Each color and type proposed. Submit samples installed in joints between actual specimens.

D. Material Test Reports: From a qualified independent testing agency indicating and interpreting the below tests for compliance w/requirements indicated:
1. Stone Test Reports: For stone variety proposed for use on Project, provide test data indicating compliance with required physical properties including those specified by reference to ASTM standards. Include test data for flexural strength based on testing according to ASTM C 880, performed on specimens representative of minimum thickness and finish of installed stone, in both wet and dry conditions. Base reports on testing done within previous five years.
2. Anchorage Test Reports: For each stone variety, finish, and, anchor type, based on testing according to ASTM C 1354, performed on specimens representative of minimum thickness and finish of installed stone.

1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 "Quality Requirements".

B. Regulatory Requirements
1. Building Code: Work of this Section must conform to all requirements of the NYC Building Code and all applicable regulations set forth by OSHA, NYC Fire Code, and NYC Department of Environmental Protection (DEP) including safety, health, noise, and anti-pollution regulations.
2. NYC Board of Standards and Appeals (BSA) approvals, NYC Materials and Equipment Acceptance (MEA) approvals or Office of Technical Certification and Research (OTCR).
3. Adhesive Anchor: Adhesive anchors installed in concrete in a horizontal or upwardly inclined position supporting sustained tension loads must be certified per ACI 318-11 Appendix D9.2.4 as per Table BC 1705.37 of the 2022 NYC Building Code.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Prevent disturbance or contamination to materials by water, moisture, freezing, excessive heat, foreign matter or other causes.

B. Deliver, store and handle stone in a manner to avoid chipping, breakage or any other disturbance.

1.7 PROJECT CONDITIONS

A. Sequence stone assembly installation with other work to minimize possibility of disturbance and soiling during remainder of construction period.

B. Cold Weather Construction Requirements
   1. Per Section BC 2104.2, cold weather construction provisions of Article 1.8C of TMS 602 must be implemented when either the ambient temperature falls below 40°F or the temperature of masonry units is below 40°F.
   2. Salt or other chemicals for lowering the freezing temperature of the mortar must not be used.

C. Hot-Weather Requirements: Comply with hot-weather construction and protection requirements for masonry contained in ACI 530.1/ASCE 6/TMS 602 must be implemented when temperatures exceed 100°F, or 90°F with a wind velocity greater than 8 mph.

1.8 COORDINATION

A. Coordinate installation of inserts that are to be embedded in concrete or masonry, flashing reglets, and similar items to be used by the stone Installer for anchoring, supporting, and flashing of stone assembly.

B. Time delivery and installation of stone to avoid extended on-site storage and to coordinate with work adjacent to the stonework.

PART 2 PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. General: Design stone anchors and anchoring systems according to ASTM C 1242 - “Standard Guide for Selection, Design, & Installation of Dimension Stone Anchoring Systems”.

B. Structural Performance: Repair any stone assembly with the capability to withstanding the effects of gravity loads and stresses within the 2022 NYC Building Code and ASCE 7-22.

C. Thermal Movements: Repair any stone assembly with the capability to allows for thermal movements resulting from change in ambient and surface temperatures by preventing displacement of stone, opening of joints, overstressing of components, failure of joint sealants and connections, and other detrimental effects.

D. Stone anchors to withstand loads without exceeding allowable working stresses established by the following:
   1. For Post-Installed Fasteners in Masonry: One-fourth of tested capacity when installed in masonry units indicated.
   2. All fasteners must be stainless steel.

E. Control of Corrosion and Staining: Prevent galvanic and other forms of corrosion as well as staining by isolating metals and other materials from direct contact with incompatible materials. Use materials that do not stain exposed surfaces of stone and joint materials.

2.2 GENERAL

A. All stone must be well seasoned and free from quarry sap or any material producing stains after weathering. Stone must contain no seams or defects which would impair its strength. All exposed surfaces must be free from spots, spalls, chips, stains, discolorations or other defects which would affect the appearance of the Work.

B. Stone must be obtained from quarries or shops capable of furnishing quantity, sizes and character of the stone required. Cutting must be done by firms properly equipped to produce the finished material without causing delay in the progress of the Work. The Contractor will be held responsible for any delay in the completion of the Work due to their failure to supply satisfactory stone in ample quantities and proper sequence.

C. Submit an affidavit to the Commissioner from the quarry attesting that all stone of each type required for the particular project has been quarried and obtained from one quarry.

2.3 MANUFACTURERS

A. Manufacturers of Repair Products: Subject to compliance with requirements, provide products by one of the following:

   1. Cathedral Stone Products
   2. Old Castle, Hauppauge
   3. Mapei Corp.
   4. Or approved equal.

2.4 MATERIALS

A. Selection of stone materials to be installed are to match existing.

B. Setting Materials:
   1. Portland Cement: (Including white cement) ASTM C150, Type 1.
   2. Hydrated Lime: ASTM C 207.
   3. Latex Admixture: Use in accordance with the manufacturer's instructions.
   4. Sand: Clean, sharp, durable, free from silt, loam, clay, soluble salts and/or vegetable matter. It must be graded fine to coarse within the following limits:

100% passing #8 sieve, 90% to 100% passing #16 sieve, 50% to 90% passing #30 sieve, 25% to 55% passing #50 sieve and 0 to 15% passing #100 sieve.

5. Water: Clean, potable.
6. Grout: Portland cement grout, color to be selected. Comply with ANSI A118.6. Color: as selected by the Commissioner.

C. Anchors: Fabricate anchors, including shelf angles, from stainless steel, ASTM A 666, Type 316, temper as required to support loads imposed without exceeding allowable design stresses.
   1. Fasteners for Stainless-Steel Anchors: Annealed stainless-steel bolts, nuts, and washers; ASTM F 593 (ASTM F 738M) for bolts and ASTM F 594 (ASTM F 836M) for nuts.
   2. Cast-in-Place and Post-installed Fasteners for Concrete and Masonry: Stainless steel type, with capability to sustain, without failure, a load equal to 4 times the loads imposed, for concrete, or 6 times the load imposed, for masonry, as determined by testing per ASTM E 488, conducted by a qualified independent testing agency.

2.5 ACCESSORIES

A. Setting Shims: Strips of vulcanized neoprene, 50 to 70 Shore A durometer, nonstaining to stone, sized to suit joint thicknesses and depths of stone supports without intruding into required depths of joint sealants or causing third-side adhesion between sealant and setting shims.

B. Plastic Weep Hole/Vent: One-piece, flexible extrusion manufactured from ultraviolet-resistant polypropylene copolymer, designed to weep moisture to exterior, in color selected from manufacturer's standard.

2.6 FABRICATION

A. Comply with recommendations of stone source fabricator.

B. Fabricate stone units in sizes and shapes required to comply with requirements indicated, including on Drawings and as per existing materials.

C. New stone units must match thickness, size, and shape indicated and to comply with fabrication and construction tolerances recommended by applicable stone association or, if none, by stone source, for faces, edges, beds, and backs.
   1. Thickness: Match existing or a minimum of 1-1/4- inches.
   2. Control depth of stone and back check to maintain minimum clearances indicated between backs of stone units and surfaces or projections of structural members, fireproofing (if any), backup walls, and other work behind stone.
   3. New stone units must have butt joints of uniform width and in locations indicated. Joint width: 1/4- inch minimum.
   4. Clean backs of stone to remove rust stains, iron particles, and stone dust.

D. Pattern Arrangement: Fabricate and arrange panels to match existing ashlar pattern.
   1. Carefully inspect finished stone units at fabrication plant for compliance with requirements for appearance, material, and fabrication. Remove defective units and install new.

2.7 GROUT MIX

A. Mix and proportion pre-mix mortar and grout materials in accordance with manufacturer's instructions and TCNA Handbook for Ceramic Tile Installation, 2006 edition.

2.8 SOURCE QUALITY CONTROL

A. Obtain each type of stone specified from a single quarry. New stone units must come from a single block of stone or from contiguous blocks of stone. Number stone units consecutively in the order they were produced. Use marking materials that will not stain or discolor stone units.

PART 3 EXECUTION

3.1 EXECUTION REQUIRMENTS

A.! Refer to DDC **G**eneral Conditions for execution requirements.

3.2 EXAMINATION

A. Examine surfaces to receive stone assembly and conditions under which stone work will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance.
   1. Verify that required built-in anchorage items are install in designed locations.

   2. Verify that any required bituminous damp-proofing or waterproofing has been applied (if indicated on the Drawings or if specified).

   3. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 PREPARATION

A. Advise installers of other work about specific requirements for placement of inserts, flashing reglets, and similar items to be used by the stone Installer for anchoring, supporting, and flashing of any stone assembly. Furnish installers of other work with Drawings or templates showing locations of these items.

fi Û Protect any and all stone assembly work during erection as follows: Cover tops! of stone installation with non-staining, waterproof sheeting at end of each day's! work. Cover partially completed structures when work is not in progress. Extend! cover a minimum of 24 inches down both sides and hold securely in place.

› Û Clean stone surfaces that are dirty or stained by removing soil, stains, and foreign! materials before setting. Clean stone by thoroughly scrubbing with fiber brushes! and then drenching with clear water. Use only mild cleaning compounds that! contain no caustic or harsh materials or abrasives.

3.4 INSTALLATION

A. Execute stone assembly installation by skilled mechanics and employ skilled stone fitters at Project site to do necessary field laying dimensioning of stone as it is set.
   1. Use power saws with diamond blades to shape stone. Produce straight and true line, with edges eased slightly to prevent snipping.

B. Attach anchors securely to stone and to backup surfaces matching existing anchoring methods. Comply with recommendations in ASTM C 1242.

C. Contiguous Work: Provide reveals, reglets, and openings as required to accommodate contiguous work.

D. Set stone to comply with requirements indicated on Drawings and Shop Drawings. Install anchors, supports, fasteners, and other attachments indicated or necessary to secure any stone assembly in place. Shim and adjust anchors, supports, and accessories to set stone accurately in locations indicated with uniform joints of widths indicated and with edges and faces aligned according to established relationships and indicated tolerances.

E. Provide expansion, control, and pressure-relieving joints of widths and at locations indicated.

F. Install concealed flashing at continuous shelf angles, lintels, ledges, and similar obstructions to downward flow of water to divert water to building exterior.

G. Keep cavities open where unfilled space is indicated between back of stone units and backup wall; do not fill cavities with mortar or grout.
   1. Place weep holes and vents in joints where moisture may accumulate, including base of cavity walls, above shelf angles, and flashing. Locate weep holes and vents at intervals not exceeding 24 inches and for those serving as vents only, at intervals not exceeding 60 inches horizontally and 20 feet vertically.

H. Apply sealant to junction of stone panels and dissimilar materials and junction of dissimilar planes.

3.5 INSTALLATION TOLERANCES

A. Variation from Plumb: For vertical lines and surfaces of walls, do not exceed 1/4 inch in 10 feet, 3/8 inch in 20 feet, or 1/2 inch in 40 feet or more. For external corners, corners and jambs within 20 feet of an entrance, expansion joints, and other conspicuous lines, do not exceed 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 3/8 inch in 40 feet or more.

B. Variation from Level: For lintels, sills, water tables, parapets, horizontal bands, horizontal grooves, and other conspicuous lines, do not exceed 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 3/8 inch maximum.

C. Variation of Linear Building Line: For positions shown in plan and related portions of walls and partitions, do not exceed 1/4 inch in 20 feet or 1/2 inch in 40 feet or more.

D. Variation in Joint Width: Do not vary joint thickness more than 1/8 inch in 36 inches or a quarter of nominal joint width, whichever is less.

3.6 REPAIRING STONE

A. Preparation for Patch Repairing
   1. Do not use any additives, such as bonding agents, accelerators, or retardants in the mortar.
   2. Remove all loose mortar and masonry prior to installation of the repair mortar. “Sound” masonry with a hammer to verify its integrity. If necessary, cut away an additional 1/2” of the substrate to ensure the surface to be repaired is solid and stable. Remove any sealant residue.
   3. Where cramp anchors, threaded rod anchors, or dowels have been cut and pieces remain embedded in the substrate: Anchors that are free of rust, solidly embedded, and do not project beyond the surface of the masonry unit may remain. All others must be removed.
   4. Cut the edges of the area of repair to provide a minimum depth of 1/4”. The edges of the area of repair must be square cut. Do not allow any feathered edges in the area of repair.

B. For Deep Patch Repairing
   1. Install mechanical anchors in all repaired areas if specified on the Contract Drawings or as otherwise directed by the Commissioner.
   2. Install anchors as follows:
      a. Drill holes to diameter specified on Contract Drawings.
      b. Clean holes using compressed, oil-free air, and bristle brushes, until no dust cloud is produced when a brush, inserted the full depth of the hole, is pulled out of the hole.

3. Embed anchors in back-up using approved mortar mix according to Manufacturer's instructions.
4. Anchors must be covered with a minimum of 3/4" repair material.
5. Clean all dust from surface and pores of the substrate, using clean water and a scrub brush.
6. For very dry or porous surfaces, pre-wet the substrate ahead of time to prevent the substrate from drawing moisture out of the area of repair too quickly. Re-wet the surface immediately before applying the repair material.

C. Mixing Mortar for Repairing
1. It is recommended that a dust mask be worn during mixing. Do not mix more material than can be used within 30 minutes. Discard any mixed material that has been unused for 30 minutes or more.
2. Mixing ratios for granite are as follows:
   a. Approximately 5 parts dry material to 1 part water.
3. Add water to dry ingredients and mix well. Adjust amount of water according to the weather and the porosity of the substrate.
4. The next step of the application is the "Peanut Butter" coat. The mortar must be mixed with water to the consistency of wet putty. Apply the "Peanut Butter" coat to the glistening wet substrate approximately 1/8 inch thick. Important – To achieve proper bond, the "Peanut Butter" coat must not dry out prior to application of mortar. Patch individual stones with a cementitious mixture.

D. Application of Repairing Material
1. Apply the mortar mix (see data sheet) using a trowel to place and compress the mortar into the area of repair ensuring not to leave any voids. For overhead areas of repair thicker than 2", apply mortar in layers, allowing the first layer to cure for a two to four hours before applying the second layer. If applied in layers, scrape off any cement skin that has formed and continue application. Dampen the surface and before applying the next layer. Work mortar firmly into the surface of the masonry, including the corners, and under and around all mechanical anchors.
2. Build up the repairing and restoring material so that it is slightly above the adjacent masonry surface. Allow mortar 30 to 60 minutes to set slightly (wait time will vary with temperature and humidity–longer in cool weather), and then scrape off excess material using a straight edge (a plasterer's miter rod is good for this). Do not press down or "float" the repaired area. Where repairing occurs at panel edges or corners, form mortar to match the profile of the surrounding masonry. In all cases, finish and texture the repaired area so that it is as indistinguishable as possible from the adjacent masonry.

E. Finishing Techniques
1. To obtain a smooth finish, scrape the repaired area down to the original profile then trowelled to leave a smooth surface. This may cause the repaired area to lighten and may need to be stained to match.
2. When finishing a repaired area of granite, do not scrape the repaired area described above. The larger aggregate in the granite material will follow the

screed, tearing the surface. Trowel the mortar even with the surrounding surface. Coarse aggregate or colored granite chips may be applied to the top surface only to match surrounding granite or precast concrete. Aggregate must be sifted and rinsed to ensure it is free of dust. Dampen the aggregate and press it firmly into the repaired area while the mortar is still damp. Allow patch to set (approximately 4-6 hours) scrub the repaired area with a bristle brush and water to remove excess mortar to expose aggregate. Some experimentation will be necessary to achieve the desired texture.

3. Patching mortar can be textured to match rough surfaces using a variety of finishing tools.
4. Clean any mortar residues from area surrounding the repaired area by sponging as many times as necessary with clean water. This must be done before repair material sets.
5. After the repaired area has cured and allowed to dry for at least one week, if the appearance of a repaired area does not meet the specifications of the job, the surface color of the repaired area may be enhanced by applying a vapor permeable, mineral based pigmented stain.

F. Curing Procedure
1. Lightly mist the repaired area with water to wet the entire surface of the finished repaired area approximately 30 minutes to 1 hour after completion on hot sunny days, and approximately 2 hours or longer, on cool or cloudy days. Time will vary with temperature and humidity. Mist several times a day on the three days following the completed repaired area. Must access to the repaired area be impossible for a period of time, plastic may be used to cover them temporarily. The application of plastic, however, does not remove the need for normal curing techniques. Never cover the repaired area with plastic immediately after finishing—the water in the repair will be trapped on the surface, causing it to lighten.

G. Clean Up
1. Remove uncured mortar from the perimeter of the repaired area before it dries using clean water and a rubber sponge. Repeat several times with clean water to prevent a halo effect (staining of adjacent masonry). Cured mortar may only be removed chemically or mechanically.
2. Remove uncured mortar from tools and equipment with water as soon as possible. Cured material may only be removed chemically or mechanically.

## 3.7 MORTAR REPLACEMENT

A. Sealed Cross Joints – Rake out joints to depth of 3/4"; prime ends of stones. Insert proper size backer rod, if needed, and gun-apply sealant with a neat uniform finish. Sealant work under Section 079200.

B. Unsealed Bed Joints - Wet the raked joints and point full with pointing mortar. Cut joints flush and neatly tool surface of joints slightly concave. Finish joints that abut other masonry to match the joint finish of the adjacent masonry.

3.8 FIELD QUALITY CONTROL

A. Field Quality-Control Testing Service: Contractor will engage a qualified independent testing agency to perform field quality-control testing.
   1. Testing agency will report test results promptly and in writing to the Commissioner and the Contractor.

3.9 CLEANING AND PROTECTION

A. Remove broken, chipped, stained, or otherwise disturbed stone, defective joints, and stone work that does not match approved samples and mockups and install new stone units. Disturbed stone must be removed to install new units as approved by the Commissioner.

B. In-Progress Cleaning: Clean any stone replacement as work progresses.

C. Clean any and all stone assembly work no fewer than six days after completion of pointing and sealing, using clean water and stiff-bristle fiber brushes. Do not use wire brushes, acid-type cleaning agents, cleaning agents containing caustic compounds or abrasives, or other materials or methods that could disturbance stone.

D. Protection: Protect stone from disturbance during progress of construction.

E. Before final inspection, remove protective coverings if any. Use procedures recommended by stone fabricator for types of application.

END OF SECTION 04 01 40.51

# SECTION 05 41 00 – STRUCTURAL METAL STUD 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. Provide all materials, labor and equipment to properly install the following work:
   1. Provide exterior structural non-load-bearing steel stud wall framing for the lateral support of exterior wall material finishes at new roof stair enclosure.

B. Related Sections
   1. Section 07 56 00 Fluid-Applied Roofing
   2. Section 09 21 16 Gypsum Board Assemblies

C. References - 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 must be deemed mandatory and applicable to the Work.
   1. ASTM International (ASTM), latest editions.
   2. Industry Standards.
      Underwriters Laboratory (UL)
         618 Standard for Concrete Masonry Units
      American Welding Society (AWS)
         D1.4 – Structural Welding Code – Reinforcing Steel
      American Iron and Steel Institute (AISI)
   3. International Organization for Standardization (ISO)

### 1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures”.

### 1.4 SUBMITTALS

A. Product Data
   1. Submit Product Data for each type of cold-formed steel framing product and accessories.

B. Shop Drawings
   1. Include spacing, sizes, thicknesses, and types of cold-formed steel framing; fabrication; and fastening and anchorage details, including mechanical fasteners.
   2. Indicate reinforcing channels, opening framing, supplemental framing, vertical deflection clips, strapping, bracing, bridging, splices, accessories, connection details, and attachment to adjoining work.

C. Samples
   1. Submit 2 stud samples 8” long and 2 samples of each strapping, bracing, bridging, mechanical fasteners and accessories.

D. Quality Control Submittals
   1. Certificates:
      a. Qualification Data: For 3rd party manufacturing facility testing agency.
      b. Welding certificates.
      c. Manufacturing Facility Inspection certification: For each stud and track framing product, submit current certification that manufacturing facility has been inspected by a 3rd party International Accreditation Service (IAS) accredited agency.

1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

B. Regulatory Requirements

   1. Building Code: Work of this Section must conform to all requirements of the NYC Building Code and all applicable regulations set forth by OSHA, NYC Fire Code, and NYC Department of Environmental Protection (DEP) including safety, health, noise, and anti-pollution regulations.
   2. NYC Board of Standards and Appeals (BSA) approvals, NYC Materials and Equipment Acceptance (MEA) approvals or Office of Technical Certification and Research (OTCR).

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to project site and protect in undamaged condition as required in AISI S202, “Code of Standard Practice for Cold-Formed Steel Structural Framing.” Store in an enclosed location or off the ground with waterproof covering as needed to protect all materials from deformation, moisture, contaminants, corrosion and other harmful conditions.

B. Packaged Products
   1. Deliver materials to the site in manufacturer's original, sealed containers. Material containers must bear the manufacturer's label indicating manufacturer's name, trade name of product.
   2. Comply with manufacturer's printed instructions for storing and protecting materials.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Contractor must engage a professional structural engineer licensed in the State of New York to design cold-formed steel framing for the Commissioner's review and approval.

B. Structural Performance: Provide cold-formed steel framing capable of withstanding design loads within limits and under conditions indicated.
   1. Design Loads: As indicated on Structural Drawings, and in accordance with Applicable Building Code.
   2. Deflection Limits: For deflection calculations, wind pressures may be reduced in accordance with Table BC 1604.3 of the 2022 NYC Building Code, footnote f. Design framing systems to withstand design loads without deflections greater than the following:
      a. Exterior Structural Non-Load-Bearing Wall Framing: Horizontal deflection depending upon type of cladding supported:
         1) Brick or Stone or Masonry Veneer: l/600 of wall height.
   3. Design framing systems to provide for movement of framing members located outside the insulated building envelope without damage or overstressing, sheathing failure, connection failure, undue strain on fasteners and anchors, or other detrimental effects when subject to a maximum ambient temperature change of 120°F.
   4. Design framing system to maintain clearances at openings, to allow for construction tolerances, and to accommodate live load deflection of primary building structure as follows:
      a. Upward and downward movement of 1/2 inch.
   5. Design exterior non-load-bearing wall framing to accommodate horizontal deflection without regard for contribution of sheathing materials.

2.2 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

   1. Clark Dietrich Building Systems, Inc.
   2. Super Stud Building Products, Inc.
   3. Marino/Ware
   4. Or approved equal.

2.3 COLD-FORMED STEEL FRAMING MATERIALS

A. Recycled Content of Steel Products: Postconsumer recycled content plus one-half of pre-consumer recycled content not less than 25 percent.

B. Framing Members, General: Comply with AISI S100 and ASTM C955.

C. Steel Sheet: ASTM A1003, Structural Grade, Type H, metallic coated, of grade and coating weight as follows:

1. Grade: for 33 and 43 mil thickness: ST33H. For 54mil and greater thickness: ST50H.
2. Coating: ASTM A653 CP90: G90 (Z275).

D. Steel Sheet for Vertical Deflection Clips: ASTM A653 structural steel, zinc coated, of grade and coating as follows:
1. Grade: 50.
2. Coating: G90.

2.4 EXTERIOR STRUCTURAL NON-LOAD-BEARING WALL FRAMING

A. Steel Studs: Manufacturer's standard C-shaped steel studs, of web depths indicated, punched, with stiffened flanges, and as follows:
1. Minimum Base-Metal Thickness: 0.0428 inch. (43 mil, structural 18 gauge)
2. Flange Width: $1^5/_8$ inches.

B. Steel Track: Manufacturer's standard U-shaped steel track, of web depths indicated, unpunched, with straight flanges, and as follows:
1. Minimum Base-Metal Thickness: 0.0428 inch.
2. Flange Width: $1^5/_8$ inches.

C. Steel Box or Back-to-Back or L-Headers: Manufacturer's standard C-shapes or L-shapes used to form header beams, of web depths indicated, unpunched, with stiffened flanges, and as follows:
1. Minimum Base-Metal Thickness: 0.0428 inch.
2. Flange Width: $1^5/_8$ inches minimum for C-shapes, and top flange width minimum 2 inches for L-shapes.
3. Holes in header members greater than 1/4 inch are not permitted without an approved design.

D. Vertical Deflection Clips: Manufacturer's standard bypass and head-of-wall clips, capable of accommodating 1.5 inch upward and downward vertical displacement of primary structure (with total vertical movement of 3 inches) through positive mechanical attachment to stud web. Minimum deflection clip thickness: 97 mil (12 gauge).

E. Single Deflection Track: Manufacturer's single, deep-leg, U-shaped steel track; unpunched, with unstiffened flanges, of web depth to contain studs while allowing free vertical movement, with flanges designed to support horizontal loads and transfer them to the primary structure, and as follows:
1. Minimum Base-Metal Thickness: 0.0428 inch (43 mil, 18 gauge).
2. Flange Width: 1 inch plus the design gap, or 1.5 inches, whichever is greater.

F. Drift Clips (where indicated on drawings): Manufacturer's standard bypass or head clips, capable of isolating wall stud from upward and downward vertical displacement and lateral drift of primary structure through positive mechanical attachment to stud web and structure.

2.5 FRAMING ACCESSORIES

A. Fabricate steel-framing accessories from steel sheet, ASTM A1003, Structural Grade, Type H, metallic coated, of same grade and coating weight used for framing members.

B. Provide accessories of manufacturer's standard thickness and configuration, unless otherwise indicated, as follows:
   1. Supplementary framing.
   2. Bracing, bridging, and solid blocking.
   3. Flat straps
   4. Clip Angles

2.6 ANCHORS, CLIPS AND FASTENERS

A. Steel Shapes and Clips: ASTM A36, zinc coated by hot-dip process according to ASTM A123.

B. Anchor Bolts: ASTM F1554, Grade 36 minimum, threaded carbon-steel bolts and carbon-steel nuts; and flat, hardened-steel washers; zinc coated.

C. Expansion Anchors: Fabricated from corrosion-resistant materials, with allowable load or strength design capacities calculated according to ACI 318-25 greater than or equal to the design load, as determined by testing per ASTM E488 conducted by a qualified testing agency.

D. Power-Actuated Anchors: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with allowable load capacities calculated according to ICC-ES AC70, greater than or equal to the design load, as determined by testing per ASTM E1190 conducted by a qualified testing agency.

E. Mechanical Fasteners: ASTM C1513, corrosion-resistant-coated, self-drilling, self-tapping, steel drill screws.
   1. Head Type: Low-profile head beneath sheathing, manufacturer's standard elsewhere.

F. Welding Electrodes: Comply with AWS standards.

2.7 MISCELANEOUS MATERIALS

A. Galvanizing Paint must comply with one of the following: SSPC-Paint 20, MIL-P-21035B, or ASTM A780.

B. Cement Grout: Portland cement, ASTM C150, Type I; and clean, natural sand, ASTM C404. Mix at ratio of 1 part cement to 2½ parts sand, by volume, with minimum water required for placement and hydration.

C. Nonmetallic, Non-shrink Grout: Premixed, nonmetallic, noncorrosive, non-staining grout containing selected silica sands, portland cement, shrinkage-compensating

agents, and plasticizing and water-reducing agents, complying with ASTM C1107, with fluid consistency and 30-minute working time.

D. Shims: Load bearing, high-density multimonomer plastic, and non-leaching; or of cold-formed steel of same grade and coating as framing members supported by shims.

E. Sealer Gaskets: Closed-cell neoprene foam, 1/4 inch thick, selected from manufacturer's standard widths to match width of bottom track or rim track members.

## 2.8 FABRICATION

A. Fabricate cold-formed steel framing and accessories plumb, square, and true to line, and with connections securely fastened, according to code-referenced American Iron and Steel Institute (AISI) specifications and standards, manufacturer's written instructions, and requirements in this Section.
   1. Fabricate framing assemblies using jigs or templates.
   2. Cut framing members by sawing or shearing; do not torch cut.
   3. Fasten cold-formed steel framing members by welding, screw fastening, clinch fastening, pneumatic pin fastening, or riveting as standard with fabricator. Wire tying of framing members is not permitted.
      a. Comply with AWS D1.3 requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
      b. Locate mechanical fasteners and install according to Shop Drawings, with screw penetrating joined members by no fewer than three exposed screw threads.
   4. Fasten other materials to cold-formed steel framing by welding, bolting, pneumatic pin fastening, or screw fastening, according to Shop Drawings.

B. Reinforce, stiffen, and brace framing assemblies to withstand handling, delivery, and erection stresses. Lift fabricated assemblies to prevent damage or permanent distortion.

C. Fabrication Tolerances: Fabricate assemblies level, plumb, and true to line to a maximum allowable tolerance variation of 1/8 inch in 10 feet (1:960) and as follows:

   1. Spacing: Space individual framing members no more than plus or minus 1/8 inch from plan location. Cumulative error must not exceed minimum fastening requirements of sheathing or other finishing materials.
   2. Squareness: Fabricate each cold-formed steel framing assembly to a maximum out-of-square tolerance of 1/8 inch.

# PART 3 - EXECUTION

## 3.1 EXECUTION REQUIRMENTS

A.! Refer to DDC General Conditions for execution requirements.

3.2 EXAMINATION

A. Examine supporting substrates and abutting structural framing for compliance with requirements for installation tolerances and other conditions affecting performance of the Work. Report to the Commissioner any conditions that prevent the performance of this Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 PREPARATION

A. Before sprayed fire-resistive materials are applied, attach continuous angles, Z-Furring, supplementary framing, or tracks to structural members indicated to receive sprayed fire-resistive materials.

B. After applying sprayed fire-resistive materials, remove only as much of these materials as needed to complete installation of cold-formed framing without reducing thickness of fire-resistive materials below that are required to obtain fire-resistance rating indicated. Protect remaining fire-resistive materials from damage.

C. Install load bearing shims or grout between the underside of wall bottom track and the top of slab at locations with a gap larger than 1/4 inch to ensure a uniform bearing surface on supporting concrete or masonry construction.

D. Install sealer gaskets at the underside of wall bottom track or rim track at the top of wall slab at stud.

3.4 INSTALLATION, GENERAL

A. Cold-formed steel framing may be field fabricated for installation, or it may be field assembled.

B. Install cold-formed steel framing according to ASTM C1007 and to manufacturer's written instructions unless more stringent requirements are indicated.

C. Install field-fabricated, cold-formed framing and securely anchor to supporting structure.
1. Screw, bolt, or weld wall panels at horizontal and vertical junctures to produce flush, even, true-to-line joints with maximum variation in plane and true position between fabricated panels not exceeding 1/16 inch.

D. Install cold-formed steel framing and accessories plumb, square, and true to line, and with connections securely fastened.
1. Cut framing members by sawing or shearing; do not torch cut.
2. Fasten cold-formed steel framing members by welding, screw fastening, clinch fastening, or riveting. Wire tying of framing members is not permitted.
a. Comply with AWS D1.3 requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.

b. Locate mechanical fasteners and install according to Shop Drawings, and complying with requirements for spacing, edge distances, and screw penetration.

E. Install framing members in one-piece lengths unless splice connections are indicated for track or tension members.

F. Install temporary bracing and supports to secure framing and support loads comparable in intensity to those for which structure was designed. Maintain braces and supports in place, undisturbed, until entire integrated supporting structure has been completed and permanent connections to framing are secured.

G. Do not bridge building expansion joints with cold-formed steel framing. Independently frame both sides of joints.

H. Install insulation, specified in Section 072116 "Blanket Insulation," in built-up exterior framing members, such as headers, sills, boxed joists, and multiple studs at openings, that are inaccessible on completion of framing work.

I. Erection Tolerances: Install cold-formed steel framing level, plumb, and true to line to a maximum allowable tolerance variation of 1/8 inch in 10 feet (1:960) and as follows:
1. Space individual framing members no more than plus or minus 1/8 inch from plan location. Cumulative error must not exceed minimum fastening requirements of sheathing or other finishing materials.

## 3.5 EXTERIOR NON-LOAD-BEARING WALL INSTALLATION

A. Install continuous tracks sized to match studs. Align tracks accurately and securely anchor to supporting structure as indicated.

B. Fasten both flanges of studs to top and bottom track unless otherwise indicated. Space studs at maximum 24” on center, or as indicated on approved shop drawings.

C. Set studs plumb, except as needed or required for non-plumb walls or curved surfaces.

D. Isolate non-load-bearing steel framing from building structure to prevent transfer of vertical loads while providing lateral support.
1. Install single deep-leg deflection tracks and anchor to building structure.
2. Connect vertical deflection clips to bypassing and infill studs and anchor to building structure.
3. Connect drift clips to cold-formed metal framing and anchor to building structure.

E. Install horizontal bridging in wall studs, spaced vertically in rows indicated on Shop Drawings. Fasten at each stud intersection.
1. Top Bridging for Single Deflection Track: Install row of horizontal bridging within 24 inches of top single deflection track. Install a combination of

bridging and stud or stud-track solid blocking of width and thickness matching studs, secured to stud webs or flanges. At bridging line, install solid blocking at each end of bridging straps, and at a maximum spacing of 120 inches on center.

2. Bridging: Cold-rolled steel channel, welded or mechanically fastened to webs of punched studs.
3. Bridging: Combination of flat, taut, steel sheet straps of width and thickness indicated and stud track solid blocking of width and thickness to match studs. Fasten flat straps to stud flanges and secure solid blocking to stud webs or flanges. At bridging line, install solid blocking at each end of bridging straps, and at a maximum spacing of 120 inches on center.

F. Install miscellaneous framing and connections, including stud kickers, web stiffeners, clip angles, continuous angles, anchors, and fasteners, to provide a complete and stable wall-framing system.

3.6 FIELD QUALITY CONTROL

A. The City of New York will assign under the requirements of Section BC 1705.2.6 a Special Inspector who will inspect the structural steel stud framing construction. Where post-installed anchors are utilized, the Special Inspector will perform Special Inspection on post-installed anchors as per Section BC 1705.37. Adhesive anchors installed in concrete in a horizontal or upwardly inclined position supporting sustained tension loads must be installed under continuous Special Inspection as required by paragraph D9.2.4 of ACI 318-11.

B. If any results are found to be not in conformance with the applicable ASTM, industry practice, and the Specifications the steel stud wall in question must be removed and redone. Pay for testing if results of testing verify improper workmanship or proportions not in conformance with the specifications and ASTM standards.

3.7 REPAIRS AND PROTECTION

A. Galvanizing Repairing: Prepare, repair damaged galvanized coatings on fabricated and installed cold-formed steel framing with galvanized repairing paint according to ASTM A780 and manufacturer's written instructions.

B. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer that ensure that cold-formed steel framing is without damage or deterioration at time of Substantial Completion.

END OF SECTION - 05 41 00

SECTION 05 50 00 - METAL FABRICATIONS

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 metal fabrications and miscellaneous metals as indicated on the Drawings and as specified herein, including, but not limited to the following:

1. Steel Antenna Dunnage: Fabricate a new vertical steel dunnage for permanent installations of 15 antennas as per attached details and based on the following elements all made out of galvanized steel:
    a. Steel post: HSS 4x4x3/8
    b. Steel pipe: 1-1/2" diameter
    c. Top horizontal angle: L4x3x1/4 LLH
    d. Bottom horizontal angle: L2x2x1/4
    e. Cross bracing bet. posts: L2x2x1/4
    f. Note: Contractor will coordinate with the agencies owning the existing antennas and video equipment on the roof the temporary removal and relocation of the existing antennas to allow brick replacement work and fabrication of the new vertical dunnage. Contractor will also coordinate with same agencies the installation of the antennas to their permanent location at the newly fabricated steel vertical dunnage.

2. Reinforcing Existing Roof Guard Rails: Reinforce all existing aluminum roof guard rails by welding an aluminum brace to each guard rail post and anchoring it to the roof structural slab. The new aluminum brace will be anchored by welding an aluminum plate to the bottom of each new brace and then bolting it to the structural roof slab at all locations shown on the attached drawings.
    a. Brace: L2x2x3/16 aluminum angle
    b. Base: ¼” thick aluminum plate
    c. Anchors: See attached structural drawings

3. Steel Beam Repair: Repair the existing steel beam at the underside of the existing roof stair by welding a new steel plate as detailed on the attached drawings. Exposed existing steel shall be scraped, rust proofed, primed and painted. New steel shall be cleaned, rust proofed, primed and painted.

B. Related Sections:
   1. Section 02 41 19 Selective Demolition
   2. Section 03 30 53 Miscellaneous Cast-In-Place Concrete
   3. Section 07 56 00 Fluid-Applied Roofing

C. References - 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 must be deemed mandatory and applicable to the Work.
   1. American Society for Testing and Materials (ASTM)
   2. American Welding Society (AWS).
   3. American National Standards Institute (ANSI)
   4. Society for Protective Coatings (SSPC)
   5. Federal Specifications (FS)
   6. National Association of Architectural Metals Manufacturers (NAAMM)
   7. Aluminum Association (AA)
   8. The Building Code of the City of New York, latest edition.
   9. The American Galvanizers Association

1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures”.

1.4 SUBMITTALS

A. Product Data, for each specified item:

   1. Submit product data sheets for products used in metal fabrications, including anchoring devices. Instructions for installation of anchorage devices built into other work.

   2. Submit product data sheets for painting materials.

   3. Submit product data sheets for grouts and sealants.

B. Shop Drawings, for each specified item:

   1. Show all locations, markings, quantities, materials, sizes and shapes.

   2. Indicate all methods of connecting, anchoring, fastening, bracing and attaching to work of other trades.

C. Welder certificates signed by the Contractor certifying that welders comply with requirements specified under DDC General Conditions Section 01 40 00 “Quality Requirements.”

1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

1.6 PRODUCT HANDLING

A. Before shipment to the job, all finishes must be adequately protected for transporting and erecting periods.

B. Replace damaged items, with the approval of the Commissioner, and at no additional cost to the City of New York.

1.7 PROJECT CONDITIONS

A. Field Measurements: Check actual locations of walls and other construction to which metal fabrications must fit, by accurate field measurements before fabrication; show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress and work of other trades to avoid delay of work.

PART 2 – PRODUCTS

2.1 PERFORMANCE REQUIRMENTS

A. Contractor must engage a professional structural engineer licensed in the State of New York to design detailed metal fabrications for the Commissioner’s review and approval.

B. Definitions in ASTM E985 for railing-related terms apply to this Section.

C. Structural Performance: Design, engineer, fabricate, and install the following metal fabrications per Section BC 1607.7 of the 2022 NYC Building Code.

2.2 MATERIALS

A. Metals

1. Metal Surfaces, General: For metal fabrications exposed to view upon completion of the Work, provide materials selected for their surface flatness, smoothness, and freedom from surface blemishes. Do not use materials whose exposed surfaces exhibit pitting, seam marks, roller marks, rolled trade names, roughness, and, for steel sheet, variations in flatness exceeding those permitted by reference standards for stretcher-leveled sheet.

2. Ferrous Metals

a. Steel Plates, Shapes, and Bars: ASTM A36

b. Rolled Steel Floor Plates: ASTM A786

c. Steel Bars for Gratings: ASTM A569 or ASTM A36

d. Wire Rod for Grating Cross Bars: ASTM A510

e. Cold-Formed Steel Tubing: ASTM A500

f. Hot-formed Steel Tubing: ASTM A501

g. Cold-Rolled Structural Steel Sheet: ASTM A611

h. Hot-Rolled Structural Steel Sheet: ASTM A570

i. Cold-Rolled Steel Sheet: ASTM A366

j. Galvanized Structural Steel Sheet: ASTM A446

k. Galvanized Commercial Quality Steel Sheet: ASTM A526

l. Steel Pipe: ASTM A53; finish, type, and weight class as follows:

1) Black finish, unless otherwise indicated.

2) Galvanized finish for exterior installations and where indicated.

3) Type S, Grade A, standard weight (schedule 40), unless otherwise indicated, or another grade or weight or both required by structural loads.

m. Gray Iron Castings: ASTM A48, Class 30

n. Malleable Iron Castings: ASTM A47, Grade 32510

o. Brackets, Flanges and Anchors: Cast or formed metal of the same type material and finish as supported rails, unless otherwise indicated.

p. Concrete Inserts: Threaded or wedge type; galvanized ferrous castings, either malleable iron, ASTM A47, or cast steel, ASTM A27. Provide bolts, washers, and shims as required, hot-dip galvanized per ASTM A153.

q. Welding Rods and Bare Electrodes: Select in accordance with AWS specifications for the metal alloy to be welded.

r. Stainless Steel bar: ASTM A276, Type 304

s. Stainless Steel plate: ASTM A240, Type 304.

3. Aluminum

a. Extruded Bars and Shapes: ASTM B221, alloy as follows:

1) 6061-T6 or 6063-T6 for bearing bars of gratings and shapes.

2) 6061-T1 for grating cross bars.

b. Aluminum–Alloy Rolled Tread Plate: ASTM B632, alloys as follows:

1) 6061-T6 for platforms.

2) 6061-T4 for treads.

c. Aluminum Sheet for Expanded Aluminum Grating: ASTM B209, alloy 5052-H32.

d. Fasteners for Aluminum Gratings: Use fasteners made of same basic metal as fastened metal except use galvanized fasteners complying with ASTM A153 for exterior aluminum units, unless otherwise indicated. Do not use metals that are corrosive or incompatible with metals joined.

B. Grout and Anchoring Cement

1. Non-shrink Metallic Grout: Premixed, factory-packaged, ferrous aggregate grout complying with Federal Specification CE CRD-C 621 specifically recommended by manufacturer for heavy-duty loading applications of type specified in this section.

2. Non-shrink Non-metallic Grout: Premixed, factory-packaged, nonstaining, noncorrosive, non-gaseous grout complying with Federal Specification CE CRD-C 621. Provide grout specifically recommended by manufacturer for interior and exterior applications of type specified in this section.

3. Erosion-Resistant Anchoring Cement: Factory-prepackaged, non-shrink, nonstaining, hydraulic controlled expansion cement formulation for mixing with water at project site to create pourable anchoring, patching, and grouting compound. Provide formulation that is resistant to erosion from water exposure without need for protection by a sealer or waterproof coating and is recommended for exterior use by manufacturer.

C. Non-shrink Metallic Grouts: Subject to compliance with requirements, provide one of the following:

1. Euclid Chemical Co.; Hi Mod Grout
2. Master Builders; Embeco 885 and 636
3. Sonneborn; Ferrolith G Red-Mix and G-NC
4. Or approved equal.

D. Non-shrink Nonmetallic Grouts: Subject to compliance with requirements, provide one of the following:

1. L&M Construction Chemicals, Inc.; Crystex
2. Master Builders; Masterflow 713
3. Sonneborn; Sonogrout
4. Or approved equal.

E. Erosion-Resistant Anchoring Cement: Subject to compliance with requirements, provide one of the following:

1. Quikrete; Fast-Set
2. Miniwax Const.; Super Por-Rok
3. Sika; Sika-Grout 110
4. Or approved equal.

F. Fasteners

1. 3/8” diameter A325 threaded epoxy anchor.

2. General: Provide galvanized or type 304/316 SS fasteners for exterior use or where built into exterior walls. Select fasteners for the type, grade, and class required.

3. Bolts and Nuts: Regular hexagon head type, ASTM A307, Grade A

4. Lag Bolts: Square head type, ANSI B18.2.1

5. Machine Screws: Cadmium plated steel, FS FF-S-92C

6. Drilled-In Expansion Anchors: Anchors installed in concrete must have current ICC-ES listing for performance in cracked concrete as per Section BC 1912.

7. Toggle Bolts: Tumble-wing type, type, class, and style as required.

8. Lock Washers: Helical-spring type carbon steel, FS FF-W-84A

9. Vandal resistant fasteners: Torx with pin, or as otherwise indicated. Corrosion resistant.

G. Paint

1. Shop Primer, interior Work: Subject to compliance with requirements, provide one of the following:

   a. Tnemec; 115 Unibond
   b. Carboline; Carbocrylic 3358
   c. Devoe; Devflex 4020 PF
   d. Or approved equal

2. Shop Primer, exterior Work except galvanized items: primer for epoxy coat system as specified in Section 09 01 90 Maintenance of Painting and Coating.

3. Bituminous Paint: Cold-applied asphalt mastic complying with SSPC-Paint 12 except containing no asbestos fibers.

H. Galvanizing by the Hot-dip Method – No Finish Coating

1. Items indicated to be painted must not be hot—dip galvanized except as specified herein.

a. Galvanize structural shapes in accordance with ASTM 123.

b. Galvanize hardware in accordance with ASTM A153.

c. Galvanizing repairing paint for re-galvanizing welds and damaged areas must conform to ASTM A780.

I. Galvanizing by the Zinc Metallizing Process or Hot Dip Galvanizing; and Finish Coating

1. Zinc/aluminum metallizing (referred to herein as zinc metallizing) is the process of thermally applying an 85/15 zinc-aluminum wire over the surface of steel.

2. Zinc metallizing or hot dip galvanizing, and finish coating system must have the following performance characteristics and results of tests performed on representative samples. Finish coating for metallizing must be either epoxy coating system or powder coating. Finish coating for hot dip galvanizing must be powder coating. See paragraphs d and 3 below for acceptable system:

a. Adhesion: Test zinc metallizing/hot dip galvanizing with complete finish coating (epoxy coating system or powder coating system) in accordance with ASTM D4541, Test Method E. Pull-off strength throughout the system must be not less than 750 psi before and after environmental cycling.

b. Environmental cycling must be 10 cycles of the following: 4 hrs at 100% humidity per ASTM D1735; 16 hours below 0°F; and 4 hours at 140°F.

c. Corrosion resistance of zinc metallizing/hot dip galvanizing with epoxy coat system or powder coating: A rating of 10 after 1000 hours salt fog (prohesion method) when tested in accordance with ASTM D1654, Procedure A. Scribe must be cut through all coatings to bare steel substrate. Expose specimens in accordance with ASTM G85.

d. Powder coating complying with the following ASTM standards:

1) Adhesion: ASTM D3359, no loss.
2) Hardness: ASTM D3363 (pencil), H min.
3) Falling Sand: ASTM D968 20L/mil.

4) Salt Spray: ASTM B117, passes 3000 hrs.
5) Humidity: ASTM D2247, 3000 hours, few #8 blisters.
6) Impact Resistance (3mm): ASTM D2794, no loss.
7) Color Retention: ASTM D2244, 5 years less than or equal to 5 delta E.
8) Chalk Resistance: ASTM D4214, #8 rating.
9) Gloss Retention: ASTM D523, greater than or equal to 30 percent retention.
10) Erosion Resistance: ASTM B244, less than 10 percent film loss.
11) Compliance: AAMA 2604.

3. Hot Dip Galvanizing with Powder Coating Finish

a. As a system equivalent to zinc metallizing, it is permitted to use the Duncan Colorgalv Thermoset process of hot dip galvanizing with powder coat finish. Galvanizing coating thickness grade per ASTM A123 must be 100, with DFT mil thickness coating not less than 3.6 to 3.9 mils.

b. Powder coating thickness must be as specified in this specification. Coating must include an architectural grade primer.

4. Galvanizing repairing paint for re-galvanizing welds and damaged areas must conform to ASTM A780.

2.3 FINISHES

A. General

1. Comply with NAAM “Metal Finishes Manual” for recommendations relative to application and designations of finishes.

2. Finish metal fabrications after assembly.

3. Refer to Articles 2.5 and 2.6 for painting and galvanizing.

B. Aluminum Finishes

1. Finish designations prefixed by “AA” conform to the system established by the Aluminum Association for designating aluminum finishes.

a. As Fabricated Finish: AA-M10 (Mechanical Finish: as fabricated, unspecified).

b. Class 1 Clear Anodized Finish: AA-M12C22A41 (Mechanical Finish: as fabricated, non-specular; Chemical Finish: etched, medium matte; Anodic Coating: Class I Architectural: clear film thicker than 0.7 mil) complying with AAMA 607.1.

2.4 FABRICATIONS

A. General

1. Form metal fabrications from materials of size, thickness, and shapes indicated but not less than that needed to comply with performance requirements indicated. Work to dimensions indicated or accepted on shop drawings, using proven details of fabrication and support. Use type of materials indicated or specified for various components of each metal fabrication.

2. Form exposed work true to line and level with accurate angles and surfaces and straight sharp edges.

3. Allow for thermal movement resulting from the following maximum change (range) in ambient temperature in the design, fabrication, and installation of installed metal assemblies to prevent buckling, opening up of joints, and overstressing of welds and fasteners. Base design calculations on actual surface temperatures of metals due to both solar heat gain and nighttime sky heat loss.

   a. Temperature Change (Range): 180°F

4. Shear and punch metals cleanly and accurately. Remove burrs.

5. Ease exposed edges to a radius of approximately 1/32 inch, unless otherwise indicated. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.

6. Remove sharp or rough areas on exposed traffic surfaces.

7. Weld corners and seams continuously to comply with AWS recommendations and the following:

   a. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
   b. Obtain fusion without undercut or overlap.

   c. Remove welding flux immediately.

   d. At exposed connections, finish exposed welds and surfaces smooth and blended so that no roughness shows after finishing and contour of welded surface matches those adjacent.

8. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners wherever possible. Use exposed fasteners of type indicated or, if not indicated, Phillips flathead (countersunk) screws or bolts. Locate joints where least conspicuous.

9. Provide for anchorage of type indicated; coordinate with supporting structure. Fabricate and space anchoring devices to provide adequate support for intended use.

10. Shop Assembly: Preassemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.

11. Cut, reinforce, drill and tap miscellaneous metal work as indicated to receive finish hardware, screws, and similar items.

12. Fabricate joints that will be exposed to weather in a manner to exclude water, or provide weep holes where water may accumulate.

B. Support Inserts

1. Provide hot-dip galvanized inserts for anchorage to concrete at locations shown on the Drawings, or as required. Wedge inserts must be provided with a 3/4" bolt, nut, and washers, all hot-dip galvanized. Install 3/4" diameter reinforcing bar X 1'-6" minimum length through anchor loop to increase anchorage in concrete. Space inserts 2'-6" on centers (maximum) starting 6" from face of masonry opening. Submit three (3) samples for approval. Shims must be square horseshoe shape, hot-dip galvanized, as indicated on the Drawings.

C. Apparatus Supports, Miscellaneous Hangers and Accessories

1. Provide bolts, stud bolts, for all proprietary bolts and fasteners for the support of apparatus and other items as indicated on the Drawings. Secure to steel beams or concrete floor slabs above. Where exposed to view in interior, provide finish paint in addition to shop paint.

D. Tee Saddles

1. Provide saddles of 2¼" x 2¼" x 1/4" tee-iron, where indicated on the Drawings. Secure in place. Provide shop and finish paint.

E. Lintels (Exterior)

1. Furnish to mason at the proper time for setting all steel lintels in exterior walls not connected (by hangers, clips, bolts, or otherwise) to the structural work. Lintels in exterior walls of reinforced concrete framed superstructure or portion thereof, or in the concrete fire proofing of steel spandrel beams must be secured in place by means of wedge inserts in concrete beams or steel spandrel fireproofing.

2. All exterior lintels in exterior walls must be galvanized. Bolts connecting lintels to the galvanized wedge inserts must be galvanized in accordance with ASTM A153. Lintels exposed to view must also be finish painted as specified herein with powder coating or epoxy coating system.

F. I-Beam, Channel, Angle, T-Framing, and Miscellaneous Iron Work

1. All ferrous metal items described in this Paragraph must be galvanized if located in kitchen areas, in exterior wall or roof construction, or if exposed to the exterior. Where exposed to view, also provide finish paint as specified herein - powder coating or epoxy coating system. Interior items must receive shop and finish paint.

a. Provide all I-beams, channels, angles, T's, bent plates, steel plates, bent angle frames and all other miscellaneous iron work as indicated on the Drawings, except framing forming a part of the structural steel work. Drill all holes required to secure metal, wood and other materials to the framing.

b. Where indicated on the Drawings, provide framing and stiffening for low partitions; channel framing, hangers, and other items.

c. Provide steel fillers and plates as required for the securing of door holders specified in Section 08 71 00 – Door Hardware.

d. Furnish all steel plates, straps, stiffeners, ties, complete with bolts, washers, and all other items needed for a complete installation, for exterior wood windows. Furnish to the installer in time for its incorporation into the Work.

e. Provide 12 gauge channel and 3" x 3" x 1/4" angle frame, or other members indicated on the Drawings, where ducts pass through fire zone partitions.

f. Provide angle lintels of sizes required at openings for outside air intake chambers.

g. Provide 4" x 4" x 3/8" angle frame, or other members indicated, secured to hangers for hoods over ranges and dishwasher in kitchen, all as indicated on the Drawings.

h. Provide steel supports for counters and cabinets where shown on the Drawings.

i. Provide all clip angles required for anchoring wood blocking at gravel stops. Secure clip angles, of sizes and spacing indicated on the Drawings, to concrete with threaded bolts; furnish bolts at proper time for setting in concrete. Drill clips to receive bolts for anchoring wood blocking in place.

j. Provide angle frame and shelf angle support for subway type grating as indicated on the Drawings.

G. Miscellaneous

1. Provide all other miscellaneous metal work. All Work to be embedded in concrete or masonry work or in connection with bolts, anchors, and inserts must be furnished at the proper time for setting. Those items exposed to the elements or located in exterior walls or roof must be galvanized. Where exposed to view, also provide finish paint as specified herein with powder coating or epoxy coating system. Interior items must be shop and finish painted.

2.5 PAINTING

A. All miscellaneous ferrous metal work, except those members to be galvanized, must be given one shop coat of paint before leaving the shop. For those items to be zinc metallized or hot dip galvanized and finish painted, apply coatings in the shop as specified herein.

B. Cleaning and Surface Preparation

1. Clean all steel first in accordance with SSPC-SP1.

2. Clean steelwork not to be painted (except steel work to be galvanized) in accordance with SSPC-SP2.

3. Clean steelwork to be painted within the same day as it will be applied and in accordance with the following methods, determined by location and exposure:

| | | |
|---|---|---|
| a. | Interior steel not exposed to view: | SSPC-SP2. |
| b. | Interior steel exposed to view: | SSPC-SP3. |
| c. | Cavity wall and exterior steel exposed to weather: | SSPC-SP6. |

C. Shop Coat

1. Apply steel primer paint (general application) at a rate to provide dry film thickness of 2.0 to 3.5 mils. Apply primer paint (cavity wall and exterior application) at a rate to provide dry film thickness of 4.0 to 6.0 mils. Provide full coverage of joints, corners, edges, and exposed surfaces.

2. Apply to dry surfaces only, when surface temperatures are above dew-point, by brush, spray, or roller, thoroughly and evenly, in strict accord with manufacturer's instructions for every detail of handling.

3. Apply second coat of the approved primer, in a darker shade, to surfaces inaccessible to painting after assembly or erection.

4. Protect machined surfaces with an approved rust-inhibiting coating that is readily removable prior to erection.

2.6 GALVANIZING AND FINISH COATING

A. General

1. Galvanize the following Work (items that are to be finish painted must be galvanized by the zinc metallizing process or hot dip galvanized, and finish coated as specified herein):

a. All angles and other steel items located in exterior wall or roof construction
b. All angles supporting exterior masonry or exposed to the weather.
c. All steel members and fabrications exposed to the exterior.
d. All other steel members and fabrications indicated as galvanized on the Drawings and Specifications.

B. Zinc Metallizing-Finish Coating Applicators: Subject to compliance with requirements, provide products by one of the following:

1. Avant Guards Manufacturing
2. East Coast Metallizing & Coating Systems Inc.
3. Atlantic Coast Metallizing & Coatings Corp.
4. Or approved equal.

C. Hot Dip Galvanizing with Powder Coating Finish: Subject to compliance with requirements, provide products by one of the following:

1. Frontier
2. Hubblle
3. Duncan Galvanizing Corp.
4. Or approved equal.

D. Powder Coating Materials: Subject to compliance with requirements, provide one of the following:

1. Tiger Drylac; Series 38 Super Durable Powder Coating.
2. PPG Industries; Coraflon Ultradurable Powder Coating.
3. The Sherwin-Williams Co.; Powdura Super Durable Powder Coatings Series.
4. Or approved equal.

E. Cleaning and Surface Preparation

1. Hardware (bolts, nuts, etc.): Clean and leave free of mill scale before galvanizing.

2. Clean all steel first in accordance with SSPC-SP1 if needed.

3. Steel members: Clean in accordance with SSPC-SP8 before hot-dip galvanizing.

4. Steel members: Clean in accordance with SSPC-SP10 before zinc metallizing. Surface must have a 3-4 mil anchor pattern. Moisture cannot be present on steel and temperature cannot be less than 5$^{o}$F above the dew point. Thermal spray must be applied within 4 hours of blasting.

F. Shop Coat - Hot-dip Galvanizing –as required for galvanized items not indicated to receive finish paint coat.

1. Galvanize hardware in accordance with ASTM A153.

2. Galvanize steel shapes in accordance with ASTM A123. Apply zinc coating as per Thickness Grade specified in ASTM A123.

G. Shop Coat – Galvanizing by the Zinc Metallizing Process – Provide for all galvanized items indicated to receive finish paint, which includes all galvanized items exposed to public view, including lintels, and other items shown on Drawings or specified herein. Finish paint must be the epoxy coat system or the powder coat system; producing a smooth, uniform surface, free of bubbles, runs, or sags. Hot Dip Galvanizing with powder coat finish is also permitted as specified in Paragraph H below.

1. Thermally spray metallizing material at a rate of 4.0 to 6.0 mils DFT. Sprayed coating must be free of lumps, blisters, and loosely adhering particles. Coating must be capable of passing the inspection requirements of Mil Std 2138A(SH) of 5/13/92, but with adhesion 750 psi minimum per ASTM D4541, Test Method E.

2. Epoxy Coating System, as specified in Section 090190 - Maintenance of Painting and Coating: After the metallizing material has cured, apply a first coat of paint at a rate of 4.0 to 6.0 mils DFT. Top coat should be Acrylic Aliphatic Polyurethane, applied at a rate of 2.0 to 3.0 Mils DFT.

3. Powder Coating System: After the metallizing material has cured, properly prepare the item and apply powder coating:

a. Oven bake item for 20 minutes at 450°F, and remove all oil and grease. Cool surface to 72°F, clean with an organic solvent. Apply paint within 3 hours of final cleaning.

b. Apply an out-gas-forgiving primer at the rate of 2-3 mils DFT. Oven cure material at 400°F for 10 minutes.

c. In order to avoid oxidation, final topcoat must be applied within 12 hours.

d. Apply a lead-free TGIC polyester powder topcoat finish at a rate of 4.0 to 5.0 mils DFT.

e. Oven cure at 400°F to 450°F, for 30 minutes, or as recommended by coating manufacturer**.**

H. Hot Dip Galvanizing with Powder Coating Finish

1. As a system equivalent to zinc metallizing, it is permitted to use the Duncan Colorgalv Thermoset process of hot dip galvanizing with powder coat finish. Galvanizing coating thickness grade per ASTM A123 must be 100, with DFT mil thickness coating not less than 3.6 to 3.9 mils.

a. Comply with ASTM A123 for fabricated products and ASTM A153 for hardware, with zinc coating thicknesses not less than those specified in this specification Section 05500, 3.6 to 3.9 mils DFT.

b. Fill vent holes after galvanizing, if applicable, and grind smooth.

c. Galvanizing must exhibit a rugosity (smoothness) 4 rug or less (16-20 microns of variation) when measured by a profilometer over a 1-inch straight line on the surface of elements that are less than 24 pounds per running foot. Profilometer must be capable of operating in 1-micron increments.

d. The incoming material must be inspected, material hung on a rack or chain to be galvanized.

e. Material submerged into caustic cleaner removing the organics from the surface and rinsed with water.

f. Material pickled with hydraulic acid removing iron oxides from the surface and rinsed with water.

g. Material submerged into a flux removing any oxides that have formed after pickling and protecting the material from further formation of additional oxides before being galvanized.

h. The material submerged into Zinc bath at 850° F.

i. The material must be allowed to naturally cool and not quenched with water or chemicals.

j. The galvanizing must be inspected and pre-finished, removing edge tears, spikes, drips, or sharp protrusions which could cause potential harm to someone handling or using the material.

k. The galvanized material must be abraded to create a 1-1.5 mil profile for surface preparation. The profile must be produced by abrasive blasting and or hand abrading.

l. The galvanized material must be inspected prior to powder coating to determine conformance of the material to ASTM A123 and this specification for quality and thickness of zinc coating, not less than 3.6 to 3.9 mils DFT.

m. The galvanized surface profile must be measured at 1-1.5 mils and recorded utilizing replica tape.

n. All galvanized material must be outgassed after profiling and before powder coat application.

o. A coating inspection form must be filled out completely with material information, application conditions, and quality standards.

p. All powder coating products must be electrostatically applied following the recommendations of the powder supplier and the requirements of the powder coating Manufacturers Technical Data Sheet, and with Dry Film Thickness not less than is specified in this specification.

q. The first coat must consist of an Epoxy Primer powder applied at not less than 2.0 – 3.0 mils Dry Film Thickness. The powder must be heated to 400° F to provide adhesion with the next coat of powder, and in accordance with the manufacturer's recommendations.

r. The next coat of powder to be applied must be applied at a dry film thickness of not less than 4.0-5.0 mils. The surface of the fabrications after applying the powder must be heated to 400°F for at least 10 minutes to cure the powder and in accordance with the manufacturer's recommendations. The color of the powder must match the approved color sample that will be approved by the Commissioner.

s. All repairing work for galvanizing must follow ASTM A780.

t. All repairing work to powder coating must be sanded and feathered with the surrounding area. The damaged area must be cleaned and abraded to receive a powder or liquid coating. The liquid coating can be applied using either a spray or brush method.

u. Apply powder coating system within time frame after galvanizing as part of the galvanization process to ensure oxides will not form and the process will be complete.

PART 3 – EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 INSPECTION

A. Make all required measurements in the field to ensure proper and adequate fit.

3.3 DISCREPANCIES

A. If discrepancies are found between the project drawings, specifications, and local requirements including the NYC Building Code and IBC, the contractor shall:
   1. Immediately notify the Commissioner.
   2. Do not proceed until fully corrected.

3.4 ERECTION/INSTALLATION

A. Provide anchorage devices and fasteners where necessary for securing metal fabrications to in-place construction; including, threaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts, lag bolts, wood screws and other connectors as required.

   1. Provide inserts, setting plates, and other items of concealed work required for attachment of metal fabrications in a timely manner to facilitate on-going construction.

B. Perform cutting, drilling, and fitting required for installation of metal fabrications. Set work accurately in location, alignment, and elevation, plumb, level, true, and free of rack, measured from established lines and levels. Do not weld, cut, or abrade surfaces of metal fabrications that have been coated or finished after fabrication and are intended for field connection by mechanical means without further cutting or fitting.

C. Fit exposed connections accurately together to form tight, hairline or, where indicated, with uniform reveals and spaces for sealants and joint fillers.

D. Provide temporary bracing or anchors in formwork for items that are to be built into concrete masonry or similar construction.

E. Install concealed gaskets, joint fillers, insulation and flashings as the work progresses, so as to make work weathertight, sound proof or lightproof as required.

F. Restore protective coverings that have been damaged during shipment or installation of the work. Remove protective coverings only when there is no possibility of damage from other work yet to be performed at the same location.

G. Field Welding: Comply with applicable AWS specification for procedures of manual shielded metal-arc welding, for appearance and quality of welds made, and for methods used in correcting welding work. Weld connections that are not to be left as exposed joints, but cannot be shop welded because of shipping size limitations. Grind exposed welded joints smooth and restore finish to match finish of adjacent surfaces.

H. Corrosion Protection: Coat concealed surfaces of aluminum and steel which will be in contact with grout, concrete, masonry, wood, or dissimilar metals, with a heavy coat of bituminous paint.

I. Adjust metal fabrications prior to anchoring to ensure matching alignment at abutting joints.

J. Install items as detailed in the drawings; for manufactured items, install as recommended by the Manufacturer, unless indicated otherwise.

K. Coordinate with other trades involved.

L. Install detectable warning surfacing in manner for top surface to align with adjacent finish flooring surface (or slab surface for finished exposed concrete).

M. Field Touch-Up

1. Painted Members: After erection, clean all damaged areas in shop coat, exposed surfaces of bolts, bolt heads, nuts and washers, abrasions, and all field welds and unpainted areas adjacent to field welds to the same standards as the shop coat and paint with primer paint to same thickness as the shop coat. Finish painting is specified in Section 09 91 00.

2. Galvanized Members: After erection, clean and paint all damaged areas to the galvanizing, welds, and areas adjacent to welds with the galvanizing repairing paint complying to ASTM A780. For galvanized members to be painted, finish painting must be the final two coats of the epoxy coating system**.** For powder coating system follow instructions of the powder coat manufacturer, to match surrounding undamaged areas.

## 3.5 PROTECTION

A. Protect finishes of metal work from damage during construction period by use of temporary protective coverings approved by ornamental metal manufacturer. Remove protective covering at time of Substantial Completion.

B. Restore finishes damaged during installation and construction period so that no evidence remains of correction work. Return items which cannot be refinished in

the field to the shop; make required alterations and refinish entire unit, or provide new units.

END OF SECTION 05 50 00

# SECTION 05 52 00 – METAL RAILINGS

## 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. Provide metal fabrications and miscellaneous metals as indicated on the Drawings and as specified herein, including, but not limited to the following:

    a. New galvanized steel roof guard rail at Main Roof. Provide bracing at each post and one, 30-inch gate at middle point.
    b. New galvanized steel wall-mounted handrails at roof stair well.

2. For the new roof galvanized steel guard rail, provide anchoring as indicated on the Drawings and as specified herein, including, but not limited to the following for anchoring base at post:

    a. Use a ¼” steel base plate.
    b. Use two (2)-3/8” diameter, zinc plated, carbon steel concrete wedge anchors. Embed 3” into concrete below.

B. Related Sections:

1. Section 02 41 19 Selective Removals and Demolition
2. Section 07 56 00 Fluid Applied Roofing

C. References - 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 must be deemed mandatory and applicable to the Work.

1. ASTM International (ASTM), latest standards
2. American Welding Society (AWS).
3. American National Standards Institute (ANSI)
4. Society for Protective Coatings (SSPC)
5. Federal Specifications (FS)
6. National Association of Architectural Metals Manufacturers (NAAMM)
7. Aluminum Association (AA)
8. The Building Code of the City of New York.

9. The American Galvanizers Association

1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures.”

1.4 SUBMITTALS

A. Product Data, for each item specified.

1. Submit product data sheets for products used in metal fabrications, including anchoring devices. Instructions for installation of anchorage devices built into other work.
2. Submit product data sheets for painting materials.
3. Submit product data sheets for grouts and sealants.

B. Shop Drawings, for each item specified.
1. Show all locations, markings, quantities, materials, sizes and shapes.
2. Indicate all methods of connecting, anchoring, fastening, bracing and attaching to work of other trades.

C. Calculations
1. Where metal fabrications are required to comply with certain design loadings, the Contractor must engage a professional structural engineer licensed in the State of New York State to prepare, signed and sealed any needed structural design, structural calculations, materials properties, and other information needed for structural analysis for review and approval of the Commissioner.

1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

B. Items provided in this Section must be manufactured and fabricated by firms experienced in the type of Work specified.

C. Installation must be by installers experienced in the type of Work specified for the respective item. Installer must be acceptable to the manufacturer.

D. Qualify welding processes and welding operators in accordance with AWS D1.1 “Structural Welding Code – Steel”, D1.3 “Structural Welding Code – Sheet Steel”, and D1.2 “Structural Welding Code – Aluminum”.
1. Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone recertification.

1.6 PRODUCT HANDLING

A. Before shipment to the job, all finishes must be adequately protected for transporting and erecting periods.

B. Replace damaged items, with the approval of the Commissioner, and at no additional cost to the City of New York.

1.7 PROJECT CONDITIONS

A. Field Measurements: Check actual locations to which metal fabrications must fit, by accurate field measurements before fabrication; show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress and work of other trades to avoid delay of work.

PART 2 – PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Contractor must engage a professional structural engineer licensed in the State of New York to design metal railings for the Commissioner's review and approval.

B. Structural Performance: Design, engineer, fabricate, and install the following metal fabrications to withstand not less than the following structural loads without exceeding the allowable design working stress of the materials involved, including anchors and connections as per Section BC 1607.8 of the 2022 NYC Building Code. Apply each load to produce the maximum stress in each respective component of each metal fabrication. In cases where requirements from the NYC Building Code or IBC are more stringent, they must apply. Where railings support fixtures or other imposed loads, allowance must be made for the additional loads.

1. Handrail
   a. Uniform load of 50 lb/ft applied in any direction at the top and to transfer this load to the supports.
   b. Concentrated load of 200 pounds applied in any direction at any point and to transfer the load to the supports.
   c. The uniform and concentrated loads need not be assumed to act concurrently.
2. Top Rail of Guardrail Systems
   a. Uniform load of 50 lb/ft applied in any direction at the top and to transfer the load to the supports.
   b. Concentrated load of 200 pounds applied in any direction at any point and to transfer the load to the supports.
   c. The uniform and concentrated loads need not be assumed to act concurrently.
3. Infill of Rail Systems: panels, balusters, intermediate railings, and other elements composing the infill area must resist the following combination loading. Reactions due to this combination loading are not required to be

applied simultaneously with one another and are not required to be superimposed with those in paragraphs 1 and 2 above.

a. A concentrated normal load of 50 pounds applied horizontally on an area of 1 $ft^2$, including openings and spaces between rails.
b. A vertically downward load of 50 lb/ft applied at the most critical locations.
c. A concentrated upward load of 50 pounds applied at the most critical location.

## 2.2 MATERIALS

A. Metals
1. Metal Surfaces, General: For metal fabrications exposed to view upon completion of the Work, provide materials selected for their surface flatness, smoothness, and freedom from surface blemishes. Do not use materials whose exposed surfaces exhibit pitting, seam marks, roller marks, rolled trade names, roughness, and, for steel sheet, variations in flatness exceeding those permitted by reference standards for stretcher-leveled sheet.
2. Ferrous Metals
a. Galvanized Steel Plates, Shapes, and Bars: ASTM A123
b. Galvanized Rolled Steel Floor Plates: ASTM A123
c. Brackets, Flanges and Anchors: Cast or formed metal of the same type material and finish as supported rails, unless otherwise indicated.
d. Concrete Inserts: Threaded or wedge type; galvanized ferrous castings, either malleable iron, ASTM A47, or cast steel, ASTM A27. Provide bolts, washers, and shims as required, hot-dip galvanized per ASTM A153.
e. Welding Rods and Bare Electrodes: Select in accordance with AWS specifications for the metal alloy to be welded.

B. Grout and Anchoring Cement
1. Non-shrink Metallic Grout: Premixed, factory-packaged, ferrous aggregate grout complying with Federal Specification CE CRD-C 621 specifically recommended by manufacturer for heavy-duty loading applications of type specified in this section.
2. Non-shrink Non-metallic Grout: Premixed, factory-packaged, nonstaining, noncorrosive, non-gaseous grout complying with Federal Specification CE CRD-C 621. Provide grout specifically recommended by manufacturer for interior and exterior applications of type specified in this section.
3. Erosion-Resistant Anchoring Cement: Factory-prepackaged, non-shrink, nonstaining, hydraulic controlled expansion cement formulation for mixing with water at project site to create pourable anchoring, patching, and grouting compound. Provide formulation that is resistant to erosion from water exposure without need for protection by a sealer or waterproof coating and is recommended for exterior use by manufacturer.
4. Products for Non-shrink Metallic Grouts: Subject to compliance with requirements, provide one of the following:

a. Euclid Chemical Co.; “Hi Flow Grout”, Euclid Chemical Co.
b. Master Builders; “MasterFlow 885”, Master Builders

c. ChemMasters; “Met-ox”, ChemMasters
d. Or approved equal.

5. Products for Non-shrink Nonmetallic Grouts: Subject to compliance with requirements, provide one of the following:

a. Euclid Chemical Co.; “Euco N-S Grout”,
b. L & M Construction Chemicals, Inc.; “Crystex”
c. “Master Builders”; “Masterflow 713”, Master Builders
d. Or approved equal.

6. Products for Erosion-Resistant Anchoring Cement: Subject to compliance with requirements, provide one of the following:

a. Quikrete; “Fast-Set”
b. Miniwax Const.; “Super Por-Rok”
c. Sika; Sika-Grout 110
d. Or approved equal.

C. Fasteners
1. For anchoring rail post base plate: 3/8” diameter epoxy anchor, carbon steel, zinc-plated, externally threaded, FM, ICC-ES, LABC, NQA-1, UL, seismic tested in accordance with ACI 355.2 and ICC-ES AC 193.
2. General: Provide galvanized or type 304/316 SS fasteners for exterior use or where built into exterior walls. Select fasteners for the type, grade, and class required.
3. Bolts and Nuts: Regular hexagon head type, ASTM A307, Grade A
4. Lag Bolts: Square head type, ANSI B18.2.1
5. Machine Screws: Cadmium plated steel, FS FF-S-92C
6. Drilled-In Expansion Anchors: Anchors installed in concrete must have current ICC-ES listing for performance in cracked concrete as per Section BC 1705.37.
7. Toggle Bolts: Tumble-wing type, type, class, and style as required.
8. Lock Washers: Helical-spring type carbon steel, FS FF-W-84A
9. Vandal resistant fasteners: Torx with pin, or as otherwise indicated. Corrosion resistant.

## 2.3 FINISHES

A. General
1. Comply with NAAM “Metal Finishes Manual” for recommendations relative to application and designations of finishes.
2. Finish metal fabrications after assembly.
3. Refer to Articles 2.4 and 2.5 for painting and galvanizing.

## 2.4 FABRICATIONS

A. General

1. Form metal fabrications from materials of size, thickness, and shapes indicated but not less than that needed to comply with performance requirements indicated. Work to dimensions indicated or accepted on shop drawings, using proven details of fabrication and support. Use type of materials indicated or specified for various components of each metal fabrication.
2. Form exposed work true to line and level with accurate angles and surfaces and straight sharp edges.
3. Allow for thermal movement resulting from the following maximum change (range) in ambient temperature in the design, fabrication, and installation of installed metal assemblies to prevent buckling, opening up of joints, and overstressing of welds and fasteners. Base design calculations on actual surface temperatures of metals due to both solar heat gain and nighttime sky heat loss.
   a. Temperature Change (Range): 180°F
4. Shear and punch metals cleanly and accurately. Remove burrs.
5. Ease exposed edges to a radius of approximately 1/32 inch, unless otherwise indicated. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
6. Remove sharp or rough areas on exposed traffic surfaces.
7. Weld corners and seams continuously to comply with AWS recommendations and the following:
   a. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
   b. Obtain fusion without undercut or overlap.
   c. Remove welding flux immediately.
   d. At exposed connections, finish exposed welds and surfaces smooth and blended so that no roughness shows after finishing and contour of welded surface matches those adjacent.
8. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners wherever possible. Use exposed fasteners of type indicated or, if not indicated, Phillips flathead (countersunk) screws or bolts. Locate joints where least conspicuous.
9. Provide for anchorage of type indicated; coordinate with supporting structure. Fabricate and space anchoring devices to provide adequate support for intended use.
10. Shop Assembly: Preassemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
11. Cut, reinforce, drill and tap miscellaneous metal work as indicated to receive finish hardware, screws, and similar items.
12. Fabricate joints that will be exposed to weather in a manner to exclude water, or provide weep holes where water may accumulate.

B. Steel Roof Guard Rails
1. General: Fabricate roof guard rails to comply with requirements indicated for design, dimensions, details, finish, and member sizes, including wall thickness of pipe, post spacings, and anchorage, but not less than that required to support structural loads. Conform to requirements of Article herein titled “Performance Requirements”.
2. Interconnect railing and handrail members by butt-welding or welding with internal connectors, at fabricator’s option, unless otherwise indicated.
   a. At tee and cross intersections, notch ends of intersecting members to fit contour of pipe to which end is joined and weld all around.
3. Brackets, Flanges, Fittings, and Anchors: Provide wall brackets, end closures, flanges, miscellaneous fittings, and anchors for interconnections of pipe and attachment of railings and handrails to other work. Furnish inserts and other anchorage devices for connecting railings and handrails to concrete or masonry work.
4. For exterior steel railings and handrails, form from galvanized steel pipe. Galvanize fittings, brackets, fasteners, sleeves and other ferrous components.

C. Miscellaneous
1. Provide all other miscellaneous metal work. All Work to be embedded in concrete or masonry work or in connection with bolts, anchors, and inserts must be furnished at the proper time for setting. Those items exposed to the elements or located in exterior walls or roof must be galvanized.

## 2.5 GALVANIZING AND FINISH COATING

A. General
1. Galvanize the following Work (items that are to be finish painted must be galvanized by the zinc metallizing process or hot dip galvanized, and finish coated as specified herein):
   a. All angles and other steel items located in exterior wall or roof construction
   b. All angles supporting exterior masonry or exposed to the weather.
   c. All steel members and fabrications exposed to the exterior.
   d. All other steel members and fabrications indicated as galvanized on the Drawings and Specifications.

B. Cleaning and Surface Preparation
1. Hardware (bolts, nuts, etc.): Clean and leave free of mill scale before galvanizing.
2. Clean all steel first in accordance with SSPC-SP1 if needed.
3. Steel members: Clean in accordance with SSPC-SP8 before hot-dip galvanizing.
4. Steel members: Clean in accordance with SSPC-SP10 before zinc metallizing. Surface must have a 3-4 mil anchor pattern. Moisture cannot

be present on steel and temperature cannot be less than 5ºF above the dew point. Thermal spray must be applied within 4 hours of blasting.

C. Shop Coat - Hot-dip Galvanizing –as required for galvanized items not indicated to receive finish paint coat.
   1. Galvanize hardware in accordance with ASTM A153.
   2. Galvanize steel shapes in accordance with ASTM A123. Apply zinc coating as per Thickness Grade specified in ASTM A123.

D. Shop Coat – Galvanizing by the Zinc Metallizing Process – Provide for all galvanized items indicated to receive finish paint, which includes all galvanized items exposed to public view, including lintels, and other items shown on Drawings or specified herein. Finish paint must be the epoxy coat system or the powder coat system; producing a smooth, uniform surface, free of bubbles, runs, or sags. Hot Dip Galvanizing with powder coat finish is also permitted as specified below.
   1. Thermally spray metallizing material at a rate of 4.0 to 6.0 mils DFT. Sprayed coating must be free of lumps, blisters, and loosely adhering particles. Coating must be capable of passing the inspection requirements of Mil Std 2138A(SH) of 5/13/92, but with adhesion 750 psi minimum per ASTM D4541, Test Method E.
   2. Epoxy Coating System: After the metallizing material has cured, apply a first coat of paint at a rate of 4.0 to 6.0 mils DFT, Polyamide Epoxy Paint. Top coat must be Acrylic Aliphatic Polyurethane, applied at a rate of 2.0 to 3.0 Mils DFT.

## PART 3 - EXECUTION

### 3.1 EXECUTION REQUIREMENTS

A. Refer to DDC General Conditions for execution requirements.

### 3.2 INSPECTION

A. Make all required measurements in the field to ensure proper and adequate fit.

### 3.3 DISCREPANCIES

A. If discrepancies are found between the project drawings, specifications, and local requirements including the NYC Building Code and IBC, the contractor shall:
   1. Immediately notify the Commissioner.
   2. Not proceed until fully corrected.

### 3.4 ERECTION/INSTALLATION

A. Provide anchorage devices and fasteners where necessary for securing metal fabrications to in-place construction; including, threaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts, lag bolts, wood screws and other connectors as required.

1. Provide inserts, setting plates, and other items of concealed work required for attachment of metal fabrications in a timely manner to facilitate on-going construction.

B. Perform cutting, drilling, and fitting required for installation of metal fabrications. Set work accurately in location, alignment, and elevation, plumb, level, true, and free of rack, measured from established lines and levels. Do not weld, cut, or abrade surfaces of metal fabrications that have been coated or finished after fabrication and are intended for field connection by mechanical means without further cutting or fitting.

C. Fit exposed connections accurately together to form tight, hairline or, where indicated, with uniform reveals and spaces for sealants and joint fillers.

D. Provide temporary bracing or anchors in formwork for items that are to be built into concrete masonry or similar construction.

E. Install concealed gaskets, joint fillers, insulation and flashings as the work progresses, so as to make work weathertight, sound proof or lightproof as required.

F. Restore protective coverings that have been damaged during shipment or installation of the work. Remove protective coverings only when there is no possibility of damage from other work yet to be performed at the same location.

G. Field Welding: Comply with applicable AWS specification for procedures of manual shielded metal-arc welding, for appearance and quality of welds made, and for methods used in correcting welding work. Weld connections that are not to be left as exposed joints, but cannot be shop welded because of shipping size limitations. Grind exposed welded joints smooth and restore finish to match finish of adjacent surfaces.

H. Corrosion Protection: Coat concealed surfaces of aluminum and steel which will be in contact with grout, concrete, masonry, wood, or dissimilar metals, with a heavy coat of bituminous paint.

I. Adjust metal fabrications prior to anchoring to ensure matching alignment at abutting joints.

J. Install items as detailed in the drawings; for manufactured items, install as recommended by the Manufacturer, unless indicated otherwise.

K. Coordinate with other trades involved.

L. Field Touch-Up
1. Painted Members: After erection, clean all damaged areas in shop coat, exposed surfaces of bolts, bolt heads, nuts and washers, abrasions, and all field welds and unpainted areas adjacent to field welds to the same

standards as the shop coat and paint with primer paint to same thickness as the shop coat. Finish painting is specified in Section 090190.

2. Galvanized Members: After erection, clean and paint all damaged areas to the galvanizing, welds, and areas adjacent to welds with the galvanizing repairing paint complying to ASTM A780. For galvanized members to be painted, finish painting must be the final two coats of the epoxy coating system**.** For powder coating system follow instructions of the powder coat manufacturer, to match surrounding undamaged areas.

3.5 PROTECTION

A. Protect finishes of metal work from damage during construction period by use of temporary protective coverings approved by ornamental metal manufacturer. Remove protective covering at time of Substantial Completion.

B. Restore finishes damaged during installation and construction period so that no evidence remains of correction work. Return items which cannot be refinished in the field to the shop; make required alterations and refinish entire unit, or provide new units.

END OF SECTION 05 52 00

# SECTION 06 10 63 – EXTERIOR ROUGH CARPENTRY

## 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: Provide rough carpentry work as indicated on the Drawings, as required for the completed work of this section, and as specified herein, including, but not limited to, the following:

1. This section specifies wood blocking and nailers for new metal copings along:
    a. Elevator bulkhead roof
    b. Cooling Tower Courtyard walls
2. Rough hardware, including nails, screws, anchors, brackets, braces, bolts, nuts, fittings, and other devices required for the proper fitting, connecting, and erecting of the Work.

B. Related Work:
1. Section 07 56 00 Fluid-Applied Roofing
2. Section 07 62 00 Flashings and Sheet Metal

C. Reference Standards:
1. American Forest and Paper Association (AFPA):
    a) NDS-15 National Design Specification for Wood Construction
    b) WCD1-01 Details for Conventional Wood Frame Construction
2. American Institute of Timber Construction (AITC):
    a) A190.1-07 Structural Glued Laminated Timber
3. American Society of Mechanical Engineers (ASME):
    a) B18.2.1-12(R2013) Square and Hex Bolts and Screws
    b) B18.2.2-10 Square and Hex Nuts
    c) B18.6.1-81(R2008) Wood Screws
4. American Plywood Association (APA):
    a) E30-11Engineered Wood Construction Guide
5. ASTM International (ASTM):
    a) A653/A653M-13 Steel Sheet Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot Dip Process
    b) C954-11 Steel Drill Screws for the Application of Gypsum Board or Metal Plaster Bases to Steel Studs from 0.033 inch (2.24 mm) to 0.112-inch (2.84 mm) in thickness
    c) C1002-14 Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Metal Studs

d) D198-14 Test Methods of Static Tests of Lumber in Structural Sizes
e) D2344/D2344M-13 Test Method for Short-Beam Strength of Polymer Matrix Composite Materials and Their Laminates
f) D2559-12a Adhesives for Structural Laminated Wood Products for Use Under Exterior (Wet Use) Exposure Conditions
g) D3498-03(R2011) Adhesives for Field-Gluing Plywood to Lumber Framing for Floor Systems
h) D6108-13 Test Method for Compressive Properties of Plastic Lumber and Shapes
i) D6109-13 Test Methods for Flexural Properties of Unreinforced and Reinforced Plastic Lumber and Related Products
j) D6111-13a Test Method for Bulk Density and Specific Gravity of Plastic Lumber and Shapes by Displacement
k) D6112-13 Test Methods for Compressive and Flexural Creep and Creep-Rupture of Plastic

6. Lumber and Shapes
   a) F844-07a(R2013) Washers, Steel, Plan (Flat) Unhardened for General Use
   b) F1667-13 Nails, Spikes, and Staples
7. American Wood Protection Association (AWPA):
   a) AWPA Book of Standards
8. Commercial Item Description (CID):
   a) A-A-55615 Shield, Expansion (Wood Screw and Lag Bolt Self Threading Anchors)
9. Forest Stewardship Council (FSC):
   a) FSC-STD-01-001(Ver. 4-0)FSC Principles and Criteria for Forest Stewardship
10. Military Specification (Mil. Spec.):
    a) MIL-L-19140E Lumber and Plywood, Fire-Retardant Treated
11. Environmental Protection Agency (EPA):
    a) 40 CFR 59(2014) National Volatile Organic Compound Emission Standards for Consumer and Commercial Products
12. Truss Plate Institute (TPI):
    a) TPI-85 Metal Plate Connected Wood Trusses
13. U.S. Department of Commerce Product Standard (PS)
    a) PS 1-95 Construction and Industrial Plywood
    b) PS 20-10 American Softwood Lumber Standard
14. ICC Evaluation Service (ICC ES):
    a) AC09 Quality Control of Wood Shakes and Shingles
    b) AC174 Deck Board Span Ratings and Guardrail Systems (Guards and Handrails)

## 1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures”.

## 1.4 SUBMITTALS

A. Shop Drawings showing connection details & fasteners.

B. Manufacturer's Literature and Data:
   1. Submit data for lumber.
   2. Submit data for wood-preservative treatment from chemical treatment manufacturer.

1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 "Quality Requirements".

1.6 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Protect lumber and other products from dampness both during and after delivery at site.

B. Pile lumber in stacks in such manner as to provide air circulation around surfaces of each piece.

C. Stack plywood so as to prevent warping.

D. Locate stacks on well drained areas, supported at least 152 mm (6 inches) above grade and cover with well-ventilated sheds having firmly constructed over hanging roof with sufficient end wall to protect lumber from driving rain.

1.7 GRADING AND MARKINGS

A. Any unmarked lumber or plywood panel for its grade and species will not be allowed on the construction site and for material not normally grade-marked, provide manufacturer's certificates (approved by an American Lumber Standards approved agency) attesting that lumber and material meet the specified the specified requirements.

PART 2 – PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. The width of the nailers must exceed the width of the metal flange of edgings, scuppers, etc.

B. Use only pressure treated lumber.

C. Do not use lumber that has been treated with salt preservatives, or any other wood preservatives such as, creosote, pentachlorophenol, copper naphthenate, and copper 8-quinolinolate as this will adversely affect the membrane when in direct contact.

D. Fasten nailers as indicated on the drawings. It is essential that secure attachment of durable stock be accomplished.

E. Wood nailers that are anchored to steel, wood, or masonry decking are not be less than 2" x 6" nominal (minimum 1-1/2" x 5-1/2").

F. Wood nailers must be Douglas fir, southern yellow pine, or of wood having similar decay-resistant properties.

2.2 LUMBER

A. Unless otherwise specified, each piece of lumber must bear grade mark, stamp, or other identifying marks indicating grades of material, and rules or standards under which produced.
   1. Identifying marks are to be in accordance with rule or standard under which material is produced, including requirements for qualifications, usage of authorized identification, and information included in the identification.

B. Lumber Other Than Structural:
   1. Unless otherwise specified, species graded under the grading rules of an inspection agency approved by Board of Review, American Lumber Standards Committee.
   2. Blocking, nailers and similar items 101 mm (4 inches) and narrower Standard Grade; and, members 152 mm (6 inches) and wider, Number 2 Grade.

C. Sizes:
   1. Size references are nominal sizes, unless otherwise specified, actual sizes within manufacturing tolerances allowed by standard under which produced.

D. Moisture Content:
   1. Maximum moisture content of wood products is to be as follows at the time of delivery to site.
      a. Boards and lumber 50 mm (2 inches) and less in thickness: 19 percent or less.
      b. Lumber over 50 mm (2 inches) thick: 25 percent or less.

E. Preservative Treatment:
   1. Treat wood members and plywood exposed to weather or in contact with plaster, masonry or concrete, including nailers, edge strips, blocking, crickets, curbs, cant, vent strips and other members provided in connection with roofing and flashing materials.

2.3 PLYWOOD

A. Bear the mark of a recognized association or independent inspection agency that maintains continuing control over quality of plywood which identifies compliance by veneer grade, group number, span rating where applicable, and glue type.

2.4 ROUGH HARDWARE AND ADHESIVES

A. Anchor Bolts:
   1. ASME B18.2.1 and ASME B18.2.2 galvanized, 1/2 inch unless shown otherwise.
   2. Extend at least 203 mm (8 inches) into masonry or concrete with ends bent 50 mm (2 inches).

B. Miscellaneous Bolts: Expansion Bolts: C1D A-A-55615; lag bolt, long enough to extend at least 65 mm (2-1/2 inches) into masonry or concrete. Provide 13 mm (1/2 inch) bolt unless shown otherwise.
C. Washers
   1. ASTM F844.
   2. Provide zinc or cadmium coated steel or cast iron for washers exposed to weather.

D. Screws:
   1. Wood to Wood: ASME B18.6.1 or ASTM C1002.
   2. Wood to Steel: ASTM C954, or ASTM C1002.

E. Nails:
   1. Size and type best suited for purpose unless noted otherwise. Provide aluminum-alloy nails, plated nails, or zinc-coated nails, for nailing wood work exposed to weather and on roof blocking.

   2. ASTM F1667:
      a. Common: Type I, Style 10.
      b. Concrete: Type I, Style 11.
      c. Barbed: Type I, Style 26.
      d. Underlayment: Type I, Style 25.
      e. Masonry: Type I, Style 27.
      f. Provide special nails designed for use with ties, strap anchors, framing connectors, joists hangers, and similar items. Nails not less than 32 mm (1-1/4 inches) long, 8d and deformed or annular ring shank.

## PART 3 – EXECUTION

### 3.1 EXECUTION REQUIRMENTS

A. Refer to DDC General Conditions for execution requirements.

### 3.2 INSTALLATION OF MISCELLANEOUS WOOD MEMBERS

A. Conform to applicable requirements of the following:
   1. AFPA NDS for timber connectors.
   2. AITC A190.1 Timber Construction Manual for heavy timber construction.
   3. AFPA WCD1 for nailing unless specified otherwise.
   4. APA for installation of plywood.

B. Fasteners:
   1. Nails.
      a. Nail in accordance with the Nailing Schedule as specified in AFPA WCD1 where detailed nailing requirements are not specified in nailing schedule. Select nail size and nail spacing sufficient to develop adequate strength for the connection without splitting the members.
      b. Use 8d or larger nails for nailing through 25 mm (1 inch) thick lumber and for toe nailing 50 mm (2 inch) thick lumber.

c. Use 16d or larger nails for nailing through 50 mm (2 inch) thick lumber.
d. Select the size and number of nails in accordance with the Nailing Schedule except for special nails with framing anchors.
e. Nailing Schedule; Using Common Nails:
1) Joist bearing on sill or girder, toe nail three (3) 8d nails or framing anchor.
2) Bridging to joist, toe nail each end two (2) 8d nails.
3) Ledger strip to beam or girder three (3) 16d nails under each joint.

2. Bolts:
a. Fit bolt heads and nuts bearing on wood with washers.
b. Countersink bolt heads flush with the surface of nailers.
c. Embed in concrete and solid masonry or provide expansion bolts. Special bolts or screws designed for anchor to solid masonry or concrete in drilled holes may be used.
d. Provide toggle bolts to hollow masonry or sheet metal.
e. Provide bolts to steel over 2.84 mm (0.112 inch, 11 gage) in thickness. Secure wood nailers to vertical structural steel members with bolts, placed one at ends of nailer and 610 mm (24 inch) intervals between end bolts. Provide clips to beam flanges.
3. Drill Screws to steel less than 2.84 mm (0.112 inch) thick.
a. ASTM C1002 for steel less than 0.84 mm (0.033 inch) thick.
b. ASTM C954 for steel over 0.84 mm (0.033 inch) thick.
4. Power actuated drive pins may be provided where practical to anchor to solid masonry, concrete, or steel.
5. Do not anchor to wood plugs or nailing blocks in masonry or concrete. Provide metal plugs, inserts or similar fastening.

C. Blocking Nailers, and Furring:
1. Install furring, blocking, nailers, and grounds where shown.
2. Provide longest lengths practicable.
3. Provide fire retardant treated wood blocking where shown at openings and where shown or specified.
4. Layers of Blocking or Plates:
a. Stagger end joints between upper and lower pieces.
b. Nail at ends and not over 610 mm (24 inches) between ends.
c. Stagger nails from side to side of wood member over 127 mm (5 inches) in width.

D. Cut notch, or bore in accordance with AFPA WCD1 passage of ducts wires, bolts, pipes, conduits and to accommodate other work. Replace miscut, misfit or damaged work.

END OF SECTION 06 10 63

SECTION 06 16 00 – SHEATHING

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 sheathing work as indicated on the Drawings, as required for the completed work of this section, and as specified herein, including, but not limited to, the following:

1. Sheathing work at:
    a. New enclosure for existing roof stair
2. Sheathing must include any necessary hardaware for the proper fitting, connecting, and erecting of the Work.

B. Related Work:
1. Section 05 41 00 Structural Metal Stud Framing
2. Section 07 56 00 Fluid-Applied Roofing
3. Section 07 62 00 Flashings and Sheet Metal
4. Section 07 64 13 Standing Seam Sheet Metal Wall Cladding

C. Reference Standards:
1. American Forest and Paper Association (AFPA):
    a) NDS-15 National Design Specification for Wood Construction
    b) WCD1-01 Details for Conventional Wood Frame Construction
2. American Institute of Timber Construction (AITC):
    a) A190.1-07 Structural Glued Laminated Timber
3. American Society of Mechanical Engineers (ASME):
    a) B18.2.1-12(R2013) Square and Hex Bolts and Screws
    b) B18.2.2-10 Square and Hex Nuts
    c) B18.6.1-81(R2008) Wood Screws
4. American Plywood Association (APA):
    a) E30-11Engineered Wood Construction Guide
5. ASTM International (ASTM):
    a) A653/A653M-13 Steel Sheet Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot Dip Process
    b) C954-11 Steel Drill Screws for the Application of Gypsum Board or Metal Plaster Bases to Steel Studs from 0.033 inch (2.24 mm) to 0.112-inch (2.84 mm) in thickness
    c) C1002-14 Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Metal Studs
    d) D198-14 Test Methods of Static Tests of Lumber in Structural Sizes

e) D2344/D2344M-13 Test Method for Short-Beam Strength of Polymer Matrix Composite Materials and Their Laminates
f) D2559-12a Adhesives for Structural Laminated Wood Products for Use Under Exterior (Wet Use) Exposure Conditions
g) D3498-03(R2011) Adhesives for Field-Gluing Plywood to Lumber Framing for Floor Systems
h) D6108-13 Test Method for Compressive Properties of Plastic Lumber and Shapes
i) D6109-13 Test Methods for Flexural Properties of Unreinforced and Reinforced Plastic Lumber and Related Products
j) D6111-13a Test Method for Bulk Density and Specific Gravity of Plastic Lumber and Shapes by Displacement
k) D6112-13 Test Methods for Compressive and Flexural Creep and Creep-Rupture of Plastic

6. Lumber and Shapes
   a) F844-07a(R2013) Washers, Steel, Plan (Flat) Unhardened for General Use
   b) F1667-13 Nails, Spikes, and Staples
7. American Wood Protection Association (AWPA):
   a) AWPA Book of Standards
8. Commercial Item Description (CID):
   a) A-A-55615 Shield, Expansion (Wood Screw and Lag Bolt Self Threading Anchors)
9. Forest Stewardship Council (FSC):
   a) FSC-STD-01-001(Ver. 4-0)FSC Principles and Criteria for Forest Stewardship
10. Military Specification (Mil. Spec.):
    a) MIL-L-19140E Lumber and Plywood, Fire-Retardant Treated
11. Environmental Protection Agency (EPA):
    a) 40 CFR 59(2014) National Volatile Organic Compound Emission Standards for Consumer and Commercial Products
12. Truss Plate Institute (TPI):
    a) TPI-85 Metal Plate Connected Wood Trusses
13. U.S. Department of Commerce Product Standard (PS)
    a) PS 1-95 Construction and Industrial Plywood
    b) PS 20-10 American Softwood Lumber Standard
14. ICC Evaluation Service (ICC ES):
    a) AC09 Quality Control of Wood Shakes and Shingles
    b) AC174 Deck Board Span Ratings and Guardrail Systems (Guards and Handrails)

## 1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures”.

## 1.4 SUBMITTALS

A. Shop Drawings showing connection details & fasteners.

B. Manufacturer’s Literature and Data:

1. Submit data for lumber.
2. Submit data for wood-preservative treatment from chemical treatment manufacturer.

1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

1.6 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Protect lumber and other products from dampness both during and after delivery at site.

B. Pile lumber in stacks in such manner as to provide air circulation around surfaces of each piece.

C. Stack plywood so as to prevent warping.

D. Locate stacks on well drained areas, supported at least 152 mm (6 inches) above grade and cover with well-ventilated sheds having firmly constructed over hanging roof with sufficient end wall to protect lumber from driving rain.

1.7 GRADING AND MARKINGS

A. Any unmarked lumber or plywood panel for its grade and species will not be allowed on the construction site and for material not normally grade-marked, provide manufacturer’s certificates (approved by an American Lumber Standards approved agency) attesting that lumber and material meet the specified the specified requirements.

PART 2 – PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Resistance Ratings: As tested according to ASTM E119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
   1. Fire-Resistance Ratings: Indicated by design designations from UL's "Fire Resistance Directory" or from the listings of another qualified testing agency.

B. Fire Propagation Characteristics: NFPA 285 Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing combustible Components.

C. Contractor must engage a professional structural engineer licensed in the State of New York to design fasteners to support composite nail base insulated wall sheathing for the Commissioner’s review and approval.

2.2 SHEATHING

A. Plywood, APA: Provide exterior grade particleboard with phenol resin for interior

and exterior application.

2.3 FASTENERS

A. Fasteners: Hot-dip galvanized or stainless steel where exposed to weather, in ground contact, in contact with treated wood, or in area of high relative humidity.

2.4 WEATHER-RESISTANT SHEATHING PAPER

A. Building Wrap: ASTM E 1677, Type I air retarder; with flame-spread and smoke developed indexes of less than 25 and 450, respectively, when tested according to ASTM E 84; UV stabilized.

B. Building-Wrap Tape: Pressure-sensitive plastic tape recommended for sealing joints and penetrations in building wrap.

2.5 MISCELLANEOUS MATERIALS

A. Flexible Flashing: Composite, self-adhesive, flashing product consisting of a pliable, rubberized asphalt compound, bonded to a high-density, cross-laminated polyethylene film to produce an overall thickness of not less than 0.025 inch.

PART 3 - EXECUTION

3.1 EXECUTION REQUIRMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 PREPERATION

A. Acclimate the panels: Allow the plywood panels to adjust to the temperature and humidity of the job site by storing them under cover for at least a few days.

B. Prepare the framing: Ensure wall studs are clean, level, and aligned. Studs should not vary more than 1/8 inch from the plane of adjacent framing.

C. Gather materials: Contractor will need plywood panels, 8d common or ring-shank nails (2.5 inches long), a hammer or nail gun, a circular saw, and a tape measure. For cutting openings, contractor will need a reciprocating saw.

D. Mark stud locations: Mark the stud locations on the bottom and top plates before installation of the sheathing.

3.3 EXECUTION

A. Install the first row of panels:
   1. Mark a reference line: Snap a horizontal chalk line 48 inches from the bottom plate to serve as a guide for the top of the first row.
   2. Position the first panel: Start at a corner of the building. Rest the bottom of the first panel on the top of the foundation, leaving a small gap for drainage.

Align the top of the panel with the chalk line. Ensure the side edge of the panel is centered on a wall stud.
3. Tack into place: Temporarily tack the sheathing at each corner.
4. Create expansion gaps: Use a 10d box nail as a temporary spacer to create a 1/8-inch gap between panels to allow for expansion. Remove the spacer after fastening.

B. Fasten the panels:
1. Nail sequence: Do not fasten the four corners first. For a wall that is already framed, start fastening along the edge next to the previously installed panel, moving from top to bottom.
2. Edge nailing: Drive nails every 6 inches along the supported vertical and horizontal edges of the panel.
3. Field nailing: Drive nails every 12 inches along intermediate studs.
4. Drive flush: Drive fasteners flush with the sheathing surface, not recessed, to prevent structural problems. Fasteners should be located at least 3/8 inch from the panel edges.

C. Install the second row and additional courses:
1. Stagger seams: Begin the next row of sheathing by offsetting the panel seams from the row below by at least one stud (or half a panel).
2. Continue fastening: Continue installing and fastening panels, maintaining a 1/8-inch expansion gap at all seams and ensuring the panels are staggered.
3. Use blocking if needed: If horizontal joints between panel ends do not fall on a framing member, install blocking between the studs to provide a nailing surface.
4. Cut top panels: For the top course, contractor may need to rip panels to the correct size to fit snugly beneath the top plate.

D. Cut out openings:
1. Measure and mark: Sheathe over windows and doors entirely. Once the panel is tacked in place, measure and mark the location of the opening's corners. A chalk line can be used to outline the opening.
2. Drill guide holes: Drill a pilot hole in the corner of the opening from the inside to fit saw blade.
3. Cut openings: Use a reciprocating saw to cut out the openings. For door openings, have a second installer hold the cutoff piece to prevent it from tearing out as the cut is finished.

E. Install weather-resistive barrier:
1. Apply house wrap: Once the sheathing is fully installed, cover it with a code-approved weather-resistive barrier.
2. Overlap seams: Install the house wrap in horizontal courses, beginning at the bottom and overlapping the seams in a shingle-fashion.
3. Seal openings: Tape all seams and penetrations (such as windows and doors) with manufacturer-approved sheathing tape.

## 3.4 FIELD QUALITY CONTROL

A. If any work is found to be not in conformance with the applicable ASTM, industry practice, and the Specifications the sheating in question must be removed and redone at not extra cost to the City of New York.

3.5 CLEANING

A. Before installing metal cladding examine faces for holes, cracks, and other defects. If corrections cannot be made to provide an appearance acceptable to the Commissioner, replace defective areas. Clean work and area for next trade.

END OF SECTION 06 16 00

# SECTION 07 18 13 - PEDESTRIAN TRAFFIC COATINGS

## 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. Providing a polyurethane pedestrian traffic coating system as specified and as indicated on the Drawings at:

      a. Roof concrete stairs

B. Related Work:
   1. Section 03 30 53 Miscellaneous Cast-In-Place Concrete
   2. Section 07 62 00 Flashings and Sheet Metal
   3. Section 07 92 13 Elastomeric Joint Sealants

### 1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures”.

### 1.4 SUBMITTALS

A. Submittals: Comply with project requirements for submittals as specified herein and in the Submittal Log.

B. Product Data:

   1. Materials list of items proposed to be provided under this Section.
   2. Manufacturer’s specifications and other data needed to prove compliance with the specified requirements.
   3. Drawings or catalog illustrations in sufficient detail to show installation and interface of the work of this Section with the work of adjacent trades.
   4. Manufacturer’s current recommended installation procedures.

C. Mock-Ups: Provide a mock-up on site to demonstrate workmanship and final appearance. Locate in an area acceptable to the Commissioner. Accepted mock-up may remain in place.

### 1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

1.6 PRE-INSTALLATION CONFERENCE

A. Prior to scheduled commencement of installation and associated work, conduct a meeting at the project site with the installer, the Commissioner, the manufacturer's representative and any other persons directly involved with the performance of the Work. The Installer must record conference discussions and to include decisions and agreements reached (or disagreements), and furnish copies of recorded discussions to each attending party. The main purpose of this meeting is to review foreseeable methods and procedures related to the Work.

1.7 REGULATORY REQUIREMENTS

A. Applicable Regulations: Comply with local code and requirements set forth by the NYC Building Code, OSHA, NYC Fire Code, and NYC Department of Environmental Protection (DEP). Do not exceed VOC regulations as established by the State of NY; including total VOC content, in grams per liter, for all system components (i.e. primers, adhesives, coatings, and similar items.)

1.8 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to the job site in the manufacturer's unopened containers with all labels intact and legible at time of use. Record all product lot numbers and expiration dates Handle and store materials in accordance with manufacturer's recommendations with proper precautions to ensure fitness of material when installed.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Cold fluid applied polyurethane traffic waterproofing system is intended to perform as a continuous barrier against liquid water and to flash or discharge to the incidental water. Membrane system must accommodate movements of building materials as required with accessory sealant materials at such locations, changes in substrate, perimeter conditions and penetrations.

B. Installed waterproofing membrane/surfacing system must not permit the passage of water, and will withstand the anticipated traffic wear exposures in accordance with the most current revision of ASTM C957, "high-solids content, cold liquid-applied elastomeric waterproofing membrane with integral wearing surface." Intent is to bridge and seal the following air and water leakage pathways and gaps:

1. Connections of the walls to the stair.

2. Piping, conduit, duct and similar penetrations.

3. All other air leakage and water intrusion pathways to building envelope connections.

2.2 MANUFACTURER

A. Basis-of-Design Product: Subject to compliance with requirements, provide Sika; Sikalastic 720-One Shot, or comparable product by one of the following:

1. Pecora
2. Tremco
3. Or approved equal.

2.3 ELASTOMERIC POLYURETHANE WATERPRFOFING PEDESTRAIN COATING

A. Pedestrian Traffic Coating: Textured, fast curing, aliphatic polyurethane traffic system applied in a single step application comprised of the following:

1. Primer: Fast curing PU primer (for recoat applications only)

a. Up to 4% of moisture content - Apply 100%-solids epoxy primer (as a standard primer).
b. Up to 5% of moisture content - Apply 100%-solids epoxy primer (for rough and/or porous substrates).
c. Up to 6% of moisture content - Apply 100%-solids epoxy primer (for substrates with elevated moisture content).

B. Detailing: Detailing cracks with base coat following guidelines set forth by the manufacturer.

C. Single Coat Traffic System Applied Total Film Thickness:

1. One single coat application to 48 mils wet (WFT), 45 mils dry (DFT).

D. Aggregate:

1. Aliphatic Polyurethane Coating is integrally textured for slip resistance. Additional aggregate not to be added.

E. Two-component integrally textured, fast curing, coating applied in one single coat application: Typical Physical properties complying with the following.

1. Aliphatic Polyurethane

| | | |
|---|---|---|
| a. | Pot Life | 20 minutes |
| b. | Total Volume Solids (ASTM D2697) | 95% (including aggregate) |
| c. | VOC Content (ASTM D2369) | 20.9 g/l |
| d. | Tensile Strength (ASTM D2240) | 2400 +/- 100 psi |
| e. | Elongation at Break (ASTM D412) | 800 +/- 50% |
| f. | Tear Resistance (Die C, ASTM D624) | 300 +/- 25 pli |
| g. | Shore A Hardness (ASTM D2240) | 90 +/- 5 |

2. Tests were performed with material and curing conditions at 75F and 50% relative humidity.

PART 3 - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 EXAMINATION

A. Verify that surfaces and conditions are ready to accept the Work of this section. Notify the Commissioner in writing of any discrepancies. Commencement of the Work in an area must mean Installer's acceptance of the substrate.

3.3 PREPARATION

A. Substrates must be clean, dry, sound and free of surface contaminants, with an open texture. Remove all traces of laitance, grease, oils, curing compounds, form release agents and foreign particles by mechanical means, such as shot blast, milling, grinding or scarifying as acceptable to the Commissioner. Blow surface free of all dust. If using compressed air ensure compressor is equipped with an oil and moisture trap. All projections, depressions and rough spots should be removed or dressed off to achieve a level surface prior to the application.

B. Concrete must be cleaned and prepared to achieve a laitance and contaminant free, open textured surface by shot blast or equivalent mechanical means (CSP 3-4 per ICRI guidelines).

3.4 PRIMING

A. Do not proceed with membrane work if deck is outgassing. Conduct a rubber mat test (or similar) to confirm no moisture outgassing is present.

B. Concrete (<4% moisture content by weight, measured with concrete moisture meter) and Plywood:

1. Apply primer at 280 sf/gal with a flat squeegee or roller and work well into the substrate to ensure adequate penetration and sealing. Do not allow primer to collect/puddle in surface depressions. No mixing required. Apply using phenolic resin core roller or similar. Allow primer to cure a minimum of 45 minutes at 70°F and 50% RH or until tack free before applying the traffic system. Refer to data sheet for more detailed information, or consult manufacturer.

C. Concrete (<5% moisture content by weight, measured with concrete moisture meter):

1. For concrete substrates with 5% maximum moisture content by weight, apply two-component low VOC primer at 200 sf/gal. with a flat squeegee or roller and work well into the substrate to ensure adequate penetration and sealing. Puddles are to be avoided. Premix both components.
2. In a separate mixing vessel, add the low-VOC primer Part "B" to the low VOC Part "A". Mix thoroughly with a mechanical mixer for 3 minutes.

3. Allow primer to cure a minimum of 6 hours at 70°F and 50% RH or until tack free before applying second primer or base coat.
4. Refer to data sheet for more detailed information, or consult manufacturer.

D. Concrete (4% to 6% moisture content by weight, measured with concrete moisture meter):

1. For concrete substrates with 5% maximum moisture content by weight, apply moisture tolerant primer at 175 sf/gal. with a flat squeegee or roller and work well into the substrate to ensure adequate penetration and sealing. Puddles are to be avoided.
2. For concrete substrates with >5% up to 6% maximum moisture content by weight, apply a second coat of moisture tolerant primer at 175 sf/gal. Premix both components.
3. Add the 1.5 gallon of moisture tolerant Primer, Part “B” to the 3 gallons of Part “A” in the short-filled Part “A” pail. Mix thoroughly with a mechanical mixer for 3 minutes.
4. Allow primer to cure a minimum of 12 hours at 70°F and 50% RH or until tack free before applying second primer or base coat.
5. For concrete substrates with 5% maximum moisture content by weight, apply low VOC standard primer at 200 sf/gal. with a flat squeegee or roller and work well into the substrate to ensure adequate penetration and sealing. Puddles are to be avoided.
6. For concrete substrates with >5% up to 6% maximum moisture content by weight, apply a second coat of low VOC standard primer at 200 sf/gal. Premix both components.
7. Add the 5 gallons of low VOC standard primer, Part “B” to the 10 gallons of Part “A”. Mix thoroughly with a mechanical mixer for 3 minutes.
8. Allow primer to cure a minimum of 12 hours at 70°F and 50% RH or until tack free before applying second primer or base coat.
9. Refer to data sheet for more detailed information, or consult manufacturer.

E. Metal: Metal must be thoroughly cleaned by grinding or blast cleaning followed with a solvent wipe of Xylol, Xylene or Acetone and primed with a metal primer.

3.5 DETAILING

A. Non-Structural Cracks up to 1/16 inch: Apply a detail coat of traffic coating at 23 mils wet 4” wide and centered over the crack. Allow detail coat to become tack free before overcoating.

B. Cracks and Joints over 1/16 inch up to 1 inch: Rout and seal and allow to skin over and cure minimum of 24 hrs. Apply a detail coat of traffic coating at 23 mils wet, 4” wide and centered over crack/sealant. Allow detail coat to become tack free before overcoating.

C. Fabric Reinforcement: An optional 3” or 6” wide heavy fabric strip may be embedded within the wet detail coat. Fabric width must be chosen such that a minimum of 1” tape is embedded on either side of the crack/joint. Apply additional coating as required to fully embed the fabric in the coating.

D. Joints over 1 inch: Treat as expansion joints and brought up through the traffic coating system and seal with a manufactured engineered expansion joint.

3.6 SINGLE COAT TARFFIC COATING ALIPHATIC POLYURETHANE

A. Traffic coating textured single coat application:

1. After opening Part A place lid face up on ground, remove aggregate insert and place insert on pail lid. Premix Part A component using a low speed (400–600 rpm) mechanical mixer (5-50 gal. model) at slow speed to obtain uniform color. Slowly add aggregate from tray into Part A and continue to mix, making sure to scrape the bottom and sides of the pail, ensure aggregate is fully mixed within the Part A.
2. Slowly pour Part B into Part A while mixing so that the Part B gets pulled into the vortex of the mixing paddle. Scrape the sides of the container, Mix the combined material thoroughly for 3 minutes until a homogenous mixture and uniform color is obtained. Use care not to prevent whipping air into the material while mixing - use a slow and methodical mixing approach.
3. Apply a single coat of the mixed traffic coating with a 3/8” notched squeegee or trowel at the recommended coverage rate of 33 sf/gal and backroll using a phenolic resin core roller. Extend single coat over entire area including previously detailed cracks and control joints. Coverage rate of 33 sf/gal should provide a wet film thickness yield of 48 mils.
4. Allow coating to cure a minimum of 36 hours before opening to vehicular traffic. Consult manufacturer for other weather-related recommendations.

3.7 CLEANING

A. Remove uncured materials from tools or other surfaces with an approved solvent. Remove cured materials by mechanical means.

B. Leave finished work and work area in a neat, clean condition without evidence of spillovers onto adjacent areas.

END OF SECTION 07 18 13

# SECTION 07 21 16 – BLANKET 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 SUMMARY

A. Section includes:
1. Provide blanket and all miscellaneous insulation (thermal and/or acoustic, or rigid) not explicitly specified in other Sections.

2. Provide miscellaneous building insulation where indicated on the Drawings, where required for proper completion of the Work, and at the following locations:

a. New Roof Stair Enclosure

B. Related Sections:
1. Section 05 41 00 - Structural Metal Stud Framing
2. Section 09 21 16 - Gypsum Board Assemblies

C. References:

1. 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 must be deemed mandatory and applicable to the Work.

2. ASTM International (ASTM)

3. New York City Board of Standards and Appeals (BSA) approvals, or New York City Materials Equipment Acceptance (MEA) approvals.

4. International Organization for Standardization (ISO)

### 1.3 SUBMITTAL PROCEDURES

A.! Refer to DDC General Conditions section 01 33 00 ‘Submittal Procedures.”

1.4 SUBMITTALS

A. Samples

1. Submit 12" x 12" sample of each type of insulation.

2. Sample must clearly indicate manufacturer's label and material designation.

B. Manufacturer’s Catalog Information - Provide current manufacturers’ catalog information and data sheets on each type of insulation furnished.

C. Certificate - When the miscellaneous building insulation is a component of a fire-rated assembly, or is required by the NYC fire code and 2022 NYC Building Code to meet certain characteristics, furnish New York City BSA or MEA resolution of approval of material.

D. Sustainability Submittals

1. Recycled Content

a. Submit documentation of recycled content consisting of product data or manufacturer’s statement as applicable for the following:

1) Mineral fiber blanket.

2) Extruded foam insulation (if containing recycled content).

1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Materials must be properly identified with manufacturer's name and, where required, BSA or MEA approval number.

B. Store materials on the site in a dry area protected from the weather.

C. Protect moisture sensitive insulation materials with polyethylene film or waterproof covering. Do not leave foam plastic insulation exposed to direct sunlight.

D. Do not leave exposed in areas where traffic might cause mechanical damage to product.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Johns Manville
2. Owens Corning
3. Thermafiber Corporation
4. Or Approved Equal

2.2 MATERIALS

A. Mineral Fiber Blanket (ASTM C665)
1. Foil-backed insulation: Type III, Class A, thickness to meet the R-value indicated in the Drawings.

2. Density: 3 lbs/cubic foot minimum.

3. R-value: 3.7 min. per inch of thickness.

4. Foil backing must be omitted from blankets in assemblies indicated to include other vapor retarding materials.

5. Blanket insulation units must be manufactured with a minimum of 20% of pre-consumer content materials.

PART 3 - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 EXAMINATION

A. Verify that surfaces are free of defects or protrusions and ready to receive insulation. Do not begin installation until defects are remedied.

3.3 INSTALLATION

A. Install insulation as shown on Drawings and in accordance with manufacturer's instructions.

B. Butt units tightly.

C. Shape insulation around obstructions by means of saw, knife, or other sharp tool.

D. Where insulation is part of the exterior envelope of the building, install insulating material to form a continuous building enclosure without gaps.

END OF SECTION – 07 21 16

# SECTION 07 56 00 – FLUID-APPLIED ROOFING

## 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. VIP Insulated Roofing System – Providing a new VIP-insulated, fluid-applied roofing membrane to all roofs as detailed on the attached drawings. For the Cooling Tower Courtyard see following item No. 2 below.

2. Polyiso Insulated Roofing System – Providing a new polyiso-insulated, fluid-applied roofing membrane to the Cooling Tower roof as detailed on the attached drawings. This area will be protected with a new pedestal pavers system

3. Reflectance Index - Providing a minimum reflectance index of .78 as required by NYC BC.

4. Walking Path - Providing new walking path as laid out on the attached drawings to protect the newly installed insulated, fluid-applied roofing membrane.

5. Waterproofing Application -

   a. Masonry Walls – Use same reinforced liquid membrane to waterproof any exposed areas of masonry during brick replacement at Elevator Bulkhead and Chimney walls.

   b. On New Bulkhead for Existing Roof Stair - Use same reinforced liquid membrane to waterproof the intersection of the new bulkhead enclosure and the existing hoist “I” beam over the Cooling Tower Courtyard as detailed on the attached drawings.

B. Related Sections:

1. Section 02 41 19 Selective Demolition
2. Section 03 01 30 Maintenance of Cast-In-Place Concrete
3. Section 05 41 00 Structural Metal Stud Framing
4. Section 05 50 00 Metal Fabrications
5. Section 05 52 00 Metal Railings
6. Section 07 62 00 Sheet Metal Flashing and Trim
7. Section 07 64 13 Standing Seam Sheet Metal Wall Cladding
8. Section 07 72 00 Roof Accessories
9. Section 07 72 46 Roof Walkways
10. Section 07 76 16 Roof Decking Pavers
11. Section 07 92 00 Joint Sealants
12. Section 22 14 26 Facility Storm Drains

C. References:
1. ACI-308 - Recommended Practice for Curing Concrete
2. ASTM D 2240 - Standard Test Method for Rubber Property Durometer Hardness
3. ASTM D 4259 - Standard Practice for Abrading Concrete
4. ASTM D 5147 - Standard Test Methods for Sampling and Testing Modified Bituminous Sheet Material
5. ASTM D 6163 - Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Glass Fiber Reinforcements
6. ASTM D 6164 - Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Polyester Reinforcements
7. ASTM E 96 - Tests for Water Vapor Transmission of Materials in Sheet Form
8. ASTM E 831 - Standard Test Method for Linear Thermal Expansion of Solid Materials by Thermomechanical Analysis
9. ASTM F 1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride
10. ASTM 2420 - Standard Test Method for Determining Relative Humidity on the Surface of Concrete Floors Slabs using Relative Humidity Probe Measurement and Insulated Hood
11. SSPC - Steel Structures Painting Council painting standards.
12. CRRC (Cool Roof Rating Council) - Standard 1
13. FM - Approvals Guide
14. FM Loss Prevention Bulletin 1-49
15. SMACNA – Architectural Sheet Metal Manual

1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures”.

1.4 SUBMITTALS

A. Product Data: Manufacturer's data sheets on each product to be used, including:
1. Product Literature.
2. Preparation instructions and recommendations.
3. Storage and handling requirements and recommendations.
4. Installation methods.
5. Safety Data Sheets (SDS) for all components.

B. Shop Drawings: Show including plans and details of cool insulated roof waterproofing system including membrane, penetration flashings, base flashings, and expansion joints size, flashing details, and attachment.

C. Verification Samples: For each product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, thickness, color, texture and surfacing.

D. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

E. Field Quality Control: Submit the following.
1. Daily inspection and testing reports
2. Substrate and Bond Testing Reports

3. Completed Membrane Reports

F. Closeout Submittals: Submit roofing/waterproofing manufacturer and applicator's warranty and ensure forms have been completed and issued to the City of New York and registered with manufacturer.

1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

B. Manufacturer Qualifications: Company specializing in manufacturing odor free, Low VOC, cold fluid-applied, fully reinforced, 2 component, solvent free, polyurethane systems with experience with applications.

C. Warrantied Roofing System Installer:

1 Installer Qualifications: An entity meeting the requirements in DDC General Conditions Section 014000 1.7/C/3.

D. Installer's Field Supervision: Maintain a full-time Supervisor/Foreman on job site during all phases of roofing work while roofing work is in progress.

E. Manufacturer's Field Service: Membrane manufacturer must provide the services of a competent field representative on-site to provide the following inspections:
1. Job-start inspection at the beginning of each phase of the project, to review special detailing conditions and substrate preparation.
2. Periodic in-progress inspections throughout duration of the project to evaluate membrane and flashing application.
3. Observe field quality control testing.
4. Final punch-list inspection at the completion of each phase of the project prior to installation of any surfacing or overburden materials.
5. Warranty inspection to confirm completion of all punch list items and surfacing.

F. Source Limitations: Obtain all principal components of roofing/waterproofing system from a single manufacturer. Secondary products that are required must be as recommended and approved in writing by the roofing/waterproofing system manufacturer. Upon request of the Commissioner, submit Manufacturer's written approval of secondary components in list form, signed by an authorized agent of the manufacturer.

G. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
1. Prepare and clean a 3-foot (0.9 m) by 3-foot (0.9 m) area of each substrate material type anticipated and located in areas designated by the Commissioner.
2. Test each area to verify that substrate preparation meets specified requirements. Tests must include tensile bond strength and moisture content of substrate.
3. Do not proceed with the work until test results and workmanship are approved by the Commissioner.
4. Rework mock-up area as required to produce acceptable work.
5. Maintain mock-up for quality control during the progress of the remaining work.

H. Electronic Field Vector Mapping (EFVM) testing is required on the completed membrane prior to the installation of overburden as part of the final field quality control. EFVM testing must be arranged through the membrane manufacturer and performed by International Leak Detection (ILD) or an approved testing company. Check project compatibility with the membrane manufacturer and ensure that all necessary components for the EFVM testing are included in the design. Testing must be observed by the manufacturer's field service representative.

1.6 PRE-INSTALLATION CONFERENCE

A. Convene a pre-roofing conference approximately two weeks before scheduled commencement of roofing/waterproofing system installation and associated work.

B. Require attendance of installers of substrate construction to receive roofing/waterproofing, installers of work in and around roofing/waterproofing which must precede or follow roofing/waterproofing work including mechanical and electrical penetration, equipment openings, subsequent finish work, and the Commissioner, and roofing/waterproofing system manufacturer's representative.

C. Objectives include:
1. Review foreseeable methods and procedures related to roofing/waterproofing work, including set up and mobilization areas for stored material and work area.
2. Tour representative areas of roofing/waterproofing substrates, inspect and discuss condition of substrate, penetrations and other preparatory work.
3. Review structural loading limitations of deck and inspect deck for loss of flatness and for required attachment.
4. Review roofing/waterproofing system requirements, Drawings, Specifications and other Contract Documents.
5. Review and finalize schedule related to roofing/waterproofing work and verify availability of materials, installer's personnel, equipment and facilities needed to make progress and avoid delays.
6. Review required inspection, testing, certifying procedures.
7. Review weather and forecasted weather conditions and procedures for coping with unfavorable conditions, including possibility of temporary roofing.
8. Record conference including decisions and agreements reached. Furnish a copy of records to each party attending.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging with labels intact until ready for installation.

B. Store materials off the ground or on pallets, under cover and in a cool, dry location, out of direct sunlight, in accordance with manufacturers recommendations. Store roll goods horizontally on platforms sufficiently elevated to prevent contact with water and other contaminants. Do not use rolls that are wet, dirty or have damaged ends. Materials must be kept dry at all times. Plastic wrapping installed at the factory must not be used as outside storage covers.

C. Do not store materials in quantities that exceed design loads, damage substrate materials, hinder installation or drainage.

D. Follow manufacturer's directions for protection of materials prior to and during

installation. Do not use materials that have been damaged to the point that they will not perform as specified. Fleece reinforcing materials must be clean, dry and free of all contaminants.

E. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of the MSDS and all requirements and regulations set forth by the NYC Building Code, OSHA, NYC Fire Code, and NYC Department of Environmental Protection (DEP).

F. Maintain copies of all current SDS for all components on site. Provide personnel with appropriate safety data information and instructing as it relates to the specific chemical compounds to be utilized.

1.8 SEQUENCING

A. Apply roofing/waterproofing in a timely manner in conjunction with work of other trades. Coordinate with other trades to avoid traffic over or against completed membrane surfaces.

B. Coordinate with installation of drains as shown on Drawings, including flashing, and associated roofing/waterproofing work.

C. Field Quality Control:
1. On-Site Substrate Testing of substrates must be successfully completed prior to installation of roofing/waterproofing membrane.
2. Field Quality Control Tests of completed sections of waterproofing membrane must be successfully completed before proceeding with protection layers and overburden. Schedule tests promptly to allow timely installation of protection layers.

1.9 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

B. Do not apply roofing/waterproofing membrane during or with the threat of inclement weather.

C. Application of roofing/waterproofing membrane may proceed while air temperature is between 40 degrees F (5 degrees C) and 90 degrees F (32 degrees C) providing the substrate is a minimum of 5 degrees F above the dew point.

D. When ambient temperatures are at or expected to fall below 50 degrees F (10 degrees C), or reach 85 degrees F (30 degrees C) or higher, follow Membrane System Manufacturer's recommendations for weather related additives and application procedures.

E. Ensure that substrate materials are dry and free of contaminants. Do not commence with the application unless substrate conditions are suitable. Contractor must demonstrate that substrate conditions are suitable for the application of the materials.

F. Where required by the Commissioner, implement odor control and elimination

measures prior to and during the application of the roofing/waterproofing materials. Control/elimination measures must be field tested at off-hours and typically consists of 1 or multiple of the following measures:

1. Sealing of air intakes with activated carbon filters. Install filters in accordance with requirements and recommendations of the filter manufacturer. Seal filters at joints and against building exterior walls to prevent leakage of unfiltered air.
2. Sealing of doorways, windows, and skylights with duct tape and polyethylene sheeting to prevent leakage of air into the building.
3. Erection and use of moveable enclosure(s) sized to accommodate work area(s) and stationary enclosure for resin mixing station. Enclosure must be field constructed or pre-manufactured of fire-retardant materials in compliance with local requirements (including NYC FC Chapter 50) and in accordance with requirements of the Commissioner. Provide enclosure(s) with mechanical air intake/ exhaust openings and Odor Control Air Cleaners, as required to clean enclosed air volume and to prevent odor migration outside the enclosure. Exhaust opening must be sealed with activated carbon filter
4. Protection of the Contractor’s personnel and occupants of the structure and surrounding buildings as necessary to comply with requirements of OSHA, NIOSH and NYC BC.

## 1.10 WARRANTY

A. Warranties specified in other Sections will be in addition to, and run concurrent with, other warranties required by the Contract Documents.

1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to the City of New York.

2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for the City of New York.

B. Manufacturer's Premier Warranty: Provide 25-year manufacturer's premier warranty that provides for cost of labor and materials for loss of watertightness, limited to amounts necessary to conduct repair work necessitated by either defective material or defects in related installation workmanship, with no dollar limitation ("NDL").

# PART 2 PRODUCTS

## 2.1 PERFORMANCE REQUIREMENTS

A. System must comply with FM / UL testing data showing that the system meets the local wind uplift requirements and provides a Class A fire-rated roof assembly.

B. SRI values must comply with the 2022 NYC Building Code, 2025 NYCECC.

C. Materials must be products of a single manufacturer or items standard with manufacturer of membrane roofing/waterproofing system. Provide secondary materials that are produced or are specifically recommended by manufacturer of the membrane roofing/waterproofing system to ensure compatibility.

D. Liquid roofing membrane must be fully adhered, self-terminated, and self-flashed to allow for strong horizontal to vertical transitions and penetrations. The number of penetration details must not be an exception or limit in the warranty. Project must

be installed by a manufacturer-certified applicator and inspected by a manufacturer-approved inspector to be eligible for the specified warranty.

E. Monolithic Membrane: The fluid-applied roofing must create a monolithic membrane in the field by combining a two-part, odorless, cold fluid-applied reactive cure polyurethane resin with a reinforcing fleece. Reinforcing fleece must be a 360-degree needle punched non-woven 165 g/m2 polyester reinforcing fleece, for a finished dry film membrane thickness of .080-inch nominal per ply. Minimum fleece weight is 165 gram, resins or primers that are PMMA, MMA, or single component will not be accepted.

F. Fluid-Applied roofing must have the following physical properties:
1. Color: Reflect (Bright White)
2. Physical State: Cures to Solid
3. Reflectance (initial) CRRC 0.87 (3 year aged) CRRC 0.79, ASTM C 1549
4. Emittance (initial) CRRC 0.90 (3 year aged) CRRC 0.89, ASTM C 1371
5. SRI (initial) 110 (3 year aged) 98, ASTM E 1980
6. Thickness (165 Fleece): 80 mils
7. VOC Content: 2.0 g/l
8. Peak load @ break 70 lbf CMD - 100 lbf MD, ASTM D 4073
9. Elongation: Min 30 percent, ASTM D 5147
10. Tearing Strength 60.0 lbs/in, ASTM D 4073
11. Dimensional stability D 1204: 0.15 percent
12. Puncture resistance FTMS 101-2031: 140 lbs.
13. Water absorption D 570: Less than 3 percent
14. Impact resistance D 2240: Shore A 75 plus or minus 15 percent
15. Crack spanning: 0.08 inch (2 mm)
16. Usage time: 30 minutes
17. Rainproof after: 2 hours
18. Solid to walk on after: 24 hours
19. Completely hardened: 3 days
20. Short-term temperature resistance: 482 degrees F (250 degrees C)

G. Liquid Membrane Flashings: Composite of the same resin material as field membrane with 165 g/m2 fleece reinforcement in a two-ply application.

2.2 PRODUCTS

A. Basis-of-Design Product for Fluid-Applied Roofing: Subject to compliance with requirements, provide Kemper; Kemperol 2K FR color Bright White or comparable product by one of the following:

1. Siplast
2. Soprema
3. Or approved equal.

B. Basis-of-Design Product for base sheet: Subject to compliance with requirements, provide Kemper; Kemperol SBS Base or comparable product by one of the following:

1. Siplast
2. Soprema
3. Or approved equal.

C. Physical Properties of base sheet as per ASTM:

| | | | |
|---|---|---|---|
| 1. | Tensile Strength | | D5147 |
| | a. | 0ºF | 120/110 lbf/in |
| | b. | 73ºF | 97/67 lbf/in |
| 2. | Elongation | | D5147 |
| | a. | 0ºF | 4% |
| | b. | 73ºF | 3% |
| 3. | Ultimate Elongation | | D5147 |
| | a. | 73ºF | 5/7 |
| 4. | Tear Resistance | | D4073 |
| | a. | 73ºF | 105/75 lbf |
| 5. | Cold Flex | | D5147 |
| | a. | 73ºF | 0ºF (-18ºC) |
| 6. | Dimensional Stability | | D1204 |
| | a. | 176ºF | < 0.2% |
| 7. | High Temp. Stability | | D5147 |
| | a. | 250ºF | Pass |

D. Substrate Primer and Resin Additives:

1. Polyurethane Primer: two-component, solvent-free polyurethane resin for use in improving adhesion of membrane to wood, metal and bituminous substrate surfaces.
2. Epoxy Primer: two-component, solvent-free epoxy resin for use in improving adhesion of membrane to cementitious/masonry substrate surfaces.
3. Cold Weather Additive: additive specifically designed to accelerate the resin reaction time at ambient temperatures below 50 degrees F (10 degrees C). Accelerator to be used with resin Component A prior to mixing of multi-component resin.

E. Basis-of-Design Product for Vacuum Insulation panels: Subject to compliance with requirements, provide Panasonic; Advance-R or comparable product by one of the following:

1. Kingspan
2. Elevate
3. Or approved equal.

F. Physical Properties of VIP:
1. Construction: Rigid vacuum insulation panels with a micro- porous core which is evacuated, encased and sealed in a thin, gas-tight envelope, giving high thermal resistance, with the thinnest possible solution to insulation problems. The vacuum insulation panels are accompanied with insulation (PIR or XPS) infill panels which can be cut to fit around problem areas such as skylights or other roofing penetrations.
   a. Dimensions:
      1) Width: 11.8 - 23.6 inches (300 - 600 mm)
      2) Length: 11.8 - 47.2 inches (300 - 1200 mm)
   b. Thickness: 1.57 inch (40 mm).
   c. Mold and microbial growth resistant. No food value to insects or rodents.
   d. Infill Strips:
      1) High performance insulation (PIR or XPS).

2) R-Value: 5.0 per inch (127 mm) thickness.

2. Compressive Strength per ASTM C165: 23 psi (kPa) at 10% deformation.
3. Service Temperature: Minus 40 to 176 degrees F (minus 40-80 degrees C)
4. Density per BS EN 1602: 11.25 to 13.10 lbs/cu ft (180 to 210 kg per cu m)
5. All materials to be chemically inert and safe to use and handle.
6. Thermal Resistance per ASTM C1667: Center panel thermal resistance.
   a. Insulation Thickness: 1.57 inch (40 mm). R-Value: 49
7. Edge Effect Thermal Resistance Properties: Based on ASTM C1667.
   a. Insulation Thickness: 1.57 inch (40 mm). R-Value: 46.
8. Dimensional Stability per ASTM D2126: 336 hours at (70 degrees C) and 97 percent relative humidity:
   a. Thickness of 0.79 inch (20 mm):
      1) Length: Minus 0.47 percent
      2) Width: Minus 0.59 percent
   b. Thickness of 1.97 inch (50 mm):
      1) Length: Minus 0.3 percent
      2) Width: Minus 0.13 percent
9. Nominal Panel Mass:
   a. Thickness of 1.57 inch (40 mm): 1.43 lbs per sq ft (4 kg per sq m).

G. Basis-of-Design Product for Flat Polyisocyanurate Insulation Panels: Subject to compliance with requirements, provide Foamular NGX 1000 by Owens Corning or comparable product by one of the following:

1. Cellofoam
2. Rmax
3. Or approved equal.

H. Physical Properties of Flat Polyisocyanurate Insulation

1. High-strength extruded polystyrene rigid insulation boards designed with additional loadbearing capability.
2. UL Classification Certificate U-197
3. Code Evaluation Report UL ER8811-01
4. Meets California Quality Standards; HUD UM #71a
5. ASTM C578 Type V
6. AASHTO M 230
7. ASTM D6817 XPS48 100 PSI minimum
8. Thermal Resistance, R-Value (180 days) minimum, hr•ft2•°F/Btu (RSI, °C•m2/W)
   a. ASTMC518
   b. @ 75°F (24°C) mean temperature 5.0 (0.88)
   c. @ 40°F (4.4°C) mean temperature 5.4 (0.95)
   d. @ 25°F (-3.9°C) mean temperature 5.6 (0.99)
9. Long-Term Thermal Resistance, LTTR-Value, minimum hr•ft2•°F/Btu (RSI, °C•m2/W) @ 75°F (24°C) mean temperature
   a. CAN/ULC S770-03 5.0 (0.88)
10. Compressive Strength — minimum psi (kPa)
    a. ASTM D1621 — 100 (689)
11. Flexural Strength — minimum psi (kPa)
    a. ASTM C203 — 150(1035)
12. Water Absorption — maximum % by volume
    a. ASTM C272 — 0.3

| | |
|---|---|
| 13. Water Vapor Permeance | maximum perm (ng/Pa•s•m2) |
| a. ASTM E96 | 1.1 (63) |
| 14. Dimensional Stability | maximum % linear change |
| a. ASTM D2126 | 2.0 |
| 15. Flame Spread | |
| a. ASTM E84 | 10 |
| 16. Smoke Developed | |
| a. ASTM E84 | 175 |
| 17. Oxygen Index | minimum % by volume |
| a. ASTM D2863 | 24 |
| 18. Service Temperature | maximum °F (°C) |
| a. | 165 (74) |
| 19. Linear Coefficient of Thermal Expansion | in/in/°F (m/m/°C) |
| a. ASTM E228 | $3.5 \times 10^{-5}$ (6.3 x 10-5) |

20. Total Thickness: As required to achieve an average R value of 33 CI for tapered insulation system.

I. Basis-of-Design Product for Tapered Polyisocyanurate Insulation Panels: Subject to compliance with requirements, provide Owens Corning; Foamular NGX 1000 or comparable product by one of the following:

1. Cellofoam
2. Rmax
3. Or approved equal.

J. Physical Properties of Tapered Polyisocyanurate Insulation:
1. High-strength extruded polystyrene rigid insulation boards designed with additional loadbearing capability to provide thermally efficient, moisture-resistant positive drainage slope.
2. ASTM C578
3. Type V, meeting ASTM C1289
4. UL Classified Certificate U-197
5. FM Class 1 Roof Decks
6. ASTM E108 Fire Classified Assemblies
7. ASTM E119 Fire Resistance Rated Roof/Ceiling Assemblies
8. UL and FM Wind Uplift Rated Assemblies
9. Meets California Quality Standards and HUD UM #71A
10. Total Thickness: As required to achieve an average R value of 33 CI for tapered insulation system.

K. Basis-of-Design Product for Insulation Cover Board: Subject to compliance with requirements, provide USG; Securerock Cement Board or comparable product by one of the following:

1. Cellofoam
2. Rmax
3. Or approved equal.

L. Physical Properties of Insulation Cover Board:
1. High compressive strength, non-combustible, roof underlayment board consisting of aggregated Portland cement slurry with polymer-coated glass-fiber mesh.

2 Board Weight: 2.4 lbs/sq.ft.
3. Board Size: 48 by 48 inches and 48 by 96 inches
4. Board Thickness: 1/2 inch
5. Flexural Strength: > 750 psi, parallel, per ASTM C 947
6. Compressive Strength: > 1000 psi nominal
7. Flute Spannability: 12 inches, per ASTM E 661
8. Permeance: 5.84 perms, per ASTM E 96
9. Thermal Conductivity: R-value of 0.39 as determined by ASTM C 518
10. Coefficient of thermal expansion: 4.5 by 106 per ASTM E 831
11. Linear variation w change in moisture: < 0.07 percent maximum per ASTM D 1037
12. Water absorption: < 15 percent maximum per ASTM C 473
13. Mold resistance: 10 per ASTM D 3273
14. Board Edges: Square

M. Insulation and Cover Board Securement:
1. Foamable Adhesive: Highly elastomeric, one-step, all-purpose, foamable adhesive that contains no solvents. Designed for use as an adhesive for bonding approved roof insulation and cover board to a building's structural roof deck, base sheets, and smooth or properly prepared graveled built-up roof surfaces. Roofing adhesive must be a type approved by membrane and insulation manufacturer.

N. Aggregate for Walk Ways: All surfacing aggregates must be washed, kiln-dried, dust-free, suitable for broadcast, round grain or angular, and sized as follows:

1. Manufacturer’s Surfacing Sand (1) #14 (0.8 to 1.5 mm) for coarse surfacing.
2. Mixing Proportions must be a ratio of resin to sand at 1:2 by volume for leveling, 1:4 by volume for patching, or as approved by membrane manufacturer.
3. Color of aggregate: Mixture of Gray/White/Black

## 2.3 ACCESSORIES

A. Solvent-Based Cleaner for Tools and Membrane Tie-Ins: Methyl Ethyl Ketone (MEK) or acetone.

B. Citrus-Based Cleaner for Membrane.

C. Backer Rod: Expanded, closed-cell polyethylene foam designed for use with cold-applied joint sealant.

D. Joint Sealant:
1. Single component, non-sag elastomeric polyurethane sealant for use in sealing joints, cracks, gaps, and transitions in cover boards, insulation and plywood.

E. Wood Nailers and Cant Strips: New wood nailers and cant strips must be pressure treated for rot resistance using Wolmanized or Osmose K-33, #2 or better lumber. Asphaltic or creosote treated lumber is not acceptable.

F. Expansion Joints in Excess of 2 Inches: Provide flat, vulcanized waterproofing joint integral with the waterproofing membrane to accommodate movements over 2 inches (50 mm) and capable of 500 percent elongation at minus 40 degrees F (minus 40 degrees C) across its length and at all vulcanized points. All connections factory fabricated by vulcanization.

## PART 3 EXECUTION

### 3.1 EXECUTION REQUIREMENTS

A. Refer to DDC General Conditions for execution requirements.

### 3.2 EXAMINATION

A. Do not begin installation until substrates have been properly prepared and conditions are suitable to proceed with the Work of this specification.
   1. Substrates must be inspected, and repaired as needed to provide a proper surface to receive roofing/waterproofing system.
   2. Verify substrate surface slopes to drain for horizontal roofing/waterproofing applications.
   3. Identify incompatible or unsatisfactory substrates, if any.

B. Verify substrate openings, curbs, and protrusions through deck/substrate, wood cant strips and reglets are in place and solidly set.

C. If substrate preparation is the responsibility of another installer, notify the Commissioner of unsatisfactory preparation before proceeding.

### 3.3 PREPARATION

A. General: Surfaces to be prepared as a substrate for the new roofing/waterproofing system as follows:
   1. Determine the condition of the existing structural deck/substrate. All defects in the deck or substrate must be corrected before new roofing/waterproofing work commences. Areas of deteriorated deck/substrate, porous or other affected materials must be removed and replaced with new to match existing.
   2. Prepare flashing substrates as required for application of new roofing/waterproofing membrane flashings.
   3. Inspect substrates, and correct defects before application of new roofing/waterproofing. Fill all surface voids greater than 1/8 inch wide with an acceptable fill material.
   4. Remove all ponded water, snow, frost and/or ice from the work substrate prior to installing new roofing/waterproofing materials.
   5. Substrate for roofing/waterproofing must be clean, dry, free of loose, spalled or weak material including coatings, mineral aggregate, and flood coat/gravel surfacing, oil, grease, contaminants, abrupt changes in level, roofing/waterproofing agents, curing compounds, and free of projections which could damage membrane materials.

B. On-Site Substrate Testing: Perform tests at the beginning of the Work, and at intervals as required to assure specified substrate conditions with a minimum of 3 tests per 5000 SF area to be waterproofed. Smaller areas must receive a minimum of 3 tests. Submit test results to the Commissioner promptly as they are completed.

Notify the Commissioner immediately in the event the test results are below specified values. Do not begin application of waterproofing until acceptable conditions are achieved.

1. Cementitious Substrates:
    a. Evaluate Surface moisture content by means of a concrete moisture meter in accordance with ASTM F 2659. A surface moisture content of under 5 percent is required to allow for proper primer penetration into the substrate.
    b. Frothing, bubbling, or pinholes within the primer indicates excessive moisture content within the substrate, beneath the surface. Blistering of membrane may result from excessive substrate moisture. Primer application during late afternoon/early evening will reduce vapor pressure within the substrate and may alleviate these conditions.
    c. Continued frothing, bubbling, or pinholes indicates excessive moisture content that requires more substantial measures. Evaluate substrate moisture content by:
        1) Relative Humidity (RH) test in accordance with ASTM F 2170: Relative moisture content of 75 percent or greater indicates the need for more extensive substrate priming and sealing.
        2) Anhydrous Calcium Chloride Test in accordance with ASTM F 1869: Maximum result 3 lb / 1,000 ft2 of area per 24-hour period, greater values indicate the need for more extensive substrate priming and sealing
        3) Where results exceed the maximum acceptable reading contact Membrane Manufacturer for recommendations.
2. Substrate Bond Strength:
    a. Evaluate bond strength by means of adhesion testing device, or by the performance of a manual pull test.
    b. Tensile bond strength of membrane to substrate must be greater than or equal to 150 psi (1.0 N/mm2).
    c. Adequate surface preparation will be indicated by 135-degree peel bond strength of membrane to substrate such that cohesive failure of substrate or membrane occurs before adhesive failure of membrane/ substrate interface.
    d. In the event the bond strengths are less than the minimum specified, additional substrate preparation and testing is required. Repeat testing to verify suitability of substrate preparation.
    e. Where results exceed the maximum acceptable reading contact Membrane Manufacturer for recommendations.

C. Structural Concrete:
1. New concrete must be cured a minimum of 28 days in accordance with ACI-308.
2. Concrete must be free of oil, grease, curing compounds, loose particles, moss, algae growth, laitance, friable matter, dirt, bituminous products and previous roofing/waterproofing materials.
3. Concrete must have a maximum surface moisture content of 5 percent determined by periodic surface moisture testing during the work.
4. Concrete must be abrasively cleaned in accordance with ASTM D 4259 to provide a sound substrate free from laitance. Achieve an open concrete surface in accordance with ICRI surface profiles CSP 3-5. When using mechanical methods to remove existing roofing/waterproofing products or

surface deterioration, the surface profile is not to exceed 1/4 inch (peak to valley).

5. Substrate must be sound and all spalls, voids and blow holes on vertical or horizontal surfaces must be repaired prior to placement of the primer coat. Spalls and other deterioration must be repaired in accordance with the requirements of the Commissioner and Membrane manufacturer.
6. Areas of minor surface deterioration of 0.25 inch (6 mm) or greater in depth must be repaired to prevent possible pooling of the liquid applied materials, leading to excessive usage of primer and resin.
7. Hollow-core panels, T-panels, and Twin-T panels must have grouted joints between panels and must be provided with mechanical securement from panel to panel.
8. For concrete materials with a compressive strength of less than 3,000 psi contact Roofing/waterproofing Manufacturer's Technical Department for substrate preparation requirements.

D. Masonry:
1. Masonry walls hard kiln dried brick or waterproof concrete block construction.
2. Areas of soft or scaling brick or concrete, faulty mortar joints, or walls with broken, damaged or leaking coping must be repaired in accordance with the requirements of the Commissioner and Roofing/waterproofing Manufacturer.

E. Steel/Metal:
1. Clean and prepare metal surfaces to near white metal in accordance with SSPC - SP3, Power Tool Cleaning, or as required by Roofing/waterproofing Manufacturer. Extend preparation a minimum of 1 inch beyond the termination of the membrane flashing materials.
2. In addition to cleaning, all metal surfaces must be abraded to provide a rough open surface. A wire brush finish is not acceptable.

F. Other Flashing Surfaces:
1. Remove all contaminants as required by membrane manufacturer. Surface preparation must be performed by means approved by the Commissioner and Roofing/waterproofing Manufacturer.

G. Finish Leveling, Patching and Crack Preparation:
1. General: Epoxy primer/sand mix is preferred for all concrete and masonry substrate finish leveling, crack and wall/deck preparation and patching. epoxy primer/sand patching mix provides a set time of approximately 12 hours and does not require surface grinding when the membrane is applied within the appropriate recoat time. Primer/sand mix can be applied in conjunction with general surface priming.
2. Concrete and Masonry Substrate Leveling and Patching: Substrate conditions are to be evaluated by the installer, the Commissioner, and Membrane manufacturer. Perform leveling and patching operations as follows:
    1. Level uneven surfaces with a leveling mixture of primer and approved kiln-dried silica sand in a 1:2 primer to sand ratio by volume. Spread and plane this compound with a squeegee and trowel to achieve a flat surface.
    2. Fill cavities with a patching mixture of primer and approved kiln-dried sand in a 1:4 primer to sand ratio by volume.
    3. Silica sand must be kept absolutely dry during storage and handling.
    4. Any surface to be leveled or filled must first be primed with an acceptable primer.

3. Joint and Crack Preparation: Joints, cracks and fractures in the structural deck/substrate must be prepared prior to installation of the roofing/waterproofing membrane to prevent telegraphing through the roofing/waterproofing membrane.
    1. Non-Moving Cracks, Joints, and Voids: Clean out crack/ joint by brushing and oil-free compressed air. Fill crack/joint with polyurethane joint sealant. Voids require the installation of backer rod or other backing material prior to application of the polyurethane joint sealant. Allow to cure as required by joint sealant manufacturer.
    2. Moving Cracks: Clean out crack by brushing and oil-free compressed air. Fill crack with polyurethane joint sealant. Allow to cure as required by joint sealant manufacturer. Following full curing of primer, apply roofing/waterproofing resin and a 4 inch (10 cm) wide strip of membrane (resin and fleece) in strict accordance with Membrane manufacturer's written instructions.

## 3.4 WOOD NAILER INSTALLATION

A. Install pressure-treated wood nailers as indicated, and as required by the Membrane manufacturer. Wood nailers are required to match the thickness of insulation and cover board, and are to be secured directly to the structural deck. Wood nailers must be installed at all roof edges and on either side of expansion joints, as well as beneath any equipment flanges.

B. Wood nailers must be firmly fastened to the deck. Mechanically fasten wood nailers as required to resist a force of 200 lbs per lineal foot, but with no less than 5 fasteners per 8 foot or 6 fasteners per 10-foot length of nailer. Refer to current FM Loss Prevention Bulletin 1-49 for additional attachment recommendations.

## 3.5 CAP SHEET TEMPORARY ROOF/VAPOR RETARDER INSTALLATION

A. Install mineral-surfaced cap sheet in accordance with cap sheet manufacturer's current published specifications and recommendations for use with adhered roofing/waterproofing.
    1. Mineral Surfaced Cap Sheet Torch-Applied Attachment: Follow cap sheet manufacturer's recommendations for the appropriate application procedure. Roll each cap sheet into molten bitumen. Limit bitumen bleed-out at laps to 1/4 inch or less.

B. Neatly fit cap sheet to all penetrations, projections, curbs, and walls. Extend over all nailers. Cap sheet must be overlapped a minimum of 3 inches for side laps and 6 inches for end laps. Seal at penetrations, projections, curbs and walls with polyurethane joint sealant. Do not use asphaltic flashing cement.

## 3.6 INSULATION AND COVER BOARD INSTALLATION

A. General: Install insulation and cover board accordance with the manufacturer's current published specifications and recommendations for use with adhered roofing.
    1. Install only as much insulation and cover board as can be primed, sealed, and protected before the end of the day's work or before the onset of inclement weather.
    2. Fit insulation and cover board at all penetrations, projections, and nailers. Insulation must be loosely butted, with joints not greater than 1/4 inch. All

joints greater than 1/2 inch must be filled with acceptable insulation. Cover board must be loosely butted, with joints not greater than 1/4 inch. All joints from up to 1/2 inch must be filled with polyurethane joint sealant. Strip all insulation and cover board joints with polyester fleece reinforcement imbedded into the wet primer or resin. Under no circumstances must the membrane be left unsupported over a space greater than 1/4 inch.

3. Strip all insulation and cover board joints with 4-inch-wide strip of flashing membrane. Under no circumstances must the membrane be left unsupported over a space greater than 1/4 inch.
4. Stagger multiple layers of insulation and cover board a minimum of 6 inches in each direction.
5. Steel Deck Substrates: Place boards perpendicular to steel deck flutes with edges over flute surface for bearing support. Edges must be checked so that no edges are left substantially unsupported along the flutes.
6. Drain Sumps: Insulation must be feathered or tapered to provide a sump area a minimum of 36 inches by 36 inches where possible at all drains. Taper insulation around roof drains so as to provide proper slope for drainage. In areas where feathered or tapered insulation leaves insulation core exposed, cover with an appropriate cover board or base sheet/cap sheet assembly to provide a sound and smooth substrate surface.
7. Tapered Insulation: Place tapered thickness insulation to the required slope pattern in accordance with insulation manufacturer's instructions.

B. Foamable Adhesive Attachment: Follow insulation, cover board and adhesive manufacturers' recommendations for the appropriate adhesive application rate and application procedure. Place the boards onto the roofing adhesive beads. Walk on the boards to spread the roofing adhesive for maximum contact. Periodically walk on the boards until firmly attached. Reference FM approvals for adhesive application patterns that satisfy FM wind uplift requirements. Additional adhesive is required in the corner and perimeter regions of the roof. Secure insulation/cover board in accordance with approval requirements.

## 3.7 PRIMER APPLICATION

A. General:
1. Mix and apply two-component primer in strict accordance with written instructions of Membrane Manufacturer.
2. Substrate surface must be dry, with any remaining dust or loose particles removed using clean, dry, oil-free compressed air, industrial vacuum, cloth wipe or a combination of methods.
3. Do not apply primer on any substrate containing asphalt, coal-tar pitch, creosote or penta-based materials unless approved in writing by Membrane Manufacturer. Some substrates may require additional preparation before applying primer.

B. Mixing of Primers:
1. Premix primer Component A thoroughly with a spiral agitator. Pour entire unit of primer Component B into entire unit of primer Component A and mix the components for approximately 2 minutes with a clean spiral agitator on slow speed without creating any bubbles or streaks. Do not aerate. Primer solution must be a uniform color, with no light or dark streaks present.
2. Do not thin primer. Determine required primer coverage for each substrate material/condition and apply in strict accordance with written instructions of

Membrane Manufacturer.

C. Mixing Epoxy Primer: Also, to be used when ambient temperature is 50 degrees F (10 degrees C) and below.
   1. Premix primer Component A thoroughly with a spiral agitator or stir stick. Pour entire unit of primer Component B into entire unit of primer Component A and mix the components for approximately 2 minutes with a clean spiral agitator on slow speed without creating any bubbles or streaks. Do not aerate. Primer solution must be a uniform color, with no light or dark streaks present.
   2. Do not thin primer. Determine required primer coverage for each substrate material/condition and apply in strict accordance with written instructions of Membrane Manufacturer.
   3. Mix only full units of primer. Primer pot life is approximately 20 minutes.

D. Mixing of Polyurethane Primer:
   1. Premix primer Component A within clear pouch to obtain consistent appearance. Remove separation cord. Knead primer Component B into Component A and mix the components for approximately 1 minute. The Primer solution must be a uniform color, with no light or dark streaks present.
   2. Do not thin primer. Determine required primer coverage for each substrate material/condition and apply in strict accordance with written instructions of Membrane Manufacturer.
   3. Mix only full units of primer. Primer pot life is approximately 5-10 minutes.

E. Application:
   1. After mixing, apply the primer with a roller or brush evenly onto the surface in a cross directional method, or utilizing the pour and spread method to fully cover the substrate.
   2. Porous and higher moisture content concrete substrates may require an adjustment to the primer application rate or multiple coats to achieve proper pore saturation.
   3. For epoxy primer applications, broadcast surfacing sand (0, #18) at the rate of 50 lbs. / 100 ft2 into the wet primer to increase surface area and enhance adhesion. Remove excess sand after primer has fully cured prior to membrane application.
   4. Curing time is approximately 12-16 hours for epoxy primers and approximately 3-4 hours for polyurethane primers. Fluid membrane may be applied when the primer is completely dry and without tack. Do not apply fluid membrane to tacky or wet primer.
   5. Exposure of primer in excess of 8 days or premature exposure to moisture may require abrasion of contaminated surface and application of new primer coat.

## 3.8 MEMBRANE APPLICATION

A. General:
   1. Apply the roofing/waterproofing membrane immediately following full curing of the primer in order to obtain the best bond between primer and membrane.
   2. Mix and apply cold fluid-applied reinforced polyurethane roofing/waterproofing membrane in strict accordance with written instructions of Membrane Manufacturer.
   3. Primed substrate surface must be dry, with any remaining dust or loose particles removed using clean, dry, oil-free compressed air, industrial vacuum,

cloth-wipe or a combination.

4. Protect all areas where membrane has been installed. Do not work off installed membrane during application of remaining work before 48 hours of curing. Movement of materials and equipment across installed membrane is not acceptable. If movement is necessary, provide complete protection of affected areas.
5. Follow the Membrane Manufacturer's recommendation for hot and cold weather application. Monitor surface and ambient temperatures, including the effects of wind chill.

B. Mixing of Fluid Roofing Resin:
1. Premix resin Component A with a spiral agitator until the liquid is a uniform color. If the ambient temperature is below 50 degrees F (10 degrees C), then a weather-related additive must be combined and mixed into the Component A.
2. Accelerator must be added to resin Component A when ambient temperature is 50 degrees F (10 degrees C) and below. Accelerator must be mixed with the spiral agitator for 2 minutes or until both liquids are thoroughly blended.
3. Pour entire resin Component B into entire resin Component A and thoroughly mix the components with a clean spiral agitator. The Resin solution must be a uniform color, with no light or dark streaks present. Mix only full units, do not break down units.
4. Resin pot life is approximately 30 minutes.

C. Application of Resin/Fleece:
1. After the Resin is mixed, using a roller nap or brush, apply 2/3 of the resin liberally and evenly onto the surface. Covering one working area at a time, between 10 - 15 sq.ft.
2. Roll the fleece directly into the resin, making sure the smooth side is facing up (natural unrolling procedure), avoiding folds and wrinkles. The fleece will begin to rapidly saturate with the liquid resin mix. Use the roller or brush to work the resin into the fleece, saturating from the bottom up, and eliminating air bubbles, wrinkles, etc. It is important to correct these faults before the resin cures.
3. Apply the remaining 1/3 of the resin to the top of fleece to complete the saturation. Rolling the final coat of resin onto the fleece must result in a glossy appearance. The fleece can only hold so much resin and all excess must be rolled forward to the unsaturated portion of the fleece. The correct amount of resin will completely saturate the fleece. Work wet membrane to avoid any blisters, openings, or lifting at corners, junctions, and transitions. Always assure full resin saturation of fleece.
4. Prevent contact between mixed/unmixed resin and new/existing membrane. If any unmixed resin contacts membrane surface, remove immediately and clean thoroughly with a cloth rag.
5. At all fleece seams, allow a 2 inch (5 cm) overlap for all side joints and a 4 inch (10 cm) overlap for all end joints.
6. At membrane tie-offs, clean in-place membrane with MEK when resin has cured. Allow solvents to fully evaporate before application of new resin. Do not apply primer to existing membrane.

3.9 FLASHING APPLICATION

A. General:
1. Install flashing system in accordance with the requirements/recommendations of the Membrane manufacturer and as indicated on the manufacturer's standard drawings. Provide system with base flashing, edge flashing, penetration flashing, counter flashing, and all other flashings required for a complete watertight system.
2. Wherever possible, install the flashings before installing the field membrane to minimize foot traffic over newly installed field membrane.
3. All membrane flashings must be installed concurrently with the roofing/waterproofing membrane as the job progresses. Temporary flashings are not allowed without prior written approval from the Membrane manufacturer. Must any water penetrate the new roofing/waterproofing membrane because of incomplete flashings, the affected area must be removed and replaced at the Contractor's expense.
4. Provide a minimum vertical height of 8 inches for all flashing terminations. Flashing height must be at least as high as the potential water level that could be reached as a result of a deluging rain and/or poor slope. Do not flash over existing through-wall flashings, weep holes and overflow scuppers.
5. All flashings must be terminated as required by the Membrane Manufacturer.
6. Alkalinity surface protection consisting of one application of epoxy primer and one application of approved broadcast mineral aggregate surfacing must be applied wherever stone, concrete, or masonry elements will be placed directly over the flashing.

B. Metal Flashing - General:
1. Metal flashings must be fabricated in accordance with the current recommendations of SMACNA and in accordance with the Manufacturer's standard drawings.
2. Metal flashing flanges to which membrane is to be bonded must be a minimum of 4 inches in width, and secured to the substrate or wood nailers 6 inches on center staggered with fasteners appropriate to the substrate type. Flanges must be provided with a roughened surface that has been cleaned of all oil and other residue.
3. Metal edges that will be overlaid with membrane must be provided with a 1/4-inch minimum hemmed edge.
4. Apply primer, resin and fleece to metal flange, extending membrane to outside face of metal edging, and to vertical face of metal base/curb flashing.

C. Membrane Flashing - General:
1. Membrane flashings must be fabricated with primer appropriate for the substrate surface, resin of the same base chemical type as the field membrane, and fleece of the same weight as the field membrane unless specified otherwise.
2. Primer, resin, and fleece mixing and application methods as specified for field membranes are also suitable for membrane flashing.
3. Fleece must overlap 2 inches (5 cm) minimum for all joints. Fleece must be cut neatly to fit all flashing conditions without a buildup of multiple fleece layers. Work wet membrane with a brush or roller to eliminate blisters, openings, or lifting at corners, junctions, and transitions.

D. Pipes, Conduits, and Unusually Shaped Penetrations:
   1. Flashing is typically constructed as a two-part assembly consisting of a vertical wrap and a horizontal target patch. Provide a minimum of a 2 inch (5 cm) overlap between vertical and horizontal flashing components.

E. Drains and Scuppers:
   1. Acceptable drain and scupper materials are galvanized, galvalum, cast iron, cast aluminum, copper, hard PVC, and ABS.
   2. Flashing material must extend 4 inches minimum onto drain or scupper flange and into drain/ scupper body.
   3. Install clamping ring if provided as part of the drain or scupper design. Install a strainer basket to prevent debris from clogging the drainage line.

F. Hot Stacks:
   1. Protect the membrane components from direct contact with steam or heat sources when the in-service temperature exceeds 170 degrees F. In all such cases flash to an intermediate "cool" sleeve.
   2. Fabricate "cool" sleeve in the form of a flanged metal cone using galvanized metal, mechanically attached to the structure or wood nailers.
   3. Flashing is typically constructed as a two-part assembly consisting of a vertical wrap and a horizontal target patch. There must be a minimum of a 2 inch (5 cm) overlap between vertical and horizontal flashing components.

G. Flexible Penetrations:
   1. Provide a weathertight gooseneck of round cross-section for each penetration or group of penetrations. Set in water cut-off mastic and secure to the structural substrate.
   2. Flashing is typically constructed as a two-part assembly consisting of a vertical wrap and a horizontal target patch. There must be a minimum of a 2 inch (5 cm) overlap between vertical and horizontal flashing components.

H. Walls, Curbs and Base Flashings:
   1. Wall, curb and base flashings must be installed to solid substrate surfaces only. Adhering to gypsum-based panels, cementitious stucco, synthetic stucco, wood or metal siding, and other similar materials is not acceptable.
   2. Reinforce all transition locations and other potential wear areas with a 4-inch-wide membrane strip evenly positioned over the transition prior to installing the exposed flashing layer.
   3. Reinforce all inside and outside corners with a 4-inch diameter conical piece of membrane prior to installing the exposed flashing layer.
   4. All pins, dowels and other fixation elements must be flashed separately with a vertical flashing component prior to installing the exposed flashing layer.
   5. Extend flashing a minimum of 4 inches onto the field substrate surface.

I. Drip Edges and Gravel Stops:
   1. Metal drip edges and gravel stops must be installed to solid substrate surfaces or wood nailers only. Securement to gypsum-based panels, cementitious stucco, synthetic stucco, wood or metal siding or coping, and other similar materials is not acceptable.
   2. Flash all drip edges and gravel stops by extending the field membrane all the way to the edge of the exposed face prior to installing the metal edging. Strip in the metal flange with a separate 8-inch-wide strip of membrane adhered to both the securement flange and to the field membrane.

3. For conditions where water infiltration behind the exposed drip edge or gravel stop face is possible, install a separate membrane layer positioned behind the face area and extending a minimum of 4 inches past the securement flange onto the field substrate prior to installing the drip edge or gravel stop.

J. Field Fabricated Control or Expansion Joint Flashing:
1. Control or expansion joints in excess of 2 inches in width and all expansion joints subject to vehicular traffic require the use of a separate engineered joint system.
2. Grind or otherwise bevel the inside edges of the joint opening to provide a smooth transition edge for the fleece.
3. Flashing typically consists of a fully saturated membrane bottom layer looped into the joint as a cradle, a compressible foam or rubber insert at 25 percent compression fitted into the joint, and a membrane top layer applied over the joint. Extend both fleece layers 4 inches minimum onto the field substrate on both sides of the joint.
4. Apply the field membrane over the entire joint area.

K. Electrical Conduit, Gas Lines and Lightning Protection
1. Supports for electrical conduit and gas lines greater than 1 inch in diameter require the use of a separate engineered support system.
2. Supports for electrical conduit and gas lines 1 inch or less in diameter, and bases for lightning protection rods and cable, can be adhered directly to the membrane surface with a single-component, polyurethane construction adhesive.

L. Alkalinity Protection:
1. Where placement of concrete, mortar or adhesive setting beds are required over sections of the waterproofing membrane or flashing, apply manufacturer's epoxy primer/coating at the manufacturer's recommended coverage rate, with broadcast to excess of kiln-dried silica sand into wet primer/coating.
2. Protection must extend a minimum of 1 foot (0.3m) past the concrete form on all sides.
3. Provide continuous cleaning with water and brush to eliminate settlement of concrete residues on in-place waterproofing membrane adjacent to area of concrete placement.

## 3.10 TEMPORARY CLOSURES AND WATERSTOPS

A. Ensure that moisture does not damage any completed section of the new roofing/waterproofing system. Completion of flashings, terminations, and temporary closures must be completed as required to provide a watertight condition. All temporary closures must be made as recommended or required by the membrane manufacturer.

## 3.11 MEMBRANE PREPARATION FOR SURFACINGS AND COATINGS

A. Membrane must be clean and dry, and free of all contaminants that may interfere with the adhesion of the surfacing and coating to the membrane surface.

B. Membrane exposed less than 48 hours prior to application of surfacing and coating

materials does not require special surface preparation. It is highly recommended that all surfacing and coating materials be applied to the membrane surface within 48 hours.

C. Membrane exposed longer than 48 hours will require sanding/scuffing of the surface to remove the hard gloss finish, followed by an MEK or acetone solvent wipe.

3.12 SURFACING AND FINISHES

A. Aggregate Finish Surfacing
   1. Where specified, provide and install approved kiln-dried silica sand, or other approved mineral surfacing to achieve an aesthetic and/or non-skid surface.
   2. Pre-mix single-component and two-component coatings prior to application to achieve an even consistency.
   3. Broadcast specified and approved sand or aggregate in excess into a bonding coat application of Membrane Manufacturer's approved aggregate coating system applied over clean, cured membrane at the manufacturer's recommended application rate. Aggregate must be applied to excess to obtain uniform and full coverage.
   4. Following cure time remove loose/un-embedded mineral aggregate by blowing with oil-free compressed air or with a vacuum.
   5. Seal aggregate surface with a sealing coat application of Membrane Manufacturer's approved coating, applied at the manufacturer's recommended application rate. After completion of surfacing, avoid any traffic to allow for surfacing to cure.

B. Coating-Type Finish Surfacing
   1. Where specified, provide and install Membrane Manufacturer's approved polyurethane-based or acrylic-based coating applied over clean, fully cured membrane at the manufacturer's recommended application rate.
   2. Pre-mix single-component and two-component coatings prior to application to achieve an even consistency and color. Mix thoroughly for approximately 2 minutes with a clean spiral agitator without creating any bubbles or streaks. Do not aerate.
   3. Apply coating at the manufacturer's recommended application rate. Two coating applications are recommended for best coverage and appearance. After completion of coating, avoid any traffic for a minimum of 2 days to allow for surfacing to cure.

C. Alkalinity Protection
   1. Where placement of concrete, mortar or adhesive setting beds are required over sections of the waterproofing membrane or flashing, apply manufacturer's epoxy primer/coating at the manufacturer's recommended coverage rate, with broadcast to excess of kiln-dried silica sand into wet primer/coating.
   2. Protection must extend a minimum of 1 foot (0.3m) past the concrete form or setting bed on all sides.
   3. Provide continuous cleaning with water and brush to eliminate settlement of concrete residues on in-place waterproofing membrane adjacent to area of concrete placement.

D. Adhesion Key:
   1. Where placement of non-cementitious material such as asphalt pavement is

required over sections of the waterproofing membrane or flashing, apply manufacturer's epoxy primer/coating at the manufacturer's recommended coverage rate, with broadcast to excess of kiln-dried silica sand into wet primer/coating.

3.13 FIELD QUALITY CONTROL

A. Electronic Field Vector Mapping (EFVM) test must be completed prior to the installation of the overburden, but after the membrane receives a final inspection. Test must be scheduled through the membrane manufacturer a minimum two weeks prior to the test and completed by an approved testing company. All located deficiencies must be repaired followed by a re-inspection by the membrane manufacturer.

B. Prepare a written report of results of successful and unsuccessful inspection testing and submit to the Commissioner within 7 days following each test. Report must include date of test, project name, list of products being applied and tested, name of applicator, name of Contractor, and conditions causing failure of roofing/waterproofing in event of an unsuccessful test.

C. Complete all post installation procedures in accordance with the manufacturer's guidelines for warranty issuance of the specified warrantee.

D. Notification of Completion: Notify the membrane manufacturer of job completion and schedule a final inspection date.

E. Final Inspection: At the completion of the Work meet with the membrane manufacturer's technical field representative to evaluate the completed installation of the field and flashing membrane. Complete all previously noted punch list items prior to the scheduled meeting.

F. Correction of Work: Work that does not conform to specified requirements including tolerances, slopes, and finishes must be corrected and/or replaced. Any deficiencies of membrane application, termination and/or protection as noted during the Membrane Manufacturer's inspections must be corrected and/or replaced.

3.14 CLEANING

A. Clean-Up: Site cleanup, including both interior and exterior building areas that have been affected by construction, must be restored to preconstruction condition.

B. Roofing/waterproofing materials, components and accessories must be removed from Site and taken to a legal dumping area authorized to receive such materials.

C. Disposal of Primer and Resin: Cured resin may be disposed of in standard landfills. Uncured resin is considered a hazardous material and must be handled as such, in accordance with local, state and federal regulations, including 6 NYCRR 370, DSNY regulations, and CFR Title 40 Part 260 & 262.

D. Prior to handing over finished project, remove soil and debris and provide final cleaning of installed cured membrane using approved cleaner and light power wash, include brush clean as necessary.

3.15 PROTECTION

A. Protect building components with tarps or other suitable materials, from soil, stains, or spills at all hoisting points and areas of application.

B. Any such damage must be repaired at Contractor's expense to the Commissioner's satisfaction or be restored to original condition.

C. Provide barricades, retaining ropes, safety elements and any appropriate signage required.

D. Protect finished roofing/waterproofing membrane from damage by other trades by the use of a cushioning layer such as 1-inch-thick expanded polystyrene insulation and an impact layer such as 1/2-inch-thick exterior-grade plywood.

E. Do not allow waste products containing petroleum, grease, acid, solvents, vegetable or mineral oil, animal oil, animal fat, etc. or direct steam venting to come into direct contact with the membrane unless approved by manufacturer's chemical resistance chart.

F. Eliminate construction traffic on newly tested membrane systems. Do not store construction materials on unprotected membrane surfaces.

G. Membrane areas that are observed to be trafficked or used as a storage/working platform must be retested and immediately repaired and covered with insulation and drainage composite.

END OF SECTION 07 56 00

# SECTION 07 62 00 – SHEET METAL FLASHING AND TRIM

## 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. Provide all flashing, trim and sheet metal work as indicated on the Drawings, as required for the completed work, and as specified herein. The work must include, but not limited to, the following:
      a. Metal cut-in drip edge at Main Roof coping stones
      b. Metal flashing/cover along curb of all Ventilation Wells
      c. Metal cover at expansion joints of Main Roof parapet walls
      d. Metal kick plate along base flashing at Cooling Tower Courtyard
      e. Raised, cut-in metal counter flashing Cooling Tower Courtyard.
      f. Metal trims and flashings as detailed at 2nd floor terrace roofs.
      g. Pitch pockets for multiple pipe penetrations.

B. Related Sections:

   1. Section 07 56 00 Fluid-Applied Roofing

C. References
   1. 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 must be deemed mandatory and applicable to the work.
      a. Sheet Metal and Air Conditioning Contractors National Association (SMACNA).
      b. Copper Development Association (CDA).
      c. American Society for Testing and Materials (ASTM).
      d. Federal Specifications (FS).

### 1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures.”

1.4 SUBMITTALS

A. Shop Drawings

1. Show the manner of forming, jointing, and securing the metal flashings, trim, and other specified sheet metal items. Include expansion joint connections, and the method of forming waterproof connections to adjoining construction.
2. Submit roof plan indicating layout and spacing of snow guards as recommended by the snow guard manufacturer. Include half full-size detail of snow guard type and method of attachment.

B. Product Data

1. Catalog sheets, specifications, installation instructions for each item specified except for shop or job formed items, solder and flux.

C. Certificates of qualifications as specified under Article titled “Quality Assurance”.

D. Product Certificates

1. Certify that materials of this Section, such as copper/fabric flashing, sealants, termination bar, and fasteners, are compatible with all components of the air barrier system and other Project materials that contact them.

1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

B. Except as otherwise shown or specified, comply with applicable recommendations, details, and standards of CDA, and SMACNA.

C. All metal work must be ink-stamped at intervals, identifying manufacturer, type metal, and gage or thickness.

D. Manufacturer's Recommendations:

1. For factory fabricated items, follow the manufacturer's recommendations and installation instructions unless specifically shown or specified otherwise.

E. Materials containing asbestos are prohibited.

F. Project Foreman Qualifications

1. Successful completion of a formal instructional and certification program for the installation of the specified roofing/flashing systems, as evidenced by:

a. A certificate of journeyman roofer as issued under a union apprenticeship-journeyman certification program duly registered with the New York State Department of Labor (or other State Labor Department); or

b. A certificate or diploma issued by a vocational school or national roofing manufacturer attesting to successful completion of an equivalent formal certification program. (Submit copy of certificate for above).

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products of this Section in such manner to protect them from being disturbed.

1.7 PROJECT CONDITIONS

A. Do not execute the work of this Section unless the Commissioner is present, unless otherwise directed.

B. Make the roof and all uncompleted flashings watertight at the end of each work day.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Standard sheet copper: cold rolled ounce weight (16-ounce as noted on drawings) copper sheet complying with ASTM B370. Unless otherwise noted, temper must be H00.

2.2 MATERIALS FOR FLASHING FABRICATION

A. Plain Copper Sheet

2.3 MANUFACTURED MATERIALS

A. Copper/fabric flashing: consisting of a full sheet of copper, weight of copper core not less than 5 ounces per square foot, permanently bonded with rubber-based adhesive to and between 2 layers of fiberglass or polymer fabric. Each layer of fabric must be 0.3 oz. per sq. ft. minimum weight, with minimum 10x20 threads per inch. Flashing must be compatible with air barrier system, sealants, adhesives, and other adjacent materials.

1. Product: Subject to compliance with requirements, provide one of the following:

a. York Manufacturing, Inc.; Multi-Flash 500 Copper Fabric Flashing
b. Advanced Building Products Inc.; Copper Sealtite 2000.
c. Sandell Manufacturing Company; Sandell Copper Fabric Flashing NA.
d. Or approved equal.

2.4 FASTENERS

A. Nails
1. "Stronghold" type large flat head roofing nail.
a. For Copper: Hardened copper.
b. For Stainless Steel: Stainless steel.

B. Screws, Bolts, and other Fastening Accessories
1. For Copper: Copper or brass.
2. For Stainless Steel: Stainless steel type 316.

C. Anchors
1. Hammer driven anchors, consisting of a stainless-steel drive pin and a corrosion resistant metal expansion shield inserted thru a stainless-steel disc with an EPDM sealing washer.
2. Self-tapping, corrosion resistant, concrete and masonry screw inserted thru a stainless-steel disc with an EPDM sealing washer.

D. Fasteners for Through-Wall Flashing Termination Bar
1. Tapcon Concrete Screw: stainless steel.

2.5 MISCELLANEOUS MATERIALS

A. Solder
1. Composition of block tin/pig lead of proportion recommended by the metal manufacturer, stamped either 50/50 or 60/40.

B. Flux
1. Paste or acid type as recommended by the metal manufacturer.

C. Bituminous Coating: FS TT-C494.

D. Type 3 Sealant (For concealed sealant joints of thru-wall cap receivers and other areas which require concealed sealant); one-part butyl rubber sealant:
1. Product: Subject to compliance with requirements, provide one of the following:
a. Pecora; BC-158
b. C.R. Laurence Co., Inc.; PTI 707
c. Bostik Inc.; Chem-Calk 300
d. Or approved equal.

E. Termination Bar (For thru-wall flashing)

1. Plastic. Provide material compatible with the air barrier system.

F. Flashing Sealants and Adhesives

1. Provide products recommended in writing by the flashing manufacturer, and compatible with all adjacent materials, including components of the air barrier system. Materials containing asbestos are prohibited. Mastics and

other asphaltic materials must not be used where sealant is specified or required.

2. Where low modulus silicone sealant is indicated provide ASTM C 920, single-component, neutral-curing silicone; Class 100/50, Grade NS, Use NT, Use O.

2.6 FABRICATION

A. General: Where practicable, form and fabricate sheet metal work in the factory or shop. Produce bends and profiles accurately to the indicated shapes. Where not indicated or specified, follow the applicable requirements of the reference standards listed in PART 1. All corners to be factory prefabricated. Hem exposed sheet metal to eliminate all sharp edges and corners.

2.7 CAP FLASHING

A. Cap Flashing (two-piece) with In-Wall, Thru-Wall, or Coping Cap Receiver; All corners of coping flashing and of cap receivers must be factory prefabricated: mitered and lapped approximately 1” at corner, and fully soldered or welded. At expansion joints, provide v-notch splice joint with 6” lap matching three-way fabrication each side of joint. Cap flashing fabricated to be spring tight against wall/base flashing.

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Keystone Flashing Co.
2. Cheney Flashing Co.
3. LITSCO.
4. B & B Sheet Metal.
5. Or approved equal.

C. Materials
1. Aluminum: 0.40, Kynar painted
2. Color: Dark Bronze

2.8 THRU-WALL COPING FLASHING, WITH AND WITHOUT RECEIVER

A. Three- way mortar bond flashing, with snap fit cap flashing for flashing with receiver. Allow for 1/2” extension of flashing beyond masonry face below stone prior to the bend for the drip to allow for raking and sealing of mortar joint below flashing for faces without receiver.

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Keystone Flashing Co.
2. Cheney Flashing Co.
3. LITSCO.
4. B & B Sheet Metal.
5. Or approved equal.

C. Materials
1. Aluminum: 0.40, Kynar painted
2. Color: Dark Bronze

2.9 GRAVEL STOP

A. Complete system including gravel stop, extruded aluminum joint cover plates, concealed 0.032" aluminum joint flashing, fasteners and all other accessory components. Type F gravel stop. Face Height: Closest manufacturer's standard dimension to face height shown on Drawings.

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Keystone Flashing Co.
2. Cheney Flashing Co.
3. LITSCO.
4. B & B Sheet Metal.
5. Or approved equal.

C. Materials
1. Aluminum: 0.40, Kynar painted.
2. Color: Dark Bronze

2.10 COPING

A. Complete system including anchor plates, joint drainage system, concealed joint covers and all other accessory components.

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Keystone Flashing Co.
2. Cheney Flashing Co.
3. LITSCO.
4. B & B Sheet Metal.
5. Or approved equal.

C. Materials
1. Aluminum: 0.63, Kynar painted.
2. Color: Dark Bronze

2.11 GUTTERS AND DOWNSPOUTS

A. Fabricate gutters, downspouts and fittings to shapes and profiles indicated on Drawings; if details are not indicated, follow applicable requirements of the Architectural Sheet Metal Manual of SMACNA. Form gutters and downspouts in 10'-0" long sections.

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Keystone Flashing Co.
2. Cheney Flashing Co.
3. LITSCO.
4. B & B Sheet Metal.
5. Or approved equal.

C. Materials
1. Aluminum: 0.40, Kynar painted.
2. Color: Dark Bronze

2.12 ROOF DRAIN FLASHING

A. Sheet lead, 6 lbs per sq. ft.

PART 3 - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 EXAMINATION

A. Coordinate the work of this Section with other work for the correct sequencing of items which make up the entire system of weatherproofing or waterproofing.

3.3 PREPARATION

A. Do not install the work of this Section unless all necessary nailers, blocking and other supporting components have been provided.

B. Do not install the work of this Section unless all substrates are clean and dry. Do not cover air barrier membrane until the completion of a curing period if recommended by the membrane manufacturer.

3.4 INSTALLATION

A. Isolation
1. Separate dissimilar metals from each other with a dielectric coating to prevent galvanic action. Coating must be bituminous or synthetic material as required for compatibility with adjacent materials.

B. Tinning and Soldering
1. Use soldering irons (heavy coppers) as Industry Standard. Torch soldering is not acceptable.
2. Clean, flux and tin all surfaces to be soldered.

3. Sweat solder thoroughly into seams, completely filling the seam for the full width.
4. Upon completion of soldering, remove all traces of flux residue, and if required, apply a neutralizing wash followed by a clean water wash.

C. Installing In-Wall and Thru-Wall Cap Flashing Receivers, In-Wall/Through-Wall Flashing and Thru-Wall Coping (with or without receiver) Flashing
1. Set the flashing so there is mortar above and below the built-in portion. Bonding ribs must be completely filled with mortar.
2. Do not mallet, bend or deform the exposed portion.
3. Lap all end joints so they interlock at the first raised rib. Apply Type 3 sealant between the mating surfaces of the built-in portion of the flashing before interlocking end joints.
4. All corners must be factory prefabricated: mitered and lapped approximately 1” at corner, and fully soldered or welded by the manufacturer.
5. Provide splice plate at all expansion joints, 12” wide, with 6” lap each side and v-notch in center of joint.
6. Flashings that end at vertical surfaces, into windows, cavities must be turned up 2” to form a pan.

D. Installing Cap Flashing
1. General: Form and install the cap to provide a spring tight fit against the base flashing. Lap all end joints a minimum of 6” and base flashing a minimum of 4". Extend the cap continuously around corners or provide lock seams. Install water stop flashing at expansion joints.
2. Cap Flashing for Installation in Reglets:
   a. Extend the cap flashing into the reglet, applying pressure to securely lock it into position along its entire length.
   b. Pack the reglet with lead wool to within 1/4” of the reglet opening, then fill with sealant and tool to a slightly concave surface.
3. Surface Mounted Cap Flashing:
   a. Form the top portion of the cap flashing which comes in contact with the wall surface with a 1" wide bearing surface. Form a 45-degree x 1/4" wide stiffener and calking flange along the top edge.
   b. Apply Type 2 sealant on the back side of the bearing surface.
   c. Secure the cap flashing to the wall with fasteners spaced 12" oc thru the bearing surface.
   d. Apply Type 2 sealant along the calking flange.
4. In-Wall Cap Flashing (New Masonry Construction):
   a. Extend the built-in portion of the cap a minimum of 4" into the wall. Form the edge of the built-in portion with a 1/4" hook dam.
   b. Set the cap so there is mortar above and below the built-in portion.
   c. Lap all seams a minimum 6” and apply Type 3 sealant between the mating surfaces of the built-in portion of the flashing.
5. Cap flashing For Installation in Receivers: Insert the cap flashing into the receiver locking slot. Apply upward pressure along the entire length of the cap flashing so that it is securely locked into position. Nail 1” wide strap of same material as flashing at 32” o.c. prior to inserting cap in receiver. After cap installation, bend strap over edge of flashing by 1/2” to prevent flashing from coming out of receiver.

6. Pre-tin and solder with soldering irons (heavy coppers) all inside and outside corners.
7. Where applicable, release existing soldered lap with soldering iron, install base flashing, dress down and re-solder existing lap.

E. Dressing Down Existing Cap Flashing
1. Turn up all cap flashings as required to perform the work. Upon completion of the work, dress down all disturbed cap flashings so they lie flat against the base flashing.
2. Secure the cap flashing to the wall surface with fasteners spaced 18" oc.
3. Install matching metal covering at corners of cap flashings which have been formed to perform the work. Lap the covering a minimum of 1" on each side of the cap flashing.
   a. Secure the covering by pop-riveting or by soldering.

F. Installing Base Flashing (Stepped base Flashing for Shingle Roofs)
1. Form the base flashing from individual pieces 9" long. Extend the base flashing onto the roof surface 5" and up beneath cap flashing a minimum of 3".
2. Lace the base flashing in with the shingles. Set each piece 1/2" up from the butt of the shingles. Nail the flashing to the roof surfaces only, with two (2) nails along the concealed top edge.

G. Installing Formed Metal Gravel Stops
1. Form the gravel stop into lengths not exceeding 8'-0". Allow 1/4" between sections for expansion.
2. Install a continuous edge strip secured 8" oc.
3. Install a 12" wide concealed splice plate at all joints. Form the splice plate to the exact shape of the gravel stop. Center the splice plate beneath the joints of the gravel stop and secure to the roof deck.
4. For single ply membranes: Apply the membrane manufacturer's recommended sealant between the contact surface of the horizontal portion of the splice plate and the gravel stop.
5. Extend the horizontal portion of the gravel stop onto the roof surface a minimum of 4" and terminate in a 1/2" folded edge. Secure with nails spaced 3" oc staggered. Hook the drip edge of the gravel stop over a continuous metal edge strip.
6. Where gravel stop face height exceeds 8", provide a longitudinal break at the center line unless shown otherwise on the Drawings.
7. Provide a 6" long exposed matching cover at all joints, fabricated to conform to the shape of the gravel stop.

H. Installing Extruded Aluminum Gravel Stop
1. Install 12" wide, 0.025" concealed aluminum flashing beneath the gravel stop at all joints.
2. For single ply Membranes: Apply the membrane manufacturer's recommended sealant between the contact surfaces of the horizontal portion of the splice plate and the gravel stop.
3. Secure the gravel stop at the midpoint, and at ends of each 10'-0" section. Allow a 1/2" space between each section for expansion.

4. Provide a 6" long, exposed matching aluminum cover at all joints, fabricated to conform to the shape of the gravel stop.

I. Installing Formed Metal Coping
   1. Form the coping into lengths not exceeding 8'-0".
   2. Join coping sections with 1-1/2" loose locked seams filled with Type 3 sealant.
   3. Hook the front and back edges of the coping over continuous metal edge strips. Nail the edge strip 6" oc.

J. Installing Factory Fabricated Formed Metal Coping
   1. Install in accordance with the manufacturer's written instructions unless shown or specified otherwise.

K. Installing Expansion Joint Cover
   1. Install combination edge strip and cap flashing over the base flashing. Secure the edge strip along the top of the curb and lap the base flashing a minimum of 4". Lap each individual length a minimum of 6".
   2. Form the expansion joint cover with standing seam joints not to exceed 10'-0" oc.
   3. Turn the edges of the cover over the edge strip. Allow clearance of one half the width of the expansion joint between all edges of cover and edge strip.

L. Roof Drain Flashing (New Drains)
   1. Install 30" square lead flashing over the roofing membrane. Turn flashing into drain body.

M. Installing manufactured copper.
   1. Installation
      a. All surfaces to receive the copper/fiberglass flashing must be reasonably smooth, free from irregularities.
      b. On horizontal masonry surfaces, lay flashing in a coat of manufacturer recommended sealant, and with a fresh bed of mortar above the flashing. Spot vertical surfaces with sealant or other recommended material to hold flashing in place until masonry is set, and secure as detailed. Trim flashing to terminate flush with the exposed face of masonry wall, except at masonry indicated to have deeply raked joints, and as otherwise indicated.
      c. For installation in conjunction with “sealant edge” indicated below, lay flashing in a coat of manufacturer recommended sealant on top of sealant edge, with the fabric flashing pulled back from the finished face.
      d. Install the flashing in continuous lengths with the minimum number of joints. Door and window flashing must be installed in one continuous length from side to side. All seams are to have silicone sealant for entire length.
      e. At corners, beams, columns, and at other junctures, fit flashing to the proper contour.
      f. Fold flashing at ends to form dams at all edges.

2. Over Concrete Foundations: Lay flashing in a fresh bed of mortar above and below. When recommended by the flashing manufacturer the flashing may be laid on a coat of recommended sealant, and with a fresh bed of mortar above the flashing. At the intersection with column, bring flashing a minimum of 10" up the column and affix with mastic or other recommended material.
3. Spandrels: Start flashing flush with the outside face of the wall; go over the stainless-steel sealant edge as shown on Drawings, adhered to sealant edge flashing with a full coat of low modulus silicone sealant. Go up inside the wall cavity as indicated on the Drawings. Then go thru the wall turning up on the inside face of the wall not less than 2", or provide a continuous termination bar as indicated on the Drawings to seal flashing to backup masonry or concrete after air barrier membrane is applied. Fasten bar to substrate 8” on center, with stainless steel fasteners anchored into pre-drilled pilot holes. Provide a continuous bead of low modulus silicone sealant along top of termination bar to completely seal the bar and flashing to the substrate. Confirm that all materials are compatible with the air barrier system.
4. Heads: Start flashing covering the toe of lintel angle or as shown on the Drawings; go over the lintel on a full coat of low modulus silicone sealant. Go up inside the wall cavity as indicated on the Drawings. Then go thru the wall turning up at the inside not less than 2", or where indicated on the Drawings provide a continuous termination bar as specified for Spandrel flashing. Extend flashing at least 6" on each side of the opening. Turn flashing at the ends, forming a 2" deep pan running entirely thru the wall. All corners must be folded, not sliced.
5. Thru-wall: Start flashing flush with the outside face of wall. Lay flashing on masonry in a fresh bed of mortar above and below. Extend flashing up thru the wall turning up at the inside not less than 2", or provide continuous termination bar as indicated on the Drawings to seal flashing to backup masonry or concrete after air barrier membrane is applied. Fasten bar to substrate 8” on center, with stainless steel fasteners anchored into pre-drilled pilot holes. Provide a continuous bead of low modulus silicone sealant along top of termination bar to completely seal the bar and flashing to the substrate. Confirm that all materials are compatible with the air barrier system. Where flashings end at vertical surfaces, into windows, cavities, etc., turn flashing up 2” high, fully soldered, to form a pan.
6. Joints: Lap joints at least 6”, coating the contacting surfaces with sealant recommended by flashing manufacturer.

N. Sealant Edge

1. Provide stainless steel sealant edge flashing on relieving angles as indicated on the Drawings and wherever else indicated. Form flashing as required to suit lipped brick or other configuration. Adhere to relieving angle with a full coat of low modulus silicone sealant. Seal joints with sealant. Provide factory prefabricated corners and lap pieces a minimum of 4”, with a full coat of low modulus silicone. Edge must be hemmed.

O. Gutters and Downspouts
1. Connection to Existing Construction where applicable: Tie the items of work in with the existing work to obtain watertight installation. Match the existing installation as much as practicable, unless otherwise specified. Remove and install new adjacent existing components as required to make secure and neat connections with new items.
2. Installation of Hung Gutters:
   a. Install gutter hanger brackets 3'-0" oc. Install the brackets so there will be a slight pitch in the gutter towards the downspouts.
   b. Join the gutter sections with 1" wide lapped, riveted, and soldered seams. Use 3/16" diameter rivets spaced 2" o.c.
   c. Install expansion joints where indicated on the Drawings. If not indicated, place the expansion joints at mid points between the downspouts at maximum intervals of 48 feet.
      1) Form the expansion joints with end baffles conforming to the shape of the gutter. Rivet and solder the baffles to the gutter section.
      2) Install a cover plate over the baffle.
   d. Install gutter end pieces, mitered corners and outlet tubes. Solder joints and connections.
   e. Install a continuous stiffener bar along the top front edge of the gutter. Fold the gutter around the stiffener bar so it is securely locked in place.
   f. Install gutter braces 3'-0" oc, staggered from the gutter hanger brackets. Secure the braces to the stiffener bar and to the back vertical portion of the gutter with brass or copper bolts.
   g. Secure the top back edge of the gutter to the gravel stop, eave flashing, or continuous cleat as indicated on the Drawings.
3. Installation of Downspouts:
   a. Join the downspout sections with end joints that telescope at least 1-1/2".
   b. Install necessary offsets and elbows.
   c. Install a minimum of 2 hangers at each downspout section. Form hangers to keep downspouts 1" away from wall.
   d. Fasten downspouts to hangers with sheet metal screws.
   e. Secure hangers to masonry and concrete walls with machine bolts in lead shields and to wood walls with screws.
   f. Discharge Elbows: Fasten leader shoes to downspouts with a minimum of 3 sheet metal screws.
   g. Connection to Underground Drains: Fit the downspout neatly into the drain pipe or boot. Caulk the joint with lead wool and seal with sealant.

END OF SECTION 07 62 00

# SECTION 07 64 13 – STANDING SEAM SHEET METAL WALL CLADDING

## PART 1 – GENERAL

### 1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

### 1.2 SUMMARY

A. Section includes:
   1. Metal Wall Panels – This work includes the installation of a pre-finished, pre-fabricated Architectural standing seam wall panels. All metal trim, accessories, fasteners, and sealants indicated on the drawings as part of this work. Location: Installation of new mechanically fasten standing seam metal wall panels at:
      a. Elevator Bulkhead
      b. Chimney walls at Main Roof level
      c. Parapet walls around Cooling Tower Courtyard
      d. Walls of new roof stair enclosure

B. Related Sections
   1. Section 03 01 30 Maintenance of Cast-In-Place Concrete
   2. Section 04 01 20.51 Unit Masonry Maintenance
   3. Section 07 56 00 Fluid-Applied Roofing

C. Definitions
   1. Metal Roof/Wall Panel Assembly**:** Metal roof panels, attachment system components, miscellaneous metal framing, thermal, and accessories necessary for a complete weathertight roofing system.

D. References:
   1. American Society for Testing and Materials (ASTM)
      a. ASTM A 653: Steel Sheet, Zinc Coated by the Hot Dip Process
      b. ASTM A 792: Steel Sheet, Aluminum-Zinc Alloy Coated by the Hot Dip Process
      c. ASTM B 209: Aluminum and Aluminum Alloy Sheet and Plate
      d. ASTM B370 Standard Specification for Copper Sheet and Strip for Building Construction
   2. Sheet Metal and Air Conditioning Contractors National Association (SMACNA)
      a. SMACNA Architectural Sheet Metal Manual, 1993 edition
   3. American Iron and Steel Institute (AISI)
      a. AISI Cold Formed Steel Design Manual
   4. Aluminum Association
      a. Aluminum Design Manual
   5. Metal Construction Association
      a. Preformed metal Wall Guidelines

6. Code References
   a. ASCE, Minimum Loads for Buildings and Other Structures
   b. BOCA National Building Codes
   c. UBC Uniform Building Code
   d. SBC Standard Building Code

1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures.”

1.4 SUBMITTALS

A. Data - Furnish data for all products

B. Samples –
   1. Metal; panels, trims and closure in specified finish color: Medium Bronze
   2. Fasteners
   3. Sealants

C. Shop drawings – Provide detailed shop drawings showing profile and gauge of panels. Show fabrication and installation layouts of panels, details of edge conditions, side-seam joints, panel profiles, corners, anchorages, trim, flashings, closures and accessories, location and type of fasteners, types of sealants, and any other details as may be required for a weather-tight installation. Distinguish between factory and field-assembled work.

D. Coordination Drawings: Elevations, drawn to scale, on which the following are shown and coordinated with each other, based on input from installer of the items involved:
   1. Wall panels and attachments
   2. Wall-mounted items including gutters.

1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions, Section 01 40 00 “Quality Requirements”.

B. Panels must be factory-produced only. No portable, installer-owned or installer-rented machines will be permitted.

1.6 SYSTEM DESCRIPTION

A. Material to comply with:
   1. ASTM B209 Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate

1.7 WARRANTIES

A. Warranties specified in other Sections will be in addition to, and run concurrent with, other warranties required by the Contract Documents.
   1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to the City of New York.
   2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for the City of New York.

B. Weathertight warranty: Manufacturer's standard form in which manufacturer agrees to repair and restore, or remove existing and install new standing seam metal wall panel assemblies that fail to remain weathertight, including leaks, within specified warranty period.
   1. Warranty Period: 20 Years from date of Substantial Completion

C. Finish warranty: Manufacturer's standard form in which manufacturer agrees to repair and restore finish, or remove existing and install new standing seam metal wall panels that show evidence of deterioration of factory-applied finish within specified warranty period.
   1. Exposed Panels Finish - deterioration includes the following:
      a. Color fading more than 5 hunter units when tested according to ASTM D 2244
      b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214
      c. Cracking, checking, peeling or failure of a paint to adhere to a bare metal.
   2. Warranty Period: 20 Years from the date of substantial completion

1.8 DELIVERY, STORAGE AND HANDLING

A. Ordering: Comply with manufacturer's ordering instruction and lead time requirements to avoid construction delays.

B. Deliver components, sheets, metal wall panels and other manufactured items so as not to be damaged or deformed. Package metal wall panels for protection during transportation and handling.

C. Unload, store and erect metal wall panels in a manner to prevent bending, warping, twisting and surface damage.

D. Stack metal wall panels on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal wall panels to ensure dryness. Do not store metal wall panels in contact with other materials that might cause staining, denting or other surface damage.

E. Protect strippable protective coating on any metal coated product from exposure to sunlight and high humidity, except to the extent necessary for material installation.

1.9 PROJECT CONDITIONS

A. Weather Limitations: proceed with installation only when existing and forecasted weather conditions permit metal wall panel work to be performed.

B. Field Measurements: Verify actual dimensions of construction contiguous with metal wall panels by field measurements before fabrication.

1.10 COORDINATION

A. Coordinate sizes and locations of roof curbs, equipment supports and wall penetrations with actual equipment provided.

B. Coordinate metal wall panels with rain drainage work, flashing, trim and construction of decks, parapet walls and other adjoining work to provide a leakproof, secure and noncorrosive installation.

PART 2 – PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. General Performance: Metal wall panels must comply with performance requirements without failure due to defective manufacture, fabrication, installation or other defects in construction.

B. Wall System must be designed to meet the wind load requirements given in ASCE 7-22.

C. Panels to meet:
   1. Water Penetration: When tested per ASTM E-283/1680 and ASTM E-331/1646 there must be no uncontrolled water penetration or air infiltration through the panel joints.
   2. Wall System must be designed to meet a UL Class 90 wind uplift in accordance with UL standard 580 and panel system must be ASTM 1592 Tested and approved
   3. UL 2218 - Impact Resistance rated

2.2 MANUFACTURERS

A. Basis-of-Design Product: Subject to compliance with requirements, provide Tite-Loc Plus standing seam metal wall cladding panels as manufactured by Petersen Aluminum Corp. or comparable product by one of the following:

   1. LITSCO
   2. Atas International, Inc.
   3. Or approved equal.

2.3 PANEL DESIGN

A. General: Provide factory-formed metal wall panels designed to be installed by lapping and interconnecting raised side edges of adjacent panels with joint type indicated and mechanically attaching panels to supports using concealed clips in side laps. Include clips, cleats, pressure plates and accessories required for a weathertight installation.

B. Wall panels must be standing seam 12" widths with 2" high seams that are mechanically seamed together @ 180 degrees.

C. Panels to be produced with Factory supplied hot melt mastic in the seams.

D. Panels to be produced Smooth - Factory Standard.

E. Panels to be designed for attachment with concealed fastener clips, spaced as required by the manufacturer to provide for both positive and negative design loads, while allowing for the expansion and contraction of the entire wall system resulting from variations in temperature.

F. Forming: Use continuous end rolling method. No end laps on panels. No portable roll-forming machines will be permitted on this project, no installer-owned or installer-rented machines will be permitted. It is the intent for the Contractor to provide factory manufactured panel systems for this project.

2.4 MATERIALS AND FINISHES

A. Panels
   1. Preformed walling panels must be fabricated of .040 Aluminum.
   2. Color must be medium bronze.
   3. Finish must be PVDF Fluorocarbon coating with a top side film thickness of 0.70 to 0.90 mil over a 0.25 to 0.3 mil prime coat to provide a total dry film thickness of 0.95 to 1.25 mil, to meet AAMA 621. Bottom side must be coated with a primer with a dry film thickness of 0.25 mil. Finish must conform to all tests for adhesions, flexibility and longevity as specified by finish supplier.
   4. If strippable coating to be applied on the pre-finished panels to the top side to protect the finish during fabrication, shipping and handling, film must be removed before installation.

B. Trim: Trim must be fabricated of the same material and finish to match the profile, and will be press broken in lengths of 10 to 12 feet. Trim must be formed only by the manufacturer of their approved dealer. Trim to be erected in overlapped condition. Use lap strips only as indicated on drawings. Miter conditions must be factory welded material to match the sheeting.

C. Closures: use composition or metal profiled closures at the top of each elevation to close ends of the panels. Metal closures to be made in the same material and finish as face sheet.

D. Fasteners: Fasteners must be of type, material, size, corrosion resistance, holding power and other properties required to fasten miscellaneous framing members to substrates.

E. Sealants: provide one of the following:
   1. Two-part polysulfide class B non-sag type for vertical and horizontal joints
   2. One-part polysulfide not containing pitch or phenolic extenders
   3. Exterior grade silicone sealant recommended by panel manufacturer
   4. One-part non-sag, gun grade exterior type polyurethane recommended by the panel manufacturer.

2.5 FABRICATION

A. Comply with dimensions, profile limitations, gauges and fabrication details shown and if not shown, provide manufacturer's standard product fabrication.

B. Fabricate components of the system in factory, ready for field assembly.

C. Fabricate components and assemble units to comply with fire performance requirements specified.

D. Apply specified finishes in conformance with manufacturer's standard, and according to manufacturer's instructions.

PART 3 – EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 INSPECTION

A. Examine alignment of structural steel and related supports, primary and secondary framing prior to installation.

B. For the record, prepare written report, endorsed by installer, listing conditions detrimental to performance of the Work.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 FASTENERS

A. Secure units to supports.

B. Place fasteners as indicated in manufacturer's standards.

3.4 PANEL INSTALLATION

A. Panels must be installed plumb and true in a proper alignment and in relation to the structural framing. The erector must have at least five years successful experience with similar applications.

B. Install metal panels, fasteners, trim and related sealants in accordance with approved shop drawings and as may be required for a weather-tight installation.

C. Remove all strippable coating and provide a dry-wipe down cleaning of the panels as they are erected.

3.5 DAMAGED MATERIAL

A. Upon determination of responsibility, repairing and restoring work, removal of existing and installation of new, or damaged metal panels and trim to the satisfaction of the Commissioner.

END OF SECTION - 07 64 13

# SECTION 07 72 00 - ROOF 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 SUMMARY

A. Section includes:

1. Provide all roof accessories as indicated on the Drawings and as specified herein, including, but not limited to the following:

   a. Cross-over roof stairs at location indicate on the drawings.
   b. Metal/mesh chimney cap.

B. Related Sections:

1. Section 02 41 19 Selective Demolition
2. Section 07 56 00 Fluid-Applied Roofing

C. 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 must be deemed mandatory and applicable to the work.

1. Underwriters Laboratories, Inc. (UL).
2. New York City Board of Standards and Appeals (BSA, or New York City Materials Equipment Acceptance (MEA).
3. Occupational Safety and Health Administration (OSHA).

### 1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures”.

### 1.4 SUBMITTALS

A. Shop Drawings

1. Show relationship with adjoining work and anchorage methods. Include plans, sections, and details.

B. Product Data

1. Manufacturer's catalog sheets, specifications, and installation instructions for all roof accessories.

1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store and handle the products of this Section as recommended by the Manufacturer, to protect from being disturbed.

1.7 SEQUENCING AND SCHEDULING

A. Coordinate installation of roof accessories with roofing and flashing.

PART 2 -PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Crossover roof stair to meet OSHA 1910 Subpart D requirements for walking/working surfaces.

2.2 MANUFACTURERS

A. For cross-over roof stair manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Miro Industries, Inc.
2. RTSCO
3. EGA Products
4. Or approved equal

B. For chimney cap manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. B+B Sheet Metal
2. Maspeth Contracting
3. Chim Cap Corp.
4. Or approved equal

2.3 CROSS-OVER ROOF STAIR

A. Load Capacity:
1. Working Load Limit: 300 lbs. per footer

B. Dimensions:
1. Dimensions based on final height between finished Main and Lower roofs, Length needed to be traversed (L), required width of walkway (W), and footprint constraints and area limitations of jobsite.

C. Available Configurations:
1. Crossover stairs; height, rise, tread, and number of stairs to be final site conditions.

D. Materials:
1. Framing: 12 ga. 1-5/8” x 1-5/8” strut channel perforated on all three sides with 9/16” holes.
2. Grating: 18 ga. or 14 ga. carbon steel safety grating with an anti-slip surface. Mill Galvanized (ASTM A653).
3. Transition Plate (Ramp): 1/4” Checker Plate
4. Finish: Available in Pre-Galvanized, Hot Dip Galvanized (ASTM A123)

2.4 MESH CHIMENY CAP

A. Type:
1. Hip and Ridge

B. Material:
1. Copper

C. Features:
1. Customizable
2. Pre-drilled
3. In or outside of screen installation
4. Removable lid
5. Reversible screen

PART 3 - EXECUTION

3.1 EXECUTION REQUIRMENTS

A Refer to DDC General Conditions for execution requirements.

3.2 INSTALLATION

A. Install roof accessories in accordance with the manufacturer's instructions, unless shown otherwise on the Drawings. Securely anchor units in place to the substrate by bolting, screwing or welding.

B. Where mounting flanges are set directly in the roofing, embed the flanges in roofing cement or other waterproof mastic or adhesive as recommended by the manufacturer of the roofing. On sloping surfaces, integrate mounting flanges with roofing elements to properly shed water.

END OF SECTION - 07 72 00

# SECTION 07 72 46 – ROOF WALKWAYS

## 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: Rooftop walkway system.

1. Installing prefabricated, galvanized steel walkway with steps and integral rail guard at new enclosure for roof stair.

B. Related Sections
1. Section 02 41 19 - Selective Demolition.
2. Section 03 01 30 - Maintenance of Cast-in-Place Concrete
3. Section 03 01 50.61 - Resurfacing of Cast Decks and Underlayment
4. Section 03 30 53 - Miscellaneous Cast-in-Place Concrete
5. Section 05 41 00 - Structural Metal Stud Framing
6. Section 07 18 13 - Pedestrian Traffic Coatings
7. Section 07 21 16 – Blanket Insulation
8. Section 07 56 00 - Fluid-Applied Roofing
9. Section 07 62 00 - Sheet Metal Flashing and Trim
10. Section 07 64 13 - Standing Seam Sheet Metal Wall Cladding

C. References
1. OSHA 1910.25: Stairways
2. OSHA 1910.28: Duty to have fall protection and falling object protection
3. OSHA 1910.29: Fall protection Systems and falling object protection - criteria and practices
4. ANSI A1264.1: Safety requirements for Workplace Walking/Working Surfaces and Their Access

### 1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures”.

### 1.4 SUBMITTALS

A. Product Data:
1. Manufacturer's data sheets on each product to be used.
2. Preparation instructions and recommendations.
3. Storage and handling requirements and recommendations.
4. Typical installation methods.

B. Shop Drawings: Include details of materials, construction and finish. Include relationship with adjacent construction.

1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

1.6 PRE-INSTALLATION CONFERENCE

A. Convene a conference approximately two weeks before scheduled commencement of the Work. Attendees must include the Commissioner, the Contractor and all trades involved. Agenda must include schedule, responsibilities, critical path items and approvals.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Store and handle in strict compliance with manufacturer's written instructions and recommendations.

B. Protect from damage due to weather, excessive temperature, and construction operations.

1.8 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

PART 2 - PRODUCTS

2.1 PREFABRICATED MODULAR ALUMINUM STAIRS AND PLATFORMS

A. Basis of Design Product for Elevated Walkway Systems: Subject to compliance with requirements, provide RTS; Rooftop Walkway System or comparable product by one of the following:

1. Safe Rack
2. Design Components, Inc.
3. Or approved Equal

B. Stair and Platform System Components:

1. Substructure: 12-gauge back-to-back channel P1001, or as approved by the Commissioner and supported directly from the slab.

2. Grating: Mill-galvanized carbon steel in accordance with ASTM A525:
   a. Gauge 12-ga. steel.
   b. Section Width: 11-3/4 inches (standard),
   c. Section Width: 9-1/2 inches.
   d. Section Height: 1-1/2 inch.
   e. Surface Condition: Serrated Anti-Slip

3. Handrail: 12-gauge, 1-5/8 inch channel P1000, or as approved by the Commissioner.

4. All substructures and handrails must be galvanized steel. Channel nuts and bolts will be electro-plated.

C. Attachment:

1. Mechanically fastened to roof deck as per details on drawings

## 2.2 MATERIALS

A. Rooftop support system: engineered, portable system specifically designed for installation without the need for roof penetrations or flashings, and without causing damage to the roofing membrane where possible.
   1. Design system using recycled rubber, and steel framing for support is 1-5/8 inch P1000H3.
   2. Custom design system to fit piping, conduits, equipment, or walkways to be installed and actual conditions of service and loading.
   3. Piping Supports: Provide suitable hangers and supports.
   4. Duct and Equipment Supports: Factory fabricated to support exact duct sizes and equipment to be installed.
   5. Walkways and Platforms: Provide galvanized slotted metal grating, in configurations as indicated, and tubular handrails where indicated.

B. Bases
   1. Bases for Mechanical Attachment: Solid Steel

C. Stainless Steel Framing:
   1. Channel Types: 1-5/8 inch, or as required for loading conditions.
   2. Thickness: 12 gauge.
   3. Form: Roll-formed 3-sided or tubular channel.
   4. Finish: Mill finish.
   5. Do not use tubing or tube steel.

D. Pipe Supports and Hangers: Conform to MSS SP-58 and MSS SP-69 and as follows:
   1. Fabricate of carbon steel where framing is carbon steel; fabricate of stainless steel where framing is stainless steel; finished same as framing.
   2. Sizes 2-1/2 inch and smaller: Single roller supports for piping subject to expansion and contraction; 3-sided channels and pipe clamps.
   3. Sizes 3 inch and larger: Rollers, clevis hangers, or band hangers, to allow for expansion and contraction without movement of the bases or framing.

E. Accessories: Clamps, bolts, nuts, washers, and other devices as required for a complete system.
   1. Carbon Steel: Pre-galvanized in accordance with ASTM A653
   2. Carbon Steel: Hot-dip galvanized in accordance with ASTM A123.
   3. Stainless Steel: Mill finish.
   4. For Mechanical Fastening to Deck: On wood and steel decks, use bolts with steel plate to attach to deck; on concrete decks use anchors that adhere to loading requirements.

PART 3 - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 EXAMINATION

A. Verify that roofing system is complete and that roof surfaces are smooth, flat, and ready to receive work of this section.

3.3 PREPARATION

A. Clean surfaces of roof in areas to receive support bases.
   1. Sweep loose gravel from gravel surfaced roofs.
   2. Remove dirt, dust, oils, and other foreign materials.

B. Use care in handling support system components during installation, to avoid damage to roofing, flashing, equipment, or related materials.

3.4 INSTALLATION

A. Walkway:
   1. Install substructures at spacing indicated, but not greater than 5 feet on center.
   2. Locate support framing as indicated on drawings and as specified herein. Provide complete and adequate support of all structures.
   3. Accurately locate and posts and mechanically attach them.
   4. Use galvanized fasteners for galvanized framing and stainless-steel fasteners for stainless steel framing.
   5. Layout and fasten planking to substructures.
   6. Install handrails as follows:
      a. Install intermediate rails without tightening.
      b. Make minor adjustments as needed, such as spacing of substructures to accommodate intermediate handrails, and install hold-downs.
      c. Secure intermediate handrails and install top handrails.

3.5 FIELD QUALITY CONTROL

A. When requested by the Commissioner, provide a factory-trained representative of the manufacturer to visit the site while the work is in progress to ensure that the installation conforms to the design requirements and the manufacturer’s installation requirements.

3.6 CLEANING AND PROTECTION

A. Remove all packaging, unused fasteners, and other installation materials from the project site.

B. Provide protection as required to leave the work area in undamaged condition at the time of completion of work.

END OF SECTION 07 72 46

# SECTION 07 76 16 - ROOF DECKING PAVERS

## 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. Architectural concrete pavers on adjustable pedestals including the following:
a. At Cooling Tower Courtyard

B. Related Sections

1. Section 07 56 00 – Fluid Applied Roofing.

2. Section 07 62 00 – Flashings and Sheet Metal.

C. References:

1. ASTM International (ASTM):
1. ASTM C150 - Specification for Portland Cement.
2. ASTM C33 - Specification for Concrete Aggregates.
3. ASTM C140 - Specification for Concrete.
4. ASTM C293 - Standard Test Method for Flexural Strength of Concrete (Using Simple Beam with Center-Point Loading).
5. ASTM C1028 - Standard Test Method for Determining the Static Coefficient of Friction of Ceramic Tile and Other Like Surfaces by the Horizontal Dynamometer Pull-Meter Method.
6. ASTM C501 - Standard Test Method for Relative Resistance to Wear of Unglazed Ceramic Tile by the Taber Abraser.
7. ASTM C241 - Standard Test Method for Abrasion Resistance of Stone Subjected to Foot Traffic.
8. ASTM D638 - Tensile Properties of Plastics.
9. ASTM D790 - Flexural Properties of Unreinforced and Reinforced Plastics Insulating.
10. ASTM D1525 -Vicat Softening Temperature of Plastics.

### 1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures.”

1.4 SUBMITTALS

A. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.

B. Shop Drawings: Showing all components required for the paver and pedestal requirements. Shop drawings must include plan drawings showing layout of all paver areas and detail drawings showing how the various components of the system fit together. Include manufacturer's literature completely describing all components of the paver pedestal systems and giving detailed installation recommendations and instructions. Also include detailed installation drawings for all porcelain pavers.

C. Structural Analysis: Provide confirmation of (1) the structural capability and adequacy of the structure to carry the dead and live load weights involved, and (2) that the density of any insulation is satisfactory to resist crushing and damaging the waterproofing membrane.

D. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.
   1. Architectural Concrete Pavers: Submit samples for type, color and texture available.

1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

1.6 PRE-INSTALLATION MEETINGS

A. Convene minimum two weeks prior to starting work of this section.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store products in manufacturer's unopened packaging bearing the brand name and manufacturer's identification until ready for installation.

B. Protect Pavers/Tiles and Pedestal System during shipment, storage and construction against damage. Store a minimum of 4 inches (102 mm) off the ground in a dry location and cover with polyethylene to protect from contact with materials which would cause staining or discoloration.

C. Handling: Handle materials to avoid damage.

1.8 PROJECT CONDITIONS

A. System specified must be used with pedestrian traffic only with all four sides of a deck system must be designed to restrain and contain the decking panels with perimeter blocking or walls. Decking panels must not be allowed to move laterally.

B. All membrane waterproofing and protection board surfaces to receive pedestals must be broom clean, frost free, and free of dirt, oil or any rough foreign matter,

which may impair the waterproofing / roofing manufacturers guarantee or protection requirements.

C. The substrate that is to receive pedestals must have slope and provide positive and adequate drainage in accordance with good building practice and applicable building codes, including Chapter 15 of the 2022 NYC Building Code.

D. Decks over Roofing and Waterproofing:
1. Where high density closed cell extruded 60 psi (414 kPa) polystyrene insulation is installed on top of the membrane in a protected membrane system, pedestals may be installed directly on top of the insulation.
2. Do not use pedestals over any insulation less than 60 psi (414 kPa) or with low density polystyrene (bead board) insulation.

E. Installation or anticipated installation of additional items on top of the deck such as planters, hot tubs, sculptures, or industrial equipment must be supported directly by additional pedestals that are in addition to the main deck paver/tile pedestal system. Failure to adequately support the additional weight of any such features or items may cause significant damage to the deck, underlying structure, or waterproofing.

1.9 SEQUENCING

A. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

PART 2 PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. For roof decking pavers:
1. High density pressed concrete units, with 1/8” tolerance and produced by subjecting the concrete mix to a minimum pressure of 1,000 pounds per square inch over the entire surface area.
a. Relative strengths (at 2” thickness):
1) Compressive: 8,500 psi at 28 days
2) Flexural: 1,100 psi
3) Absorption: less than 5%
4) Density: 155 lbs/cu. ft.
5) Weight: 25 lbs/sf
6) Color: Standard and custom range
7) Size: 20 x 20 x 2 inches nominal (500 x 500 x 50 mm exact).
8) Finish: Shot-blasted with 3/16-inch (4.8 mm) bevel on all four sides of finished surface.
9) Weight: 11 to 22 lbs per square foot (50 to 100 kg per sq. m).

B. For adjustable pedestals:
1. Integral base leveling to correct for sloped substrates. Each center-loaded pedestal supports 1250 pounds. Extenders to reach heights up to 36 inches. Pedestal bracing system for additional stability and heights over 24 inches. Impervious to water, mold, and freeze/thaw cycles. Integrated base levelers accommodate 0 to ½ inch per foot slope (0-4%).

2.2 MANUFACTURERS

A. Basis-of-Design Product for pavers: Subject to compliance with requirements, provide Cool-Roof Series Pavers in Terrazzo-Cool-Gray color by Tile Tech Inc.; or comparable product by one of the following:

1. Hanover Architectural Products
2. Bison Innovative Products
3. Or approved equal.

B. Basis-of-Design Product for pedestals: Subject to compliance with requirements, provide Adjustable Deck Pedestals by Tile Tech Inc. or comparable product by one of the following:

1. Hanover Architectural Products,
2. Bison Innovative Products
3. Or approved equal.

2.3 PEDESTAL SYSTEM

A. Adjustable Pedestals:
   1. Stacked pedestals: PVC Pipe and adjustable stacking pedestals:
      a. Stack or use SDR35 PVC pipe to accommodate various height adjustments of 1/2 inch to 6 inches (13 mm to 152 mm).
      b. Each cap provides maximum of 1/2 inch (13 mm) of height and 1 percent slope. Rotate and stack one cap relative to another to accommodate slope adjustments from 0 percent to 4 percent.
      c. Base diameter of 6 inches (152 mm) and top diameter of 5-1/4 inches (133 mm) and is 1/2 inch (13 mm) high.
      d. Made of high impact and flame-resistant ABS plastic.
      e. Use protection pads underneath stacking pedestals is mandatory
   2. Adjustable height pedestals: PVC Pipe with screw adjustable pedestals:
      a. Assembly consists of 5 parts: base, screw adjustment collar, screw adjustment insert, self-leveling cap and protection pads.
      b. Use 4 inch -SDR35 PVC pipe to accommodate various height adjustments from 2-inches to 24 inches (50 mm to 610 mm).
      c. Self-leveling and can tilt in any direction to a level plane to accommodate slope adjustments from 0 to 4 percent.
      d. Base diameter of 7 inches (178 mm) with bearing surface area of 38 square inches (0.0245 sq. m).
      e. Made of 100 percent recycled and flame-resistant High-Density Polypropylene.
      f. Use of protection pads under pedestals is mandatory.
   3. Pedestal shims:
      a. 1/8-inch (3 mm) and 1/16 inch (1.5 mm) thick.
      b. Used on top of stackable or adjustable height pedestals for fine leveling of pedestals and or individual paver/tiles.
      c. Made of high impact and flame-resistant ABS plastic.

B. Other Components: Installer or user supplied.
   1. Pedestal Pipe: 4-inch diameter SDR35 PVC Sewer Pipe.

a. Used with either stackable or adjustable height pedestals and is cut to required height.
b. Dimensions: 4.215 inches (107 mm) outside diameter and 3.890 inch (99 mm) inside diameter.
c. Meet ASTM D-3034 and F-679.

2. Protection Course:
   a. Refer to Specification Section 075600, “Fluid-Applied Roofing.”

PART 3 EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify the Commissioner of unsatisfactory preparation before proceeding.

3.3 PAVER/TILE INSTALLATION

A. Examination: Prior to starting work inspect the substrate to ensure that it has been properly prepared to accept the pedestal system. The substrate and or surface must be clean and free of any projections and debris which may impair the performance of the pedestal and or the deck system. Verify all elevations, required pedestal heights and deck dimensions. Commencement of work must imply acceptance of surfaces and deck conditions.

B. Preparation: The substrate surface that will receive the Pedestal System must be well compacted (on Grade) or structurally capable of carrying the dead and live loads anticipated.
   1. Insulation over the membrane: (Option 1) Insulation and/or protection board (if specified) must be applied over the waterproofing substrate and/or specified drainage mat. Install the system according to the membrane manufacturer's recommendations and specifications.
   2. Insulation under membrane: (Option 2) Insulation required to be installed within a roofing system below deck supports must meet the roofing membrane manufacturers' specifications and must have a minimum core density of 60 psi (414 kPa).
   3. Protection Board: (for asphalt type systems used over waterproofing) Full coverage 1/8 inch (3 mm) asphaltic composition protection board is recommended. When protection is specified only under the pedestal cut protection board pads to extend beyond the outside perimeter of the pedestal system base or buffer pad by a minimum of two inches (51 mm).
   4. Drainage Mat: (when desired or specified) Install drainage mat according to the manufacturers recommendations to avoid crushing.

C. Install in accordance with manufacturer's instructions. Installation requirements vary for each individual project site. Decking paver or tile used, pattern, grid layout, starting point, and finished elevation must be shown on plan view shop drawings, which have been prepared and approved by the Commissioner and installer.

D. Grid Layout and Elevations:
   1. Once the starting point and the finished elevation of the deck surface have been determined, the "Top of Pedestal Elevation" (finished elevation less decking paver or tile thickness) is established and marked around the perimeter using a transit water level or laser leveling device.
   2. Precise measurements must be taken and deck area must be accurately defined. Mark off and ' square up' all outside edges with control lines using "snapped" chalk lines. Mark two lines that are perpendicular to each other across the deck area. Continue to mark a grid of lines in both directions marking the location of each pedestal. Use the control lines as references to periodically check and assure a square layout during installation.
   3. Next, a pedestal must be placed where each measured grid line meets the perimeter. Remove two spacer tabs in line with one another atop each pedestal system placed around the perimeter. Remove all four spacer tabs at corners.
   4. Adjust each pedestal height to the "Top of Pedestal Elevation" marked on the perimeter. Position the pedestal as close to the edge of the perimeter as possible, with the two remaining spacer tabs aligned with the grid line. Using the elevation marked on the perimeter, stretch a mason's line along and slightly ahead of the second row of pedestals. A laser leveling device may also be used for this purpose.
   5. On larger decks, it is recommended that the pedestal system be pre-assembled and pre-set to the proper elevation and placed in position prior to the installation of decking paver or tile.
   6. As the pedestals located along the grid lines are loaded with porcelain pavers or tiles, fine vertical height adjustment can be made by inserting and rotating, from the top, a T-handle Hex Key in to the insert of the Pedestal assembly. Clockwise rotation of the insert will raise the bearing surface and the deck. Counter-clockwise rotation will lower the top bearing surface and deck.
   7. Always maintain adequate thread engagement. The pedestal insert contains a locking tab that will not allow the screw to extend past its maximum extension. Never use if the locking tab is broken. If the height required goes beyond the insert limit re-cut PVC pipe to the correct height and re-assemble the pedestal using the correct size pipe.
   8. Slight irregularities in decking paver or tile thickness can be compensated for by using one to two shim segments. Place on top of the pedestal, under the corner(s) of the decking paver or tile. Use no more than two shims on top of the pedestal and always adhere quartered (1/4) wedges with construction adhesive.
   9. Stacking pedestal can be used for limited and or fixed height requirements. Complete deck and grid layout as instructed above. Stack no more than five fixed height stacking pedestals together and place in lieu of pedestals where needed. Stacking pedestal can also be used with PVC pipe to reduce cost. Spacer tabs can be removed to accommodate perimeter and corner support locations.

E. Slope and Height Compensation:

1. Stacking pedestals can provide limited slope and height compensation to maintain a level decking surface over sloping substrates and is accomplished using a combination of the following:
    a. Rotate and stack one cap in relation to another to change slope and add height. Each cap will add 1/2 inch (13 mm) of height and provide 1 percent slope. Stack no more than 5 caps.
    b. Can also be used with PVC Pipe cut to required height of maximum of 6 inches (152 mm).
2. Adjustable pedestals can provide both slope and height compensation to maintain a level decking surface over sloping substrates and is accomplished using a combination of the following:
    a. PVC Pipe cut to varying lengths to compensate for general height requirements.
    b. Screw extension for precise height adjustment.
    c. Self-Leveling cap that pivots and tilts in any direction for slope compensation from 0 percent to 4 percent.
3. Pedestals are designed to be rotated for final precise adjustment when they are fully loaded. Pedestals must be leveled in each succeeding row as the installation proceeds. Final height adjustment or maintenance is easily made by simply using a T-handle Hex Key that allows you to adjust the pedestals without removing the Porcelain Pavers. T-handle Hex Key is inserted between the four paver corners to engage insert portion and is adjusted clockwise or counter clockwise to level as needed.
4. Shims may be used in multiples, whole or quarters, and placed under the pedestal base or on top the pedestal cap to level pedestals. Use a small amount of construction adhesive to adhere sections of shims and/or whole shims to each other or to the pedestal. Do not use construction adhesive to adhere pedestal or shims to insulation, roofing or waterproofing membrane. Additional sections of shims may be used and must be available for regular maintenance.

F. Perimeter Containment: Any area of the pedestal deck that is not restrained by a parapet or foundation wall must be ' boxed-in' and contained. The deck panels will move if all sides are not adequately restrained. Perimeter framing and edging boards located at the outside of the deck perimeter must be installed to provide restraint. No movement must be allowed at the perimeter of the deck system greater than one tab width.

G. Field Quality Control: Inspect often during installation to assure that grid spacer lines are being maintained in a straight and consistent pattern and that deck pavers are level and not rocking. Unless otherwise specified in writing to allow for expansion, inspect to assure that all paver spacing between tiles and at perimeter walls does not exceed a tab width. Particular attention must be made to assure that all pedestrian entry or access points to the deck are level and that the deck surface tiles are not randomly raised or uneven creating a tripping or safety hazard.

H. Confirm that deck pedestal height excess of 24 inches (610 mm) have been braced in accordance with manufacturers written instructions.

3.4 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair and restore, or replace damaged products before Substantial Completion.

END OF SECTION - 07 76 16

# SECTION 07 84 13 - PENETRATION 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 SUMMARY

A. Section Includes: Penetration firestopping systems.

### 1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

### 1.4 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 "Submittal Procedures."

### 1.5 ACTION SUBMITTALS

A. Product Data: Penetration firestopping systems.

B. Product Schedule: For each penetration firestopping system. Include location, illustration of firestopping system, and design designation of qualified testing and inspecting agency.

1. Engineering Judgments: Where Project conditions require modification to a qualified testing and inspecting agency's illustration for a particular penetration firestopping system, submit illustration, with modifications marked, approved by penetration firestopping system manufacturer's fire-protection engineer as an engineering judgment or equivalent fire-resistance-rated assembly developed in accordance with current International Firestop Council (IFC) guidelines.

    a. Obtain approval of Commissioner prior to submittal.

### 1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Listed System Designs: For each penetration firestopping system, for tests performed by a qualified testing agency.

1.7 CLOSEOUT SUBMITTALS

A. Installer Certificates: From Installer indicating that penetration firestopping systems have been installed in compliance with requirements and manufacturer's written instructions.

1.8 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 "Quality Requirements."

B. Installer Qualifications: A qualified installer, properly trained by manufacturer, with sufficient trained staff to install products according to specified requirements.

1.9 PROJECT CONDITIONS

A. Environmental Limitations: Do not install penetration firestopping system when ambient or substrate temperatures are outside limits permitted by penetration firestopping system manufacturers or when substrates are wet because of rain, frost, condensation, or other causes.

B. Install and cure penetration firestopping materials per manufacturer's written instructions using natural means of ventilations or, where this is inadequate, forced-air circulation.

1.10 COORDINATION

A. Coordinate construction of openings and penetrating items to ensure that penetration firestopping systems can be installed according to specified firestopping system design.

B. Coordinate sizing of sleeves, openings, core-drilled holes, or cut openings to accommodate penetration firestopping systems.

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

A. Obtain penetration firestop systems for each type of opening indicated from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

A. Fire-Test-Response Characteristics:

1. Perform penetration firestopping system tests by a qualified testing agency acceptable to Commissioner.
2. Test per testing standards referenced in "Penetration Firestopping Systems" Article. Provide rated systems complying with the following requirements:

a. Penetration firestop systems installed with products bearing the classification marking of a qualified product certification agency in accordance with listed system designs published by a qualified testing agency.

1) UL in its online directory "Product iQ."
2) Intertek Group in its "Directory of Building Products."
3) FM Approvals in its "Approval Guide."

2.3 PENETRATION FIRESTOPPING SYSTEMS

A. Penetration Firestopping Systems: Systems that resist spread of fire, passage of smoke and other gases, and maintain original fire-resistance rating of construction penetrated. Penetration firestopping systems are to be compatible with one another, with the substrates forming openings, and with penetrating items if any.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. 3M Fire Protection Products.
b. Hilti, Inc.
c. Passive Fire Protection Partners.
d. Tremco, Inc.
e. Or approved equal.

B. Penetrations in Fire-Resistance-Rated Walls: Penetration firestopping systems with ratings determined in accordance with ASTM E814 or UL 1479.

1. F-Rating: Not less than the fire-resistance rating of the wall penetrated.
2. Membrane Penetrations: Install recessed fixtures such that the required fire resistance will not be reduced.

C. Penetrations in Horizontal Assemblies: Penetration firestopping systems with ratings determined in accordance with ASTM E814 or UL 1479.

1. F-Rating: At least one hour, but not less than the fire-resistance rating of the floor penetrated.
2. T-Rating: At least one hour, but not less than the fire-resistance rating of the floor. The following floor penetrations do not require a T-rating:

a. Those within the cavity of a wall.
b. Floor, tub, or shower drains within a concealed space.
c. 4-inch or smaller metal conduit penetrating directly into metal-enclosed electrical switchgear.

3. W-Rating: Provide penetration firestopping systems with a Class 1 W-rating in accordance with UL 1479.

D. Penetrations in Smoke Barriers: Penetration firestopping systems with ratings determined in accordance with UL 1479.

1. L-Rating: Not exceeding 5.0 cfm/sq. ft. of penetration opening and no more than 50-cfm cumulative total for any 100 sq. ft. at both ambient and elevated temperatures.

E. Exposed Penetration Firestopping Systems: Flame-spread and smoke-developed indexes of less than 25 and 450, respectively, in accordance with ASTM E84.

F. Accessories: Provide components for each penetration firestopping system that are needed to install fill materials and to maintain ratings required. Use only those components specified by penetration firestopping system manufacturer and approved by qualified testing and inspecting agency for conditions indicated.

1. Permanent forming/damming/backing materials.
2. Substrate primers.
3. Collars.
4. Steel sleeves.

2.4 FILL MATERIALS

A. Cast-in-Place Firestop Devices: Factory-assembled devices for use in cast-in-place concrete floors and consisting of an outer sleeve lined with an intumescent strip, a flange attached to one end of the sleeve for fastening to concrete formwork, and a neoprene gasket.

B. Latex Sealants: Single-component latex formulations that do not re-emulsify after cure during exposure to moisture.

C. Firestop Devices: Factory-assembled collars formed from galvanized steel and lined with intumescent material sized to fit specific diameter of penetrant.

D. Intumescent Composite Sheets: Rigid panels consisting of aluminum-foil-faced intumescent elastomeric sheet bonded to galvanized-steel sheet.

E. Intumescent Putties: Nonhardening, water-resistant, intumescent putties containing no solvents or inorganic fibers.

F. Intumescent Wrap Strips: Single-component intumescent elastomeric strips for use around combustible penetrants.

G. Mortars: Prepackaged dry mixes consisting of a blend of inorganic binders, hydraulic cement, fillers and lightweight aggregate formulated for mixing with water at Project site to form a nonshrinking, homogeneous mortar.

H. Pillows/Bags: Compressible, removable, and reusable intumescent pillows encased in fire-retardant polyester or glass-fiber cloth. Where exposed, cover openings with steel-reinforcing wire mesh to protect pillows/bags from being easily removed.

I. Silicone Foams: Multicomponent, silicone-based liquid elastomers that, when mixed, expand and cure in place to produce a flexible, nonshrinking foam.

J. Silicone Sealants: Single-component, silicone-based, neutral-curing elastomeric sealants.

K. Fire-Rated Cable Sleeve Kits: Complete kits designed for new or existing cable penetrations through walls to accept standard accessories.

L. Thermal Wrap: Flexible protective wrap tested and listed for up to 2-hour fire ratings in accordance with ASTM E814/UL 1479 for membrane penetrations or ASTM E1725/UL 1724 for thermal barrier and circuit integrity protection.

M. Fire-Rated Cable Pathways: Single or gangable device modules composed of a steel raceway with integral intumescent material and requiring no additional action in the form of plugs, twisting closure, putty, pillows, sealant, or otherwise to achieve fire and air-leakage ratings.

N. Retrofit Device for Cable Bundles: Factory-made, intumescent, collar-like device for firestopping existing over-filled cable sleeves and capable of being installed around projecting sleeves and cable bundles.

O. Wall-Opening Protective Materials: Intumescent, non-curing putty pads or self-adhesive inserts for protection of electrical switch and receptacle boxes.

P. Fire-Rated HVAC Retaining Angles: Steel angle system with integral intumescent firestop gasket for use around rectangular steel HVAC ducts without fire dampers.

Q. Firestop Plugs: Flexible, re-enterable, intumescent, foam-rubber plug for use in blank round openings and cable sleeves.

R. Fire-Rated Cable Grommet: Molded two-piece grommet made of plenum-grade polymer and foam inner core for sealing small cable penetrations in gypsum walls up to 1/2 inch diameter.

S. Closet Flange Gasket: Molded, single-component, flexible, intumescent gasket for use beneath a water closet (toilet) flange in floor applications.

T. Endothermic Wrap: Flexible, insulating, fire-resistant, endothermic wrap for protecting membrane penetrations of utility boxes, critical electrical circuits, communications lines, and fuel lines.

2.5 MIXING

A. Penetration Firestopping Materials: For those products requiring mixing before application, comply with penetration firestopping system manufacturer's written instructions for accurate proportioning of materials, water (if required), type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other items or procedures needed to produce products of uniform quality with optimum performance characteristics for application indicated.

PART 3 - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 EXAMINATION

A. Examine substrates and conditions, with Installer present, for compliance with requirements for opening configurations, penetrating items, substrates, and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 PREPARATION

A. Surface Cleaning: Before installing penetration firestopping systems, clean out openings immediately to comply with manufacturer's written instructions and with the following requirements:

1. Remove from surfaces of opening substrates and from penetrating items foreign materials that could interfere with adhesion of penetration firestopping materials.
2. Clean opening substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with penetration firestopping materials. Remove loose particles remaining from cleaning operation.
3. Remove laitance and form-release agents from concrete.

B. Prime substrates where recommended in writing by manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.

3.4 INSTALLATION OF PENETRATION FIRESTOPPING SYSTEMS

A. General: Install penetration firestopping systems to comply with manufacturer's written installation instructions and published drawings for products and applications.

B. Install forming materials and other accessories of types required to support fill materials during their application and in the position needed to produce cross-sectional shapes and depths required to achieve fire ratings.

1. After installing fill materials and allowing them to fully cure, remove combustible forming materials and other accessories not forming permanent components of firestopping.

C. Install fill materials by proven techniques to produce the following results:

1. Fill voids and cavities formed by openings, forming materials, accessories and penetrating items to achieve required fire-resistance ratings.
2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.
3. For fill materials that will remain exposed after completing the Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

3.5 IDENTIFICATION

A. Wall Identification: Permanently label walls containing penetration firestopping systems with the words "FIRE AND/OR SMOKE BARRIER - PROTECT ALL OPENINGS," using lettering not less than 3 inches high and with minimum 0.375-inch strokes.

1. Locate in accessible concealed floor, floor-ceiling, or attic space at 15 feet from end of wall and at intervals not exceeding 30 feet.

B. Penetration Identification: Identify each penetration firestopping system with legible metal or plastic labels. Attach labels permanently to surfaces adjacent to and within 6 inches of penetration firestopping system edge so labels are visible to anyone seeking to remove penetrating items or firestopping systems. Use mechanical fasteners or self-adhering-type labels with adhesives capable of permanently bonding labels to surfaces on which labels are placed. Include the following information on labels:

1. The words "Warning - Penetration Firestopping - Do Not Disturb. Notify Building Management of Any Damage."
2. Contractor's name, address, and phone number.
3. Designation of applicable testing and inspecting agency.
4. Date of installation.
5. Manufacturer's name.
6. Installer's name.

3.6 FIELD QUALITY CONTROL

A. Special Inspections: The City of New York will engage a qualified testing agency to perform tests and inspections according to ASTM E2174, as per the requirements of the New York City Construction Code.

B. Where deficiencies are found or penetration firestopping system is damaged or removed because of testing, repair or replace penetration firestopping system to comply with requirements.

C. Proceed with enclosing penetration firestopping systems with other construction only after inspection reports are issued and installations comply with requirements.

3.7 CLEANING AND PROTECTION

A. Clean off excess fill materials adjacent to openings as the Work progresses by methods and with cleaning materials that are approved in writing by penetration firestopping system manufacturers and that do not damage materials in which openings occur.

B. Provide final protection and maintain conditions during and after installation that ensure that penetration firestopping systems are without damage or deterioration at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, immediately cut out and remove damaged or deteriorated penetration firestopping material and install new materials to produce systems complying with specified requirements.

END OF SECTION - 07 84 13

# SECTION 07 92 00 - JOINT SEALANTS

## 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. Provide all joint sealer Work as indicated on the Drawings, as required for the completed Work, and as specified herein. This Section includes joint sealants for the following applications**:**
      a. Re-sealing top and vertical joints at all parapet coping and window sills stones
      b. Re-sealing expansion joints at all Main Roof parapet walls
      c. Re-sealing perimeter joints at all windows & louvers, 10th floor roofs
      d. Re-sealing perimeter joints at all windows, 9th floor roofs
      e. Re-sealing perimeter joints at all windows, 8th floor roofs
      f. Re-sealing joints of stone cladding at all rising walls on all setback roofs as noted on drawings
      g. Any and all required sealing/caulking work for metal wall cladding

B. Related Sections:

| | | |
|---|---|---|
| 1. | Section 03 01 30 | Maintenance of Cast-in-Place Concrete |
| 2. | Section 04 01 20.51 | Unit Masonry Maintenance |
| 3. | Section 04 01 40.51 | Stone Maintenance |
| 4. | Section 07 62 00 | Sheet Metal Flashing and Trim |
| 5. | Section 07 64 13 | Standing Seam Sheet Metal Wall Cladding |

C. References:
   1. 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 must be deemed mandatory and applicable to the Work
      a. American Society for Testing and Materials (ASTM)

### 1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures”.

### 1.4 SUBMITTALS

A. Product Data

1. Catalog sheets, specifications, and installation instructions for each type of joint sealant product specified except miscellaneous materials.

B. Samples:
   1. For general purpose use, color of exposed joint sealant must match the material being sealed.
   2. Provide Manufacturer's color charts consisting of strips of cured sealants showing the full range of Manufacturer's standard colors available for each product exposed to view.

C. Samples for Verification: For each type and color of joint sealant required, provide Samples with joint sealants in 1/2" wide joints formed between two 6" long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.

D. Quality Control Submittals
   1. Product Certificates: For each type of joint sealant and accessory, signed by product manufacturer.
   2. Preconstruction Test Results
      a. Sealant manufacturer's test reports certifying compatibility and adhesion with all contiguous materials.
      b. Sealant manufacturer's test reports certifying that the sealant will not stain contiguous materials.
      c. The results of field adhesion testing.

E. Low Emitting Materials Compliance Submittals
   1. Provide documentation for each sealant, sealant primer and cleaner to be used on site and within the weatherproofing/waterproof membrane (interior) of the building, indicating that the sealants and primers meet V.O.C. requirements set forth by the New York State Department of Environmental Conservation (DEC) regulations, 6 NYCRR Part 205, "Architectural and Industrial Maintenance Coatings," and Local Law 97 (LL97).

F. Mockups
   1. Install sealant in mockups of assemblies specified in other Sections that are indicated to receive joint sealants specified in this Section. Use materials and installation methods specified in this Section.

## 1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 "Quality Requirements".

## 1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle joint sealer materials as recommended by the Manufacturer, to protect from damage.

1.7 PROJECT CONDITIONS

A. Environmental Requirements
1. Temperature: Unless otherwise approved or recommended in writing by the sealant manufacturer, do not install sealants at temperatures below 40°F or above 85°F.
2. Humidity and Moisture: Do not install the Work of this Section under conditions that are detrimental to the application, curing, and performance of the materials.
3. Ventilation: Provide sufficient ventilation wherever sealants, primers, and other similar materials are installed in enclosed spaces. Follow manufacturer's recommendations.
4. Do not proceed with installation of joint sealants under the following conditions
a. When joint substrates are wet.
b. Where joint widths are less than those allowed by joint sealant manufacturer for applications indicated.
c. Contaminants capable of interfering with adhesion have not yet been removed from joint substrates.
d. Surfaces are frozen.
e. Surfaces are superheated by the sun.

B. Protection
1. Protect all surfaces adjacent to sealants with non-staining removable tape or other approved covering to prevent soiling or staining.

2. Protect all other surfaces in the Work area with tarps, plastic sheets, or other approved covering to prevent defacement from droppings.
3. Protect any coated surfaces which are not included in the Work from impact or damage.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. For sealants:
1. Type 1 Sealant (for use in vertical expansion joints where movement occurs; for general purpose use around windows, door frames, louvers, and other junctures). One-part low-medium modulus silicone sealant (plus or minus 50% movement); ASTM C920 classifications type S, grade NS, class 25, uses NT, M, G, and A.
a. ASTM C719 - Low-Medium Modulus (+ or - 50%). Sealants must not exhibit any cracking or surface degradation after 5000 hours exposure in the Atlas Twin Arc Weatherometer.
b. ASTM C661 - Must not incur a durometer increase greater than 10 points.
c. Sealants must contain zero parts of toxic isocyanurate ingredients.

B. For joint filler:
   1. Expanded Polyethylene Joint Filler (for existing joints) - Flexible, compressible, closed-cell polyethylene of not less than 10 psi compression deflection (25 percent).

2.2 MANUFACTURERS / PRODUCTS

A. Product: Subject to compliance with requirements, provide one of the following:

   1. General Electric; Silpruf SCS2000
   2. Dow Corning; 791
   3. Sika; SikaSil WS 295
   4. Or approved equal.

2.3 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
   1. For primers used on site and within the weatherproofing/waterproof membrane (interior) of the building comply with V.O.C. requirements set forth by the New York State Department of Environmental Conservation (DEC) regulations, 6 NYCRR Part 205, "Architectural and Industrial Maintenance Coatings," and Local Law 97 (LL97).

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.

   1. For cleaners used on site and within the weatherproofing/waterproof membrane (interior) of the building comply with V.O.C. requirements set forth by the New York State Department of Environmental Conservation (DEC) regulations, 6 NYCRR Part 205, "Architectural and Industrial Maintenance Coatings," and Local Law 97 (LL97).

C Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

D. Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
   1. Cylindrical Sealant Backings: ASTM C1330, Type C (closed-cell material with a surface skin), Type O (open-cell material) or Type B (bicellular material with a surface skin**)**, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

E. Bond Breaker Tape
   1. Polyethylene or other plastic tape as recommended by the sealant manufacturer; non-bonding to sealant; self-adhesive where applicable.

PART 3 - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 EXAMINATION

A. Examine all joint surfaces for conditions that may be detrimental to the performance of the completed Work. Do not proceed until satisfactory corrections have been made.

3.3 PREPARATION

A. Clean joint surfaces immediately before installation of sealant and other materials specified in this Section.
   1. Remove all loose materials, dirt, dust, rust, oils and other foreign matter that will impair the performance of materials installed under this Section.
   2. Remove lacquers, protective coatings and similar materials from joint faces with manufacturer's recommended solvents.
   3. Thoroughly clean surfaces on which sealant is to be applied using methods such as grinding, acid etching or other approved and manufacturer's recommended means, if required, to clean the joint surfaces, assuring that the sealant materials will obtain positive and permanent adhesion.
   4. Prime surfaces, if required, as recommended by Manufacturer before applying sealant.

3.4 JOINT BACKING INSTALLATION

A. Install bond breaker tape in relaxed condition as it comes off the roll. Do not stretch the tape. Lap individual lengths.

B. Install backer rod of sufficient size to fill the joint width at all points in a compressed state. Compress backer rod at the widest part of the joint by a minimum of 25 percent. Do not cut or puncture the surface skin of the rod.

3.5 SEALANT INSTALLATION

A. Except as shown or specified otherwise, install sealants in accordance with the manufacturer's printed instructions.

B. Install sealants with ratchet handgun or other approved mechanical gun. Where gun application is impracticable, install sealant by knife or by pouring, as applicable.

C. Finishing
1. Tool all vertical, non-sag sealants so as to compress the sealant, eliminating all air voids and providing a neat smoothly finished joint. Provide slightly concave joint surface, unless otherwise indicated or recommended by the manufacturer.
2. Use tool wetting agents as recommended by the sealant manufacturer.

3.6 FIELD QUALITY CONTROL

A. Field Adhesion Testing of Sealants - Test completed elastomeric joints as follows:
1. Extent of Testing: Test completed elastomeric sealant joints as follows:
a. Perform 10 tests for the first 1000 feet of joint length for each type of elastomeric sealant and join substrate.
b. Perform one test for each 1000 feet of joint length thereafter or one test per each floor per elevation.
2. Test Method – Test joints by hand pull method described below:
a. Make knife cuts from one side of the joint to the other, followed by two cuts approximately 2 inches long at sides of joint and meeting cross cut at one end. Place a mark 1 inch from cross-cut end of 2-inch piece.
b. Use fingers to grasp 2-inch piece of sealant between cross-cut end and 1” mark, pull firmly at a 90-degree angle or more in direction of side cuts while holding a ruler along sides of sealant. Pull sealant out of joint to the distance recommended by the sealant manufacturer for testing adhesive capability, but not less than that equaling specified maximum movement capability in extension, hold this position for 10 seconds.
c. For joints with dissimilar substrates, check adhesion to each substrate separately. Do this by extending cut along one side, checking adhesion to opposite side.
3 Inspect joints for complete fill, for absence of voids, and for joint configuration complying with specified requirements. Record results in a field-adhesion-test log.
4. Inspect tested joints and report on the following:
a. Whether sealants in joints connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate. Compare these results to determine if adhesion passes sealant manufacturer's field-adhesion hand-pull test criteria.
b. Whether sealants filled joint cavities and are free of voids.
c. Whether sealant dimensions and configurations comply with specified requirements.
5. Record test results in a field-adhesion-test log. Include dates when sealants were installed, names of persons who installed sealants, test dates, test locations, whether joints were primed, adhesion results and percent elongations, sealant fill, sealant configuration, and sealant dimensions.

6. Install new sealants pulled from test area, apply new sealants following same procedures used originally to seal joints. Ensure that original sealant surfaces are clean and that new sealant contacts original sealant.
7. Evaluation of Field Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

3.7 CLEANING

A. Immediately remove misapplied sealant and droppings from metal surfaces with solvents and wiping cloths. On other materials, remove misapplied sealant and droppings by methods and materials recommended in writing by the manufacturer of the sealant material.

B. After sealants are applied and before skin begins to form on sealant, remove all masking and other protection and clean up remaining defacement caused by the Work.

END OF SECTION - 07 92 00

# SECTION 08 13 13.13 - STANDARD HOLLOW METAL DOORS

## 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. Provide new steel hollow exterior doors and frames as indicated on Drawings and specified herein, including but not limited to thresholds and weatherstripping.

      a. At new roof stair enclosure

B. Related Section:
   1. Section 05 41 00 Structural Metal Stud Framing
   2. Section 07 62 00 Standing Seam Metal Wall Cladding
   3. Section 07 92 00 Joint Sealants

C. References:
   1. 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 must be deemed mandatory and applicable to the Work.

      a. Underwriters' Laboratories, Inc. (UL)
      b. ASTM International (ASTM)
      c. National Fire Protection Association (NFPA)
      d. Steel Door Institute (SDI)
      e. Hollow Metal Manufacturers Association (HMMA)
      f. Interteck
      g. National Fenestration Rating Council (NFRC)
      h. International Organization for Standardization (ISO)

### 1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures”.

1.4 SUBMITTALS

A. Product Data
   1. Door manufacturer's catalog sheets, specifications, and installation instructions.

B. Shop Drawings
   1. Show details of each frame type, elevation and construction for each door type, conditions at openings, location for each door type, location and installation requirements for finish hardware (including cutouts and reinforcements), details of connections, and anchorage and accessory items.

C. Quality Control Submittals
   1. Include approval data and acceptance by a New York City approved testing agency for all fire-rated assemblies.
   2. Provide certification for oversized assemblies as described in Quality Assurance.
   3. Air infiltration rate report for exterior doors: Manufacturer’s statement that the fenestration assembly with opaque door when subjected to air infiltration test in accordance with NFRC 400, the air infiltration did not exceed 0.20 cubic feet per minute per square foot of door opening.
   5. Thermal certification: Provide certification letter from manufacturer indicating thermal value of doors as tested in accordance with NFRC 100.

1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store doors and frames on raised platforms in vertical position with blocking between units to allow air circulation.

B. During delivery, storage and handling, protect doors and frames from water damage.

C. Provide delivery, storage and handling in such manner to prevent damage to products.

1.7 GAGE STANDARDS

A. Gages specified are based on U.S Standard Gage for hot rolled and cold rolled steel sheets.

B. The allowable tolerances for steel sheet thicknesses must be in accordance with HMMA Standards.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. 1-3/4" flush ribbed door:
1. Full flush door with mechanically interlocked vertical edges with a visible seam.
2. Hollow door is tack-welded above and below hinge and lock cutouts and welded at the top and bottom of each seam edge.
3. For seamless edge door the vertical edge will be tack welded 6" on center, filled and ground smooth.
4. Door must be internally reinforced and stiffened with 22 gage steel ribs not more than 8" on center and spot welded to each face skins at 5” on center maximum.
5. Spaces between door edges and stiffeners are filled with sound deadening insulated fiberglass batts.
6. Fire rating not required.

2.2 MANUFACTURERS

A. Exterior Doors Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Acme & Dorf Door Corp.
2. General Fireproof Door Corp.
3. Long Island Fireproof Door
4. Or approved equal.

2.3 MATERIALS

A. Hot-Rolled Steel Sheets and Strip
1. Commercial quality carbon steel, pickled and oiled, complying with ASTM A1011 and ASTM A568.

B. Cold-Rolled Steel Sheets
1. Commercial Quality carbon steel complying with ASTM A1008 and ASTM A568.

C. Galvannealed Steel Sheets
1. Carbon steel sheets of commercial quality complying with ASTM A653 Doors and frames must have A60 zinc-iron coating, mill phosphatized, complying with ASTM A653.

D. Anchors and Supports
1. Fabricate of gages indicated on and of not less than 16-gage sheet steel, unless otherwise indicated on the drawings.

a. Galvanized Units: Galvanized anchors and supports used with galvanized frames, complying with ASTM A153, Class B.

E. Anchorage Devices, Bolts, and other Fasteners

1. Manufacturer's standard units unless otherwise indicated on the Drawings.

    a. Galvanized Units: Galvanized items used with galvanized frames complying with ASTM A153, Class C or D as applicable.

2.4 FABRICATION

A. Fabricate hollow metal work accurately and assemble neatly to ensure work smooth and free from dents, tool marks, visible waves, warp, buckles and conspicuous joints.

B. Align lines straight and true with arises and angles as sharp as practicable. Miter corners in true alignment and join similar abutting profiles accurately.

C. Assemble all joints to form imperceptible intersections when finished.

D. Form each member, such as jamb and head, from a single piece of metal, unless otherwise shown or approved.

E. Fasten all members together to provide rigid construction in assembled work. Weld all connections except those for removable members such as glazing beads.

F. Weld, dress smooth and flush joints on exposed faces.

G. Clearances -Fabricate doors for their respective frames within the following clearances:
    1. Jambs and Head: 3/32" to 1/8".
    2. Meeting Edges of Pairs: 1/8" to 3/16".
    3. Bottom (no threshold or carpet): 3/8", maximum.
    4. Bottom (at threshold or carpet): 1/4", maximum.

H. Work showing defects or blemishes will be rejected, and rejected work must be replaced with satisfactory work.

2.5 DOORS

A. General
    1. Provide steel doors of types and styles indicated on drawings or schedules. Comply with ANSI/SDI A250.8 requirements unless more restrictive requirements are specified herein.
    2. Design and Thickness: Flush design doors, seamless vertical edges, hollow construction, 1¾" thick unless specifically noted otherwise.
    3. Sound Deadening (ASTM E90): Minimum Sound Transmission Class (STC) of 30.
    4. Door Edges: Bevel lock stile edge of single acting hinged doors 1/8" in 2". Double acting doors must have rounded edges, approximately

2¼" radius. Meeting stiles of pairs of single acting doors must be "V" beveled or rounded as detailed on the Drawings or otherwise required.

5. Glazing Stops and Beads: Fixed steel stops, formed integral with door unless otherwise approved by the Commissioner, on the outside of exterior doors and on the secure side of interior doors. Removable steel beads, of tubular steel of gage indicated on the Drawings or solid bar stock, on the other side of doors secured with machine screws. Form corners with butted hairline joints. Coordinate width of rabbet between fixed stop and removable bead and depth of rabbet with type of glass and glazing required.
6. Astragals: Steel, spot-welded to inactive door for exterior doors, as indicated on the Drawings.

## 2.6 FRAMES

### A. General

1. Provide steel frames for doors, transoms, sidelites, borrowed lites, and other openings where shown, of size and profile as indicated on Drawings.
2. Construction: Full-welded unit construction, with corners mitered and continuously welded full depth and width of frame, unless otherwise indicated. Knock-down type frames will not be accepted.

    a. Fixed Stops: Integral 5/8" stop unless otherwise indicated. Construct jambs and heads from one piece of metal each; rabbeted and flanged as required for the various types of openings, and neatly mitered or interlocked and welded together. Provide channel, angle and bent plate reinforcing as indicated on approved Shop Drawings or otherwise required. Provide reinforcing in the heads of frames where shown or required.
3. Frame Material
    a. Exterior Frames: 12-gage Galvannealed steel sheet unless indicated otherwise on Drawings.
    b. Interior Frames: 14-gage Galvannealed steel sheet unless indicated otherwise on Drawings.
4. Provide frames for masonry openings with adjustable Underwriter's type masonry anchors to suit conditions of installation, using not less than three (3) at each jamb, in addition to floor anchors.
5. Provide frames with calking stops, filler pieces and trim where indicated on Drawings or required; integrally formed as part of the frame wherever possible. Applied calking stops, filler pieces, and other members as indicated, must be neatly attached by spot welding. All welds at galvannealed frames must be painted with zinc-rich primer.
6. Equip sound-proof frames with adjustable door stops and continuous rubber seals. Fill frames solidly with sound-deadening material.
7. At butts, cut back jamb the thickness of one leaf of butt.
8. Drill and tap reinforcement to template.
9. Spot weld 20-gage plaster guard to frame at latch cutouts, if applicable. Paint all welded areas with zinc-rich primer.

10. Provide reinforcement for hardware as indicated on Drawings and as required for proper hardware installation. Refer to Section 087100 - Door Hardware.
11. Provide frames for other openings as indicated on the Drawings.
12. Provide cutouts and reinforcing for security devices as required.

2.7 SHOP PAINTING

A. All doors must be delivered to the site with a full shop coat. Doors not fully shop coated must not be accepted.

B. Chemically wash, rinse, and dry exposed and concealed surfaces of fabricated units.

C. Apply one coat of rust-inhibiting primer to all exposed surfaces of un-galvannealed doors and frames. Use the same paint to touch up all welded areas of galvannealed doors and frames. Apply primer per the manufacturer's recommendations.

D. Units must pass the following tests:
1. Salt Spray Test complying with ASTM B117 for 120 continuous hours.
2. Water fog Test Complying with ASTM D1735 or ASTM D4585 for 240 continuous hours

PART 3 - EXECUTION

3.1 EXECUTION REQUIRMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 EXAMINATION

A. Verification of Conditions
1. Examine substrate and conditions, under which the frames are to be installed, for defects which will adversely affect the execution and quality of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.3 INSTALLATION

A. Install steel doors, frames, and accessories in accordance with the Drawing Details, approved Shop Drawings, and the manufacturer's printed instructions, except as otherwise indicated.

B. Frame Installations
1. Place frames accurately in position; plumb, align, and brace securely until permanent anchors are set. After wall construction is complete, remove temporary braces and spreader bars, leaving surfaces smooth and undamaged.
a. At in-place concrete and in-place masonry construction, place frames and secure in place with anchorage devices. Set

anchorage devices opposite each anchor location, in accordance with details on approved Shop Drawings and anchorage device manufacturer's instructions. Leave drilled holes rough, not reamed, and free from dust and debris.

1 Anchor frames as detailed on the Drawings.

b. Place fire rated frames in accordance with NFPA Standard No. 80.
c. Provide necessary field splices in frames as detailed on approved Shop
d. Drawings, welded and finished to match factory fabrication.
e. Extend jambs to structural floor slab and securely anchor in place.

C. Door Installation
1. Install doors accurately in their respective frames within the clearance specified in Part 2.

2. Place fire rated doors with clearances as specified in NFPA standard No. 80.

D. Drill and tap doors and frames to receive surface applied hardware.

E. Provide perimeter weather stripping and seal at exterior door openings to satisfy air infiltration requirements of .20 CFM/FT$^2$ of door opening as required per the 2020 NYCECC.

3.4 ADJUSTING

A. Prime Coat Touch-up
1. Immediately after installation, sand smooth and clean rusted and damaged areas of shop prime coat and apply touch-up of original primer.

B. Final Adjustments
1. Check and adjust operating finish hardware items prior to final inspection. Leave work in complete and proper operating condition.

3.5 CLEANING

A. Clean doors, frames, and accessories, leaving free of dirt and other foreign material after completion of installation.

END OF SECTION 08 13 13.13

# SECTION 08 31 00 - ACCESS DOORS AND PANELS

## 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. Provide all access doors and frames, and panels located in walls and in ceilings, complete with accessories, as indicated on the Drawings and as specified herein.

B. Related Sections:

| | | |
|---|---|---|
| 1. | Section 22 00 00 | Plumbing |
| 2. | Section 23 05 00 | Common Work Results for HVAC |

C. References:

   1. 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 must be deemed mandatory and applicable to the Work.

      a. 2022 New York City Building Code

### 1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures”.

### 1.4 SUBMITTALS

A. Product Data

1. For each type of door and frame indicated. Include catalogue cuts, construction details relative to materials, individual components and profiles, finishes, and fire ratings (if required) for access doors and frames.

B. Shop Drawings

1. Schedule: Provide complete door and frame schedule, including types, general locations, sizes, construction details, latching or locking provisions, and other data pertinent to installation. Indicate locations of fire rated doors on schedule.

C. Certification and listing by an Approved Agency in accordance with NYC Dept. of Buildings rules, indicating that the materials and assemblies as regulated by the NYC Building Code is acceptable for the intended use. When test methods are stipulated in the NYC Building Code, the tests utilized must be stated in the Certification. Prior MEA and BSA approvals are acceptable for materials conforming to current Code requirements.

1. Fire-rated access doors are regulated assemblies.

D. Keys

1. Furnish six (6) keys for all locks

1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

1.6 COORDINATION

A. Verification: Determine specific locations and sizes for access doors needed to gain access to concealed equipment and indicate on schedule specified in "Submittals" Article.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle access doors and frames as recommended by the Manufacturer, to protect from damage.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Access Doors and Panels Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Karp Associates, Inc.
2. Milcor, Inc.
3. Nystrom Building Products.
4. Or approved equal.

2.2 NON-FIRE RATED ACCESS DOORS

A. Frames

1. Gage: Minimum 16 gage steel.

2. Flange: Integral exposed flange not less than 3/4" wide around the perimeter.

3. Plaster Applications: Expanded metal lath and exposed casting bead welded to perimeter of frame, in place of integral exposed flange.

4. Acoustical Tile Applications: Frames without exposed flange.

a. Finish: Factory-applied rust inhibitive baked enamel primer over phosphate treated steel.

b. Anchorage: Predrilled holes in frame for anchoring with fasteners.

B. Flush Type Door Panel

1. Gage: Minimum 14 gage steel.

2. Hinges: Concealed spring type set to open to approximately 175°; sufficient number to support the door size, or continuous type hinge.

3. Finish: Factory-applied rust inhibitive baked enamel primer over phosphate treated steel.

C. Cam Locks (for doors located in ceilings)

1. Flush, screwdriver operated; sufficient number to hold door panel in flush, smooth plane when closed.

D. Cam Locks (for doors located in walls)

1. Flush screwdriver or key operated; sufficient number to hold door panel in flush, smooth plane when closed.

2. One lock on each door panel will be key operated, pin tumbler type. The remaining locks, if any, will be screwdriver operated type.

2.3 FIRE RATED ACCESS DOORS FOR WALLS

A. Frames

1. Minimum 16 gage steel, with integral exposed flange not less than 1" wide around the perimeter.

2. Anchorage: Predrilled holes in frame for anchoring with fasteners.

B. Flush Type Door Panel

1. Minimum 20 gage steel double wall construction with insulation, equipped with automatic closer and inside release mechanism.

a. Hinge: Continuous hinge set to open to approximately 175°.

b. Finish: Factory-applied baked enamel primer over phosphate treated steel.

C. Automatic Latches

1. Direct action Knurled knob or turn ring, or key operated; sufficient number to hold door panel in flush, smooth plane when closed.

a. One latch on each door panel will be key operated, pin tumbler type. The remaining latches, if any, will be knurled knob or turn ring operated type.

2.4 KEYING FOR NON-FIRE RATED ACCESS DOORS AND FIRE RATED ACCESS DOORS FOR WALLS

A. Key all locks and latches alike. Furnish six (6) keys total.

2.5 FIRE RATED ACCESS DOORS FOR CEILINGS

A. Frames

1. Minimum 16 gage steel, with integral flange 1" wide.

a. Anchorage: predrilled holes in frames for anchoring with fasteners.

B. Flush Type Door Panel

1. Minimum 20 gage steel double wall construction with insulation, equipped with automatic closer and inside release mechanism.

a. Hinge: Continuous, set to open approximately 175°.

b. Finish: Factory-applied baked enamel primer over phosphate-treated steel.

C. Automatic Latches

1. Direct action knurled knob or turn ring, of sufficient quantity to hold door panel in flush, smooth plane when closed.

a. One latch on each door panel will be key-operated, pin tumbler type.

b. Locking Device: Self-latching key operated cylinder lock. Furnish six (6) keys total.

2.6 FABRICATION AND MANUFACTURE

A. Manufacture access door assemblies as integral units complete with all parts and ready for installation. Fabricate units of continuous welded steel construction unless otherwise indicated or specified. Grind welds smooth and flush with adjacent surfaces. Attachment devices must be of size and type required to secure access doors to types of supports indicated on the Drawings.

1. Allowable Size Variations: Manufacturer's standard size units that vary slightly from the sizes indicated may be acceptable, subject to the approval of the Commissioner.

2.7 PAINT

A.! Shop Primers: Provide primers that comply with Division 9.

PART 3 - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 INSTALLATION

A. Install the access doors in accordance with the manufacturer's printed installation instructions, except as shown or specified otherwise.

B. Coordinate access door installation with installation of supporting construction.

C. Set units accurately in position and securely attach to support with face panel plumb or level in relation to adjoining finish surface.

3.3 ADJUSTMENT

A. Adjust hardware and doors for proper operation.

B. Remove and replace doors and frames that are warped, bowed, or otherwise damaged.

3.4 LOCATION

A. Provide non-fire rated access doors in non-fire rated construction and fire rated access doors in fire rated construction.

END OF SECTION – 08 31 00

# 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. Provide finish hardware, as specified herein and as needed for complete hardware requirements for the new exterior door at the new enclosure dot the roof stair.

B. References - 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 must be deemed mandatory and applicable to the Work.

   1. American National Standards Institute (ANSI).
   2. National Fire Protection Association (NFPA).
   3. Door and Hardware Institute (DHI).
   4. Underwriters Laboratories (UL).
   5. Builders' hardware Manufacturers Association (BHMA)
   6. International Organization for Standardization (ISO)

### 1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 "Submittal Procedures".

### 1.4 SUBMITTALS

A. Manufacturer's Technical Product Data: Submit for each hardware item type, including cuts, specifications and characteristics, instructions for installation, operation, and maintenance.

B. Furnish schedule of keys in quadruple indicating keyset symbol of each key and number of rooms, cases, lockers, and other locations for which the keys are intended. Submit schedule for approval before making keys.

C. Deliver to the City of New York the required number of keys for each lock, properly marked.

1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

1.6 SHIPPING, STORAGE, AND HANDLING

A. Package and ship hardware to prevent damage. Properly identify and tag each item. Sort, package and mark hardware with set numbers.

B. Inventory hardware immediately upon delivery.

C. Provide secure (locked) storage area for hardware until installed.

1.7 PROJECT CONDITIONS

A. Coordinate hardware with other work. Tag each item or package separately, with identification related to the final hardware schedule and include basic installation instructions in the package. Furnish hardware items of proper design for use on doors and frames of the thickness, profile, swing, security and similar requirements indicated and as necessary for proper installation and functions. Deliver packaged hardware items to the proper locations for installation.

B. Furnish hardware templates to each fabricator of doors, frames and other work to be factory prepared for the installation of hardware.

PART 2 - PRODUCTS

2.1 MATERIALS AND FABRICATION

A. General

1. Hardware: Heavy duty cast or forged (.080 min.) bronze with satin chromium finish BHMA 626, except as otherwise specified.
2. Interior Door Holders: Steel.
3. Door closers: As specified herein. Dark bronze finish.
4. Interior butts and horizontal releases: As hereinafter specified with chrome finish.
5. Surfaces of castings must be true, smooth and free from burrs. Lock mechanism and accessory components in contact with or bear upon other parts must be dressed to a true, smooth surface.
6. Items of cast iron must be annealed.

7. Whenever weight is specified, it must mean actual weight of casting without screws, washers and accessories.
8. Do not use products with manufacturer's name in an exposed location, except name on rim of lock cylinders.
9. Backset: 2-3/4" for locksets and latch sets unless indicated otherwise.

B. Screws

1. Secure hardware with suitable screws and bolts of same material and finish as hardware items unless otherwise specified. Screws for strike and face plates, hinges, transom hardware, half-mortise brass locks, pulls, coat and hat hooks, overhead door holders, and door checks and brackets for these items must be flat-headed counter- sunk screws. Screws for other exposed hardware must be oval- headed. Screws for butts for exterior aluminum doors must be stainless steel. Screws for other entrance door butts, closers, and holders must be machine screws. Screws must be countersunk unless expressly specified otherwise. Provide Phillips head screws unless otherwise indicated.
2. Hardware for metal frames and doors must be secured with suitable machine screws, mill screws and bolts.
3. Manufacturer of each hardware item must provide the fastenings required for the installation of that item.
4. Self-tapping or TEK screws are not permitted.

2.2 GENERAL HARDWARE REQUIREMENTS

A. Hardware Schedule is intended to guide Contractor in preparing the Schedule for Work of this Section. It must not relieve Contractor from the necessity of examining Specifications, Drawings and Details, and providing everything necessary to properly complete hardware installation.

B. Hardware used on hollow metal doors, transoms, sash or jambs, must be made to templates and packed with machine screws or other fastenings recommended by the manufacturer for the particular application scheduled.

C. Hardware items not described must be equal in grade, workmanship, and other particulars to similar items of hardware described.

2.3 FINISHES

A. All hardware finishes including the following must comply with requirements of ANSI/BHMA standards:

| | BHMA Code | Description | Base material | U.S. Standards equivalent |
|---|---|---|---|---|
| 1. | | | | |
| 2. | 605 | Bright Brass | Brass | US3 |
| 3. | 625 | Bright Chromium | Brass or Bronze | US26 |
| 4. | 626 | Satin Chromium | Brass/Bronze base | US26D |
| 5. | 629 | Bright Stainless Steel | Stainless steel | US32 |
| 6. | 630 | Satin Stainless Steel | Stainless steel | US32D |

B. In addition, the following finish symbols are used for door closers:

1. AL - Manufacturer's standard aluminum lacquer
2. BL - Manufacturer's standard brown, bronze or gold lacquer

2.4 HARDWARE REQUIREMENTS / MANUFACTURERS:

A. Requirements for Lock and Latch - Keyed deadlock with aluminum faceplate and five ply laminated steel bolt with 1-3/8” standard throw. Lock to accept standard 1-5/32 mortised cylinder.

B. Manufacturers for Lock and Latch: Subject to compliance with requirements, provide products by one of the following:

1. Adams Rite
2. Stanley
3. Kwikset
4. Or approved equal

C. Requirements for Door Closer - With parallel arm and proper drop plates and spacer. Closer must exceed ANSI A156.4 Grade 1 certified by an independent testing laboratory of 5,000,000 cycles without failure. Provide delayed-action type closer that permits door to close slowly. Closers must be preset at factory for approximately 15 seconds, and able to be adjusted on job for up to one minute. Sweep period of closer must be adjusted so that from an open position of 70º, door will take at least 3 seconds to move to a point 3" from latch to leading edge of door.

D. Manufacturers for Door Closer: Subject to compliance with requirements, provide products by one of the following:

1. Corbin Russwin
2. Yale
3. Sargent
4. Or approved equal

E. Requirements for Hinges - Continuous Aluminum Geared Hinge. Hinge extending full length of door meeting with frame. Fasteners staggered approx. 6” on center. #40 Dark Bronze finish.

F. Manufacturers for Hinges: Subject to compliance with requirements, provide products by one of the following:

1. S&S Hinge
2. HA Gunden
3. Marlboro Hinge
4. Or approved equal

G. Manufacturers for Threshold: Subject to compliance with requirements, provide products by one of the following:

1. Pemko
2. Randall Manufacturing
3. Quanex
4. Or approved equal

PART 3 - EXECUTION

3.1 EXECUTION REQUIRMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 INSTALLATION

A. Provide complete installation of finish hardware items as indicated on Drawings and as specified herein.

B. Mount hardware as recommended by respective manufacturer.

C. Mount door (room) hardware items at heights and locations on doors and frames in accordance with "Recommended Locations for Builders Hardware for Standard Steel Doors and Frames" by Door and Hardware Institute, except where specifically indicated otherwise.

D. Set hardware items plumb and level and secure with proper fasteners.

3.3 APPLYING HARDWARE

A. Hardware specified in this Section must be fitted, installed and adjusted.

B. Use screws and/or bolts furnished by the manufacturer of the hardware item and install in accordance with the manufacturer's instructions and templates and as required. Install full complement of screws and/or bolts.

C. Self-tapping or TEK screws are not permitted except when used for continuous hinges.

D. At completion of Project, leave hardware in perfect condition, free from stains, varnish, scratches and mars.

E. No surface hardware, except butts and pivots, must be installed before final coat of paint or varnish has been applied.

3.4 CLEANING AND ADJUSTING

A. Clean hardware items thoroughly and adjust for proper operation.

END OF SECTION – 08 71 00

# SECTION 08 91 00 - LOUVERS

## 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. Work of this Section includes all labor, materials, equipment, and services necessary to complete the louvers as shown on the drawings and/or specified herein, including, but not necessarily limited to, the following:

a. Two (2) aluminum louvers at the elevator bulkhead with dimensions as per attached drawings including bird screens.

B. Related Sections

1. Section 02 41 19 Selective Demolition
2. Section 04 01 20.51 Unit Masonry Maintenance
3. Section 07 56 00 Fluid Applied Roofing
4. Section 07 64 13 Standing Seam Sheet Metal Wall Cladding
5. Section 07 92 00 Joint Sealants

### 1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures”.

### 1.4 SUBMITTALS

A. Product Data: Submit manufacturer's specifications, certified test data, where applicable, and installation instructions for required products, including finishes.

B. Shop Drawings: Submit shop drawings for fabrication and erection of louver units and accessories. Include plans, elevations and details of sections and connections to adjoining work. Indicate materials, finishes, fasteners, joinery and other information to determine compliance with specified requirements.

C. Samples: Submit six (6) inch square samples of each required finish. Prepare samples on metal of same gauge and alloy to be used in work. Where normal color and texture variations are to be expected, include two (2) or more units in each sample showing limits of such variations.

1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

1.6 PRODUCT HANDLING

A. Protection: Use all means necessary to protect the materials of this Section before, during and after installation and to protect the installed work and materials of all other trades.

B. Replacements: In the event of damage, immediately make all necessary repairs and/or replacements to restore items to original condition.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Structural Performance: Provide exterior metal louvers capable of withstanding the effects of loads and stresses from wind and snow and normal thermal movement without evidencing permanent deformation of louver components including blades, frames, and supports; noise or metal fatigue caused by louver blade rattle or flutter or permanent damage to fasteners and anchors.

1. Wind Load: Uniform pressure (velocity pressure) of per Building Code.

B. Thermal Movements: Provide louvers that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, and other detrimental effects.

1. Temperature Change (Range): 120 deg. F., ambient; 180 deg. F, material surfaces.

C. Comply with SMACNA "Architectural Sheet Metal Manual" recommendations for fabrication, construction details and installation procedures, except as otherwise indicated.

D. Field Measurements: Verify size, location and placement of louver units prior to fabrication.

E. Shop Assembly: Coordinate field measurements and shop drawings with fabrication and shop assembly to minimize field adjustments, splicing, mechanical joints and field assembly of units. Preassemble units in shop to greatest extent possible and disassemble as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.

1. Louvers must be tested and certified in accordance with AMCA 500-L.

2.2 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Architectural Louvers
2. Airolite
3. Greenheck
4. Or approved equal

2.3 LOUVER MATERIAL

A. Provide nominal 2” deep storm resistant fixed horizontal louver (no visible mullions).

B. Material: Heads, sills, jambs and mullions to be one-piece structural aluminum members. Louver consists of a 9” deep system. Louver to consist of a Horizontal front blade and a vertical rear blade in a drainable frame. Louvers to be supplied with 6” (152.4mm) high by full depth sill flashings formed from minimum 0.050” (1.27mm) thick aluminum. Sill flashings to have welded side panels. Louvers and sill flashings to be installed in accordance with the manufacturer’s recommended procedures to ensure complete water integrity performance of the louver system.

1. Material minimum thickness to be as follows:

a. Heads:0.078”
b. Sills, jambs and mullions: 0.080"
c. Front Fixed blades: 0.060"
d. Rear Fixed Blades: 0.068”

C. Bird Screens

1. All louvers to be furnished with bird screens, finish to match louvers.

2. Screens to be 3/4" by 0.050" thick expanded and flattened aluminum mesh secured with 0.055" thick extruded aluminum frames. Frames to have mitered corners and corner locks.

D. Fastenings: Fasteners for exterior application must be stainless steel. Provide types, gauges and lengths to suit unit installation conditions. Use Phillips flat head machine screws for exposed fasteners, unless otherwise indicated.

E. Anchors and Inserts: Use non-ferrous metal or hot dip galvanized anchors and inserts for exterior installations and elsewhere as required for corrosion resistance. Use steel or lead expansion bolt devices for drilled in place anchors. Furnish inserts, as required, to be set into concrete or masonry work.

F. Bituminous Paint: cold applied asphalt mastic coating for steel.

2.4 FABRICATION, GENERAL

A. Fabricate frames including integral sills to suit adjacent construction with tolerances for installation, including application of sealants in joints between louvers and adjoining work.

B. Include supports, anchorages, and accessories required for complete assembly.

C. Provide sill extensions made of same material as louvers, where indicated, or required for drainage to exterior and to prevent water penetrating to interior.

D. Join frame members to one another and to stationary louver blades by welding or mechanical fasteners as is standard for manufacturer, except where indicated otherwise or where field bolted connections between frame members are necessary by size of louvers. Maintain equal blade spacing, including separation between blades and frames at head and sill, to produce uniform appearance.

2.5 FINISH

A. High-Performance Organic Finish: AA-C12C42R1x (Chemical Finish: Cleaned with inhibited chemicals; Chemical Finish: Acid-chromate-fluoride-phosphate conversion coating; Organic Coating: As specified below). Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturer’s written instructions.

1. Fluoropolymer Two-Coat System: Manufacturer’s standard two-coat, thermos-cured system consisting of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight; complying with AAMA 2605.

2. Custom color and gloss as selected by the Commissioner.

B. Superior-Performance Organic FEVE Fluoropolymer Powder Finish: Single-coat Fluoropolymer Powder finish complying with AAMA 2605 and containing 100 percent fluorinated ethylene vinyl ether (FEVE) resin. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

1. Custom color and gloss as selected by the Commissioner; refer to paint colors as indicated on the drawings.

PART 3 - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 INSPECTION

A. Examine the areas and conditions where louvers are to be installed and correct any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions are corrected to permit proper installation of the work.

3.3 PREPARATION

A. Coordinate setting drawings, diagrams, templates, instructions and directions for the installation of anchorages which are to be embedded in masonry construction. Coordinate the delivery of such items to the project site.

3.4 INSTALLATION

A. Comply with manufacturer's instructions and recommendations for installation of the work.

B. Verify dimensions of supporting structure at the site by accurate field measurements so that the work will be accurately designated, fabricated and fitted to the structure.

C. Anchor louvers to the building substructure.

D. Erection Tolerances:

1. Maximum variation from plane or location shown on the approved shop drawings: 1/8" per 12 feet of length, but not exceeding 1/2" in any total building length or portion thereof (non-cumulative).

2. Maximum offset from true alignment between two members abutting end to end, edge to edge in line or separated by less than 3": 1/16" (shop or field joints). This limiting condition must prevail under both load and no-load conditions.

E. Cut and trim component parts during erection only with the approval of the manufacturer/fabricator, and in accordance with their recommendations. Restore finish completely. Remove and replace members where cutting and trimming has impaired the strength or appearance of the assembly.

F. Do not erect warped, bowed, deformed or otherwise damaged or defaced members. Remove and replace any members damaged in the erection process as directed.

G. Set units level, plumb and true to line, with uniform joints.

3.5 PROTECTION

A. Protect installed materials to prevent damage by other trades. Use materials that may be easily removed without leaving residue or permanent stains.

3.6 ADJUSTING AND CLEANING

A. Immediately clean exposed surfaces of the louvers to remove fingerprints and dirt accumulation during the installation process. Do not let soiling remain until the final cleaning.

B. Before final inspection, clean exposed surfaces with water and a mild soap or detergent not harmful to the material finishes. Thoroughly rinse surfaces and dry.

C. Restore louvers and accessory components damaged during installation and construction so no evidence remains of corrective wok. If results of restoration are unsuccessful, as determined by the Commissioner, remove damaged materials and replace with new materials.

1. Touch up minor abrasions in finishes with a compatible air-dried coating that matches the color and gloss of the factory applied coating.

END OF SECTION – 08 91 00

# SECTION 09 01 90 - MAINTENANCE OF PAINTING AND COATING

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS:

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract [City of New York Standard Construction Contract].

### 1.2 SUMMARY

A. Section includes surface preparation and field coating of the following:
   1. At existing exterior metal roof items including but not limited to:
      a. All metal components on the main roof
      b. All miscellaneous pipes and/or conduits
      c. Metal grates at Ventilation Wells at Main Roof
      d. Railings, catwalks, ladders at Cooling Tower Courtyard
      e. "I" steel beams above Cooling Tower Courtyard
      f. 15 doors/gates w/frames at all setback roofs

B. Related Sections:

   1.! Section 05 50 00 Metal Fabrications

C. References:
   1. 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 must be deemed mandatory and applicable to the Work.
      a. Federal Specifications (FS)
      b. American Society of Testing and Materials (ASTM)
      c. N.Y.S. Department of Environmental Conservation
      d. U.S. Department of Labor
      e. Occupational Safety and Health Administration (OSHA)
      f. Steel Structures Painting Council (SSPC)
      g. Department of Defense (DOD)

D. Definitions
   1. The term "Coating" as used in this Section, means the application of all coatings such as paint, primer, enamel, varnish, shellac, oil, etc. as listed in the Painting Schedules.
   2. The term "Coating" also includes preparation of surfaces for such applications, and the clean-up as hereinafter specified.
   3. Touching-up bare spots specified for previously primed or coated surfaces is in addition to the coats specified for the coat system.

4. Finishes:
   a. Flat refers to a lusterless or matte finish with a gloss range below 15 when measured at an 85-degree meter.
   b. Satin refers to low-sheen finish with a gloss range between 15 and 35 when measured at a 60-degree meter.
   c. Semigloss refers to medium-sheen finish with a gloss range between 30 and 65 when measured at a 60-degree meter.
   d. Full gloss refers to high-sheen finish with a gloss range more than 65 when measured at a 60-degree meter.
5. The term “exposed” refers to any item which is not concealed.
   a. The term “exposed to public view” means situated so that it can be seen from eye level from a public location. A public location is that which is accessible to persons not responsible for operation or service of the building.

1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions 01 33 00 “Submittal Procedures”.

1.4 SUBMITTALS

A. Product Data
   1. Provide manufacturers' product literature for all materials specified and material manufacturer's printed directions and recommendations for environmental conditions, surface preparation, priming, mixing, reduction, spreading rate, application, storage and VOC content, as applicable for each of the materials specified.

B. Samples
   1. Initial Selection - Submit manufacturer's color charts for each type of finish for approval by the Commissioner. Verify colors specified with manufacturers' color charts for availability and notify the Commissioner of any discrepancies that occur.
   2. Verification prior to installation
      a. Contractor must furnish color chips for surfaces to be coated.
      b. Submit two samples of each color and finish selected on 12" x 12" hardboard.
      c. Two samples of finish on metal surfaces.
   3. All samples must be labeled; and include the following information:
      a. Manufacturer's name
      b. Type of coat/stain/hardener
      c. Manufacturer's stock number
      d. Color: name and number
      e. Federal Specification number, as specified
      f. VOC content

C. Certificates
   1. Certification that materials for each system are obtained from a single manufacturer.
   2. Certification that material meets or exceeds the performance requirements of Federal Specifications.

3. Certification that materials comply with N.Y.C. and N.Y.S. regulations for Volatile Organic Compounds.

1.5 QUALITY ASSURANCE

A. Refer to General Conditions Section 01 40 00 “Quality Requirements”.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Delivery
1. Deliver materials to the site in original, unopened containers bearing manufacturers name and label containing the following information:
2. Product name or title of material
3. Manufacturer's stock number, batch number, VOC content in grams per liter and date of manufacture.
4. Manufacturer's name
5. Federal Specification number, if applicable.
6. Contents by volume for major pigment and vehicle constitutions
7. Thinning instructions
8. Application instructions
9. Color name and number

B. Storage
1. The Commissioner will designate space on premises for storage of materials. Contractor must restrict storage in this area to coat materials and related equipment, and provide the following:
a. Provide one (1) approved chemical dry fire extinguisher equal to 20 lb. $CO_2$ rating in all assigned rooms or locations where coating materials are stored. Fire extinguisher must bear the label of the National Board of Fire Underwriters and tag of most recent inspection.

b. Provide three (3) standard size red fire pails with clean sand in above locations. At the completion of project, fire extinguishers and pails must become property of Contractor.
2. Maintain storage area in clean condition, store materials not in use in tightly covered containers. Remove oily rags, waste and empty containers from site each night.
3. Protect all materials from freezing.

1.7 PROJECT CONDITIONS

A. Environmental Requirements
1. Comply with manufacturer's recommendations as to environmental conditions under which coatings and coating systems can be applied.
2. Do not apply finish in areas where dust is being generated or will be generated while the material is drying.
3. Paint and coating products must comply with applicable environmental regulations, VOC requirements and 2022 NYC BC.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. For Finish - Alkyd high gloss industrial enamel to provide hiding finish and protection for metal surfaces in mild to moderately severe exposures. Not for use on surfaces that are continually wet or sweat frequently. Surface must be prepared and coated with a steel primer as specified herein.
   1. Volume solids: 49.0 ± 2.0% †
   2. Recommended DFT: 1.5 to 3.5 mils (40 to 90 microns) per coat. Two coats min. are required
   3. Volatile organic compounds:
      un-thinned: 3.21 lbs/gallon (384 grams/liter)
      thinned 8%: 3.45 lbs/gallon (413 grams/liter)
   4. Temperature resistance (dry):
      continuous 200°f (93°c)
      Intermittent 250°f (121°c)

2.2 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products of one of the following manufacturers:

   1. Benjamin Moore and Co.
   2. The Sherwin-Williams Co.
   3. Tnemec Company, Inc.
   4. Or approved equal.

2.3 MATERIALS

A. Provide products which meet all N.Y.S. Part 205-VOC requirements for applications outlined herein and comply with low V.O.C. requirements as per the 2022 NYC BC.

B. Provide products which meet all Federal regulations containing less than 0.06% lead in non-volatile ingredients.

C. Provide best quality grade of various types of coatings as regularly manufactured by the coat materials manufacturers. Materials not displaying manufacturers' identification as a standard, best-grade product will not be acceptable.

D. Use only thinners approved by coat manufacturers for applications intended and use only within recommended limits.

2.4 REFERENCE STANDARDS

A. Coat materials must meet or exceed the requirements of the following standards: Federal Specifications
   1. Primers
      a. Metal Primer Aluminum or Steel surfaces:

FS TT-P-57B

b. Alkyd Primer (Corrosion Inhibiting) Lead-Free and Chromate Free, VOC Complying — FS TT-P664C

2. Finish Coats
   a. Exterior Alkyd Modified Paint; Gloss; FS TT-P-102E, Type II and Type III
   b. Ext. Acrylic Latex Coat; Flat: FS TT-P-19
      Smokestack Black Coat: FS TT-E-496
3. Miscellaneous Materials:
   a. Mineral Spirits (Petroleum Coat Thinner): FS TT-T-291

B. Miscellaneous Standards and Requirements
1. Cleaning Solvents: Low toxicity; flash point in excess of 100°F.
2. Spackling Compound: ASTM C475.

2.5 COLORS

A. Selection
1. Coat colors, surface treatments and finishes must match the existing color.

2.6 EXTERIOR COAT SYSTEMS

A. For existing steel members exposed to view or the elements.
1. Epoxy Coat System:
   a. 1st Coat (Primer) Polyamide Epoxy
      Applied at rate of 2.0 to 4.0 Mils DFT. SSPC – SP3
   b. 2nd Coat - Polyamide Epoxy
      Applied at the rate of 4.0 to 6.0 Mils DFT. SSPC-S. Guide 13.01

   c. 3rd Coat (Top Coat) - Acrylic Aliphatic Polyurethane
      Applied at rate of 1.5 to 2.0 Mils DFT. SSPC-PS. Guide 17.00. Type 5.

B. For factory coated items, Manufacturer/Fabricator must provide touch-up coat in sufficient amount for Project. Applied at the rate of 5.0 Mils DFT.

2.7 MISCELLANEOUS RELATED PRODUCTS

A. Cleaning Solvents: Generic.

B. Polyester Filler: Polyester resin base autobody filler standard weight or finishing grade required by conditions.

PART 3 - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 GENERAL NOTES

A. Surface preparation, priming and finish coats specified in this Section are in addition to shop priming and surface treatment specified in other Sections.

B. Apply new coating to exposed surfaces, except where the coating schedules indicate that a surface or material is not to be coated or is to remain natural. If the coating schedules do not specifically mention an item or a surface, apply new coating to the item or surface as directed by the Commissioner. If the schedules do not indicate color or finish, the Commissioner will select from standard colors and finishes available.

C. Coating includes field coating of exposed bare and covered pipes and ducts (including color coding), hangers, exposed steel and iron work, and primed metal surfaces of mechanical and electrical equipment.

D. Do not apply new coating to prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels.

3.3 EXAMINATION

A. Verification of Conditions

l. The application of painter's finish to any surface must be taken to indicate that the Contractor considers such surfaces suitable for a first-class finish.

2. Do not apply painter's finish in any locations until the Work of other trades that might damage the new finish is completed.

3. Notify the Commissioner in writing regarding Work by other trades that does not provide a suitable surface for the new finish.

4. In case of dispute regarding the suitability of any surface, the Commissioner’s decision must be final and conclusive upon all concerned.

5. Contractor must check the compatibility of previously coated surface with the new coating by applying a test panel 4-foot-wide x wall height. Allow test panel to dry thoroughly; verify proper adhesion before proceeding with coating Work.

3.4 PREPARATION AND APPLICATION - EXISTING BUILDING

A. Protection

1. In cases where the coating of surfaces involves removal or disturbance of existing coat the following protection requirements must apply:

a. All objects near or adjacent to the surface(s) to be coated must be moved a minimum of three feet away from that surface(s). Any immovable object**,** and the floor, within the three foot "work area"

must be covered with one layer of 6-mil polyethylene, sealed on all edges to prevent the penetration of dust and debris. If the ceiling is to be coated, all objects in the room and the floor of the room must be covered in this manner.

b. All objects bordering the three-foot work area must be completely covered with clean cloths, heavy building paper or clean plastic covering.

c. If, during the removal of existing coat, the Contractor notices coat chips or other debris related to the ongoing work on objects beyond the border of the three-foot work area, these objects must be cleaned by HEPA vacuuming and wet-wiping and then covered as described in (b) above.

d. For exterior metal surfaces on the building or site the ground beneath the work area must be surrounded on all sides by a washable construction tarp or 10-mil polyethylene. The covering need not be airtight; however, it must be of adequate size and durability to completely enclose the work area and prevent the dispersal of any coat chips or dust during coat removal activities. Any dust and debris must be contained in the work area and must be removed immediately upon generation. Protect from damage landscaping, paving, and other improvements near the building. Protect and seal all windows and openings within the work area with a minimum of 1 layer of 6-mil polyethylene sheeting.

e. The protection must remain in place during all coat removal activities.

f. All protection is to be carefully removed, cleaned or discarded after coating is complete.

B. Surface Preparation

1. Gently wet mist the surface to be scraped with water, then remove all loose coat with scraper and putty knife.
2. Sand existing surfaces to dull sheen and gloss. Before sanding, wet mist the area to be sanded. (Power sanding without a HEPA-filtered vacuum recovery system is not allowed).
3. Remove dust by washing with water, using damp sponge or cloth.
4. After washing, spot prime grease and water stains; magic markers marks, crayon marks, lipstick marks, etc.; with a quick-drying alcohol base primer sealer to prevent bleeding.
5. Fill all cracks and holes with appropriate filler material, wet mist and sand flush with adjacent surfaces and spot prime. (Power sanding without a HEPA-filtered vacuum recovery system is not allowed).
6. Existing coat that was not removed with scraper and which appears to be sound must receive spackling compound around perimeter high spots and feathered out so that surface is smooth.
   Repair and restore any gouges created by the scraping process and other imperfections in the existing surface with spackling compound to provide a smooth, even finished surface.
7. Apply number of finish coats specified herein or as many as may be necessary to obtain the proper finish and completely cover the substrate.

C. Touch-Up

1. Spot prime defects in existing Work and Work primed under other Paragraphs of Work as necessary to produce an even plane in the new finish.
2. All worn, scaled, blistered, crackled and discolored places in the existing stained and varnished work specified to be varnished must be wet-misted prior to being scraped or sanded, then filled and touched up with stain as required to equalize the color. (Power sanding without a HEPA-filtered vacuum recovery system is not allowed).
3. Touch-up and equalize the color of new woodwork specified to be stained and varnished where damaged due to job fitting and trimming.
4. Touch-up all pitch streaks and knots in woodwork with shellac.
5. Existing Metal:
   a. Prepare surfaces as indicated in 1., 2., 3., 4., above.
   b. Machine tool clean exposed steel to an SSPC-SP3 surface preparation.
   c. For steel surfaces exposed to view, scrape and remove defects in surfaces or provide new surface, to provide for an even plane in the new finish. Use auto-body filler to even out surface and sand smooth.

## 3.5 APPLICATION

A. General

1. No Work must be performed where cement or plaster is being applied or is in the process of drying.
2. No Work must be performed in spaces that are not broom clean and free of dust and waste.
3. Apply new coating to materials to produce smooth finished surfaces, free of brush or roller marks, drops, runs, or sags.
4. Coating materials must be kept at a proper and uniform consistency.
5. Thin only when necessary to achieve best results.
6. Thinners must be material recommended by manufacturer of coats, and in quantity as recommended.
7. Excessive use of thinner as indicated by variation in absorption, lack of "hide", thickness of dry film, mottled or streaky coat, must be cause for rejection. Correct as directed.
8. Thinning of varnish or aluminum coating prohibited.
9. Apply all coats with brush or roller, varying slightly the color of succeeding coats. Spraying will not be permitted.
   a. If recommended by manufacturer, 100% acrylic resin concrete block filler may be spray applied and must be back rolled as necessary to work material into substrate surface.
10. Brush out or roll on first or prime coat; work well into surface.
11. Each coat must be inspected, approved and dry before proceeding with additional coats.
12. Allow at least 48 hrs. for enamels and exterior oil coat to dry.
13. The surfaces of interior woods and metals must be sanded or rubbed between coats to assure smooth finish and proper adhesion of subsequent coats.
14. Avoid lapping of coat on glass, hardware, or other adjoining surfaces.

15. Apply no coat to operating units where sliding contact of metals is necessary for proper functioning of unit.
16. Coating is not required on walls or ceilings in concealed and inaccessible areas.
17. Moving parts of operating units will not require finish coating unless otherwise required.
18. Do not apply new coating over any code-required labels, such as Underwriter's Laboratories and Factory Mutual, or any equipment identification, performance rating, name or nomenclature plate.
19. Finish doors on tops, bottoms and side edges same as exterior faces.

## 3.6 FIELD QUALITY CONTROL

A. The City of New York reserves the right to require the following material testing procedures at any time, and any number of times during period of field coating:
   1. Measurement of dry film thickness (DFT) by use of a dry film thickness gauge in accordance with use and calibration requirements of Structural Steel Painting Council [SSPC], "Method of Measurement of Dry Paint Thickness with Magnetic Gauges".
   2. Engage services of an independent testing laboratory, recommended by the City of New York, to sample coat being used. Samples of materials delivered to construction site will be taken, identified and sealed, and certified in presence of Contractor.
      a. Testing laboratory will perform appropriate tests for any or all of the following characteristics: Abrasion resistance, apparent reflectivity, flexibility, washability, absorption, accelerated weathering, dry opacity, accelerated yellowness, recoating, skinning, color retention, alkali resistance and quantitative materials analysis.
      b. If test results show that material being used does not comply with specified requirements, Contractor must be directed to stop coating Work, and remove non-complying coat; re-coat surfaces coated with rejected coat; remove rejected coat from previously coated surfaces if, upon re-coating with specified coat, the two coatings are non-compatible.
         1) If the samples do not comply with requirements of the Specifications, costs of testing and remediation of rejected work must be borne by Contractor.

## 3.7 CLEANING

A. General
   1. Contractor must clean-up behind each coat crew such that coating and clean-up will be a continuous uninterrupted operation. The practice of one general clean-up after completion of all coating will be strictly prohibited. This clean-up will include, but not be limited to the following:
      a. Remove spots or defacement resulting from Work of this Section.
      b. Retouch all damaged surfaces, or replace with new, if necessary, to leave work in perfect finished condition.
      c. If spots or defacement cannot be satisfactorily removed and retouched, re-finish the surfaces as directed.

d. Within the three-foot work area created for removal and coating all objects and surfaces must be thoroughly HEPA vacuum, wet-cleaned and HEPA vacuumed again. In rooms where the ceiling has been coating all surfaces and objects in the room must be cleaned in this manner.

e. The contractor must ensure that the objects and surfaces under protective covering are free of any dust or debris created during coating activities. If necessary, these objects and surfaces must be wet cleaned and HEPA vacuumed.

f. The contractor must conduct any cleaning deemed necessary by the Commissioner.

h. Free all operating units of coating materials and leave them clean and in proper working order.

i. Remove from premises all surplus coat materials, debris and any other rubbish resulting from the Work.

j. Leave storage space clean and in condition required for equivalent spaces in project.

3.8 PROTECTION

A. Provide caution tape and/or locked entryways during coat removal activities in existing buildings to prevent access to the work area from unauthorized personnel.

B. Provide "Wet Paint" signs to protect newly-coated finishes. Remove temporary protective wrappings provided by other trades for protection of their Work after completion of coated operations.

C. At the completion of Work of other trades, touch-up and restore all damaged or defaced surfaces, or remove existing and install new, if necessary, as directed by the Commissioner.

END OF SECTION - 09 01 90

# SECTION 09 21 16 - GYPSUM BOARD ASSEMBLIES

## 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: Provide all materials, labor and equipment to properly execute the following gypsum assembly work:

1. Wall Type “A” - Insulated Exterior Wall: This work consists of erecting an insulated, exterior wall for the new roof stair enclosure with a 2-hr rated, vapor retarder, non-combustible gypsum assembly finished on one side as detailed on the attached drawings.

2. Ceiling Type “A” - Insulated Ceiling: This work consists of constructing an insulated ceiling for the new roof stair enclosure with a 2-hr rated, vapor retarder, non-combustible gypsum assembly finished on one side as detailed on the attached drawings.

B. Related Sections:

| | | |
|---|---|---|
| 1. | Section 05 41 00 | Structural Metal Stud Framing |
| 2. | Section 07 56 00 | Fluid-Applied Roofing |
| 3. | Section 07 64 13 | Standing Seam Sheet Metal Wall Cladding |
| 4. | Section 08 13 13.13 | Standard Hollow Metal Doors |
| 5. | Section 09 91 23 | Interior Painting |

C. References: 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 must be deemed mandatory and applicable to the work.

1. American Society for Testing and Materials (ASTM), latest editions.
   a. A641 Zinc-Coated (Galvanized) Carbon Steel Wire.
   b. A653 General Requirements for Steel Sheet, Zinc A653MCoated (Galvanized) by the Hot-Dip Process
   c. C11 Std. Terminology Related to Gypsum and Related Building Materials and Systems
   d. C473 Std. Test Methods for Physical Testing of Gypsum Panel Products

e. C475 Std. Specs for Joint Compound and Joint Tape for Finishing Gypsum Board
f. C645 Std. Specification for Nonstructural Steel Framing Members
g. C665 Mineral Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing
h. 754 Std. Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products
i. C834 Std. Specification for Latex Sealants
j. C840 Specification for Application and Finishing of Gypsum Board
k. C919 Std. Practice for Use of Sealants in Acoustical Applications
l. C1002 Std. Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood studs or Steel Studs
m. C1047 Std. Specification for accessories for Gypsum Wallboard and Gypsum Veneer Base
n. C1278 Std. Specification for Fiber-Reinforced Gypsum Panel
o. C1325 Std. Specs for Non-Asbestos Fiber Mat Reinforced Cementitious Backer Units
p. C1388 Std. Test Method for Determining Fungi Resistance of Insulation Materials and Facings
q. C1396 Std. Specification for Gypsum Board
r. D3273 Std. Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber
s. E84 Surface Burning Characteristics of Building Materials
t. E119 Fire Tests of Building Construction and Materials
u. G21 Std. Practice for determining Resistance of Synthetic Polymeric Materials to Fungi

2. Gypsum Association
   a. GA-600 - Fire Resistance Design Manual
   b. GA-214 - Levels of Finishes
   c. GA-216 - Recommended Specifications for the Application and Finishing of Gypsum Board
   d. GA-505 - Gypsum Board Products - Glossary of Terminology
3. Underwriters Laboratories Inc. (UL)
   a. Fire Resistance Directory
4. International Code Council, ICC-ES (Evaluation Service)
   a. AC86 - Acceptance Criteria for Cold-Formed Steel Framing Members – Interior Non-load-bearing Wall Assemblies.
5. American Iron and Steel Institute (AISI)
   a. AISI S905 – Test Methods for Mechanically Fastened Cold-Formed Steel Connections
   b. AISI Standard for Cold-Formed Steel Framing - General Provisions
   c. AISI NASPEC

1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures”.

1.4 SUBMITTALS

A. Product Data
1. Submit manufacturers’ product information, specifications, and installation instructions for the following products: mold and moisture resistant gypsum board, abuse and impact resistant gypsum board, tile backer board, joint compounds, acoustical sealants, insulation, deck flute closures, fasteners, trim, control joints, joint reinforcing, metal furring members, metal studs, tracks, runners, resilient clips, steel grounds, and all related accessories.

2. Submit limiting height tables for metal stud framing based on testing and engineering analysis in accordance with ICC-ES Acceptance Criteria AC86.

1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in original packages, containers or bundles bearing brand name and identification of manufacturer.

B. Store all materials inside, under cover, in a manner to keep them dry, protected from weather, direct sunlight, surface contamination, corrosion and disturbance from construction traffic and other causes. Neatly stack gypsum boards to prevent sagging. Do not store at temperature exceeding 125°F.

C. Handle gypsum boards to prevent disturbing the edges, ends or surfaces. Protect metal framing members, corner beads, and trim from being bent or disturbed.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. 5/8 in., glass-mat Type X panels with abuse, moisture and mold resistance. Noncombustible, moisture-resistant gypsum core encased in a fiberglass face and back that shed water. Comply with ASTM C1658, Standard Specification for Glass Mat Gypsum Panels, for 5/8 in., Type X and glass-mat water-resistant gypsum panel. Tested to ASTM C1629, Standard Classification for Abuse-Resistant Nondecorated Interior Gypsum Panel Products and Fiber-Reinforced Cement Panels, for surface abrasion and indentation resistance, and soft- and hard-body impact. Tested in accordance with ASTM D3273, Standard Test

Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber. Underwriters Laboratories Inc. (UL) Classification as to fire resistance, surface burning characteristics and non-combustibility. Qualifying as a low VOC emitting material.

| Property | | ASTM Test Method | Requirement | UL Type SCX |
|---|---|---|---|---|
| **Non-combustibility** | | E136 | Noncombustible | Meets |
| **Surface-burning characteristics** | Flame spread | E84 | Flame Spread Index, not greater than 25[2] | 15 |
| | Smoke developed | E84 | — | 0 |
| | Class A | E84 | Flame spread not greater than 25 and smoke developed not greater than 450 | Meets |
| **Core hardness** | Field | C473 (B) | Not less than 11 lbf (49 N)[2] | Meets |
| | End | C473 (B) | Not less than 11 lbf (49 N)[2] | Meets |
| | Edge | C473 (B) | Not less than 11 lbf (49 N)[2] | Meets |
| **Flexural strength** | Parallel | C473 (B) | Not less than 46 lbf (205 N)[2] | Meets |
| | Perpendicular | C473 (B) | Not less than 147 lbf (654 N)[2] | Meets |
| **Humidified deflection** | | C473 | Not greater than 5/8 in. (15.9 mm)[2] | Meets |
| **Nail pull resistance** | | C473 (B) | Not less than 87 lbf (387 N)[2] | Meets |

Note:
2. Per ASTM C1396 for 5/8 in. (15.9 mm) gypsum wallboard.

2.2 GYPSUM BOARDS

A. Basis-of-Design Product: Subject to compliance with requirements, provide SHEETROCK Mold Tough Gypsum Panels by USG Corp. or comparable product by one of the following:

1. CertainTeed
2. Continental Building Products LLC.
3. Or approved equal.

2.3 STEEL FRAMING MANUFACTURERS

A. Basis-of-Design Product: Subject to compliance with requirements, provide Clark Dietrich; ProSTUD or comparable product by one of the following:

1. Studco Building Systems
2. Marino \ WARE
3. Or approved equal

2.4 STEEL FRAMING REQUIREMENTS

A. All materials must be supplied by a single manufacturer to ensure compatibility and performance. Products conforming to AISI Design Specifications and to ASTM A-653, ASTM A-924, ASTM C-645, ASTM A-446, ASTM A-525 and ASTM C-754
   1. Furring Steel Framing -
      a. Z-Furring Channel: 2", 25-gauge galvanized channels.
   2. All galvanized studs, joists, and accessories must have a minimum G-60 coating.
   3. Physical properties and allowable load capabilities of members must be developed in accordance with AISI "Specification for the Design of Cold-formed Steel Structural Members", latest edition (2016).

2.5 JOINT TREATMENT SYSTEMS

A. All required joint treatment systems as required by basis of design product manufacturer including; all-purpose powder compound, setting compounds, sandable, ready mix, lightweight, semi-lightweight, ready-mix topping and fire-halt.

2.6 TAPE

A. 2 1/16" wide, pre-creased special tape.

2.7 FASTENERS

A. Type, number and length as recommended by the manufacturer or approved equal.

2.8 TRIM ACCESSORIES

A. Corner reinforcement, corner bead, control joint as recommended by the manufacturer or approved equal.

2.9 NEOPRENE TAPE

A. Width equivalent to metal tracks and runners.

2.10 CORNER GUARDS

A. 3" x 3" x 3/8" type CGS (corner guard standard).

PART 3 - EXECUTION

3.1 EXECUTION PROCEDURES

A. Refer to DDC General Conditions for execution requirements.

3.2 ERECTING STEEL STUD FRAMING

A. Strictly follow manufacturer's printed recommendations for installation of steel studs and gypsum wallboard system.

B. Deliver all materials in original manufacturer's containers bearing original labels and store in appropriate location safe from moisture, temperature extremes and direct sunlight. Handle materials carefully to avoid damaging corners or edges.

C. Steel framing must be erected in accordance with ASTM C754 and in compliance with all recommendations of the manufacturer.

D. Accurately align continuous runners, sized to match studs, at the floor slab as well as at the structural slab above. Provide neoprene tape between runners and slabs, and secure runners at 24" on center when using nail or power-driven fasteners, or at 16" on center when using other means of attachment. Fasteners must be provided at the ends of runners as well as at all corners.

E. Provide a continuous bead of sealant between both faces of floor/ceiling runners and their respective slabs.

F. Steel studs must be at 24" o.c. typical spacing or as indicated on the drawing and securely fastened with self-tapping screws to runners. Strength of connections must meet or exceed anticipated design loads.

G. Forming the steel framing members may be accomplished with a saw or shear. Torch forming of load bearing members is not permitted. Disturbing of any load-bearing members is not permitted unless under supervision of the Commissioner.

H. Temporary bracing must be provided until work is permanently stabilized.

I. Holes that are field shaped into steel framing members must not exceed the limitations of the product or the design. Where holes are made through load-bearing members, provide reinforcement in accordance with manufacturer's recommendations and as approved by the Commissioner.

J. Install and finish gypsum board and accessories in accordance with recommendations of GA 216 and manufacturer's printed instructions.

3.3 ERECTION OF UN-INSULATED PERIMETER FURRING WALL

A. 2" z-furring channel and faced on one side with one layer of 5/8@ foil back, fire-resistant gypsum board.

B. Erecting Furring Framing -
1. Except at exterior corners, attach narrow flanges of furring channels to wall with concrete stub nails or power-driven fasteners spaced 24" o.c.
2. At exterior corners, attach wide flange of furring channel to wall with short flange extending beyond corner. On adjacent wall surface, screw-attach short flange of furring channel to web of attached channel.
3. Start from this furring with a standard width insulation panel and continue in regular manner.
4. Hold mineral-fiber insulation in place until gypsum boards are installed with 10" long staple field-fabricated from 18-ga. tie wire and inserted through slot channel.
5. Apply wood blocking around window and door openings and as required for attachment and support of fixtures and furnishings.

C. Application of Gypsum Boards-
1. Apply gypsum boards parallel to channels with vertical joints occurring over channels.
2. Use no end joints in single-layer application. Attach gypsum board with 1" Type S screw spaced 12" o.c. at exterior corners.
3. Attach layer with 1" screws 24" o.c.

D. Finishing -
1. Apply a non-hardening, flexible sealant continuous at all perimeter edges, abutments with dissimilar materials and penetrations in the facing layer.
2. Tape and finish all joints at face layers with tape and joint compounds and finish fasteners heads with joint compounds meeting ASTM 475.

END OF SECTION - 09 21 16

# SECTION 09 53 00 - ACOUSTICAL CEILING SUSPENSION ASSEMBLIES

## 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: Provide all materials, labor and equipment to properly execute acoustical ceiling Work as indicated on Drawings and as specified herein, including the following:

1. Acoustical Mineral Fiber Panel and Tile Ceilings
   a. Lay-in panel installation - exposed grid
   b. Metal grid

B. Related Sections:
1. Section 05 41 00 Structural Metal Stud Framing
2. Section 07 56 00 Fluid-Applied Roofing
3. Section 09 91 23 Interior Painting

C. References: 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 must be deemed mandatory and applicable to the Work.

1. ASTM International (ASTM), latest edition.
   a. C423 Test Method for Sound Absorption and Sound Absorption Coefficient by the Reverberation Room Method.
   b. C635 Metal Suspension System for Acoustical Tile and Lay-In Panel Ceilings.
   c. C636 Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels.
   d. D1779 Specification for Adhesion for Acoustical Materials
   e. E84 Surface Burning Characteristics of Building Materials.
   f. E90 Standard Test Method for Laboratory Sound Transmission Class
   g. E119 Method for Fire Tests of Building Construction and Materials.
   h. E413 Determination of Sound Transmission Class
   i. E1264 Standard Classification for Acoustical Ceiling Products.
   j. E1414 Standard Test Method for Airborne Sound Attenuation Between Rooms Sharing a common Ceiling Plenum (CAC)

k. E1477 Standard Test Method for Luminance Reflectance Factor (LR) LR1 >75%

2. AMA-1-II Ceiling Sound Transmission Test By Two-Room Method
3. Underwriters Laboratories Inc. (UL)
   a. Fire Resistance Directory
4. Acoustical and Insulation Materials Association, "Job Conditions".
5. New York City Building Code.
6. International Organization for Standardization (ISO)

1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures”.

1.4 SUBMITTALS

A. 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.

B. Shop Drawings

1. Submit shop drawing details for each space 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.

   a. Metal panel ceilings

      1) Submit large scale details indicating how ceiling mounted items such as lighting fixtures and HVAC diffusers are installed.

      2) Submit ceiling plans for coordination with mechanical trades. Indicate which panels are to be installed without retainer clips, to enable service and maintenance access.

C. Samples

1. Submit samples of the following materials, prior to installation;

   a. Acoustical panels: 6" x 6" 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 must have manufactured tegular profile: 12” x 24” sample.

   c. Metal Panel Ceiling units: Full size sample of each type and finish.

d. Exposed runners and moldings: 8" long samples of each color and system type required.

e. Concealed suspension members: 1 set of each assembly specified.

2. Forward each approved sample type to Mechanical Installer for purpose of matching diffusers.

D. Quality Assurance Submittals

1. Affidavit of certification of the installation company.

2. Certification and listing by an Approved Agency in accordance with NYC Dept. of Buildings rules, indicating that the materials and assemblies regulated by the NYC Building Code are acceptable for the intended use. When test methods are stipulated in the NYC Building Code, the tests utilized must be stated in the Certification. Prior MEA and BSA approvals are acceptable for materials conforming to current Code requirements.

1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

1.6 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 ceiling unit 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.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Material - Wet-formed mineral fiber with an acoustical transparent membrane.

B. Surface Finish - Scrim with factory-applied latex paint.

C. Fire Performance:
   1. Class A: ASTM E84 and CAN/ULC S102 surface burning characteristics. Flame Spread Index of 25 or less.

   2. Smoke Developed Index of 50 or less (UL labeled).

   3. ASTM E1264 Classification Type A, Form A2.2, Pattern E; Fire Class A.

D. Humidity/Sag Resistance - Ceiling panels are recommended for areas subject to high humidity, up to, but not including, standing water and outdoor applications.

E. Anti-Mold/Mildew - Ceiling tiles with a blocking bio agent to resist the growth of mold and mildew on the tile surface.

F. Acoustical Performance - CAC testing conducted using a suspension system.

G. High Recycled Content - Contains greater than 50% total recycled content. Total recycled content based on product composition of post-consumer and pre-consumer (post-industrial) recycled content per FTC guidelines. HRC items contain 15% or greater post-consumer recycled ceilings.

H. Insulation Value - R Factor – 2.2 (BTU units); R Factor – 0.39 (Watts units).

2.2 MANUFACTURERS / PRODUCTS

A. Acoustical Tile - Mineral Fiber Composition Panel (12”X12”) (24” x 48”): Subject to compliance with requirements, provide one of the following:

   1. USG Interiors Inc.; Radar Firecode
   2. Armstrong World Industries; Ultima HumiGuard Plus/1914
   3. CertainTeed Corporation; Symphony-m 104/90/1220BB-IOF-1
   4. Or approved equal

B. Indirect Metal Suspension Systems: Subject to compliance with requirements, provide one of the following:

   1. USG Interiors Inc.; Donn Brand, DX / DXL15”/16”
   2. Armstrong World Industries, Inc.; 360 Painted Grid System
   3. CertainTeed Corporation; 15”/16” EZ Stab Classic System
   4. Or approved equal

2.3 MATERIALS - ACOUSTICAL PANELS AND TILES

A. Mineral Fiber Panels and Tiles

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. 0.70 |
| CAC: | Min. 35 |
| Light Reflectance | Min. 0.85 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.

2.4 MATERIALS - METAL SUSPENSION SYSTEMS - INDIRECT HUNG

A. Exposed Grid Suspension System

1. Manufacturer's standard system, with design and finish as selected by the Commissioner.

1. Structural Classification: Heavy-duty system in accordance with ASTM C635.

2. Face width: 15/16".

3. Main runners: Connect to existing suspension system.

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 must be furnished by the panel manufacturer, or by a company recommended by the panel manufacturer, and finish must match panels. Main runners and cross runners must 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 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 must meet requirements of Article titled “Impaction Ceiling System Installation”.

8. For metal panel ceilings provide “butterfly” style removable retention clips to retain panels in place except at specific locations where maintenance access is required. Clips must be easily removable by twisting the “wings” of the clip.

2.5 MISCELLANEOUS MATERIALS

A. 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.

B. Panel/Tile Fasteners

1. Cadmium plated, type recommended by panel/tile manufacturer, but for not less than 1/2" penetration of substrate.

C. Drop Clips

1. 18-gage galvanized steel with keyhole slot, or other configuration approved by the New York City Dept. of Buildings for connection of ceiling suspension members to carrying channels.

2. Drop clips must 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 EXECUTION PROCEDURES

A. Refer to DDC General Conditions for execution requirements.

3.2 PROJECT CONDITIONS

A. Space Enclosure - 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 or ceiling installation.

3.3 EXAMINATION

A. 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 must be broom cleaned and uninterrupted for free movement of rolling scaffold. Do not proceed until satisfactory conditions prevail.

B. 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.

C. 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.

3.4 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 must 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.

3.5 INSTALLATION - GENERAL

A. Install materials in accordance with manufacturer's printed instructions and in compliance with ASTM C636, governing regulations, 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 centerline of corridors, panels, fixtures, beam haunches, rooms, spaces.

C. Cut as required for the following existing installations: plumbing piping, electric fixtures, air diffusers, grilles, sprinkler heads, security devices, access doors, etc..

D. On completion, the ceilings must present a uniform horizontal plane surface, unless otherwise indicated**,** free from blemishes and imperfections. Exposed grid cross runners must 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 panel 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 must 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.

3.6 IMPACTION CEILING SYSTEM INSTALLATION

A. Must absorb 30 g's of energy.

B. Must accept a force such as a basketball striking the ceiling plane with sufficient velocity to cause the panel to accelerate at a rate of 20" per second per second, without damage or dislocation of the panel or suspension system. The ceiling system must also be capable of accepting the decelerating force required to rebound the panel back into proper position on the grid, and without the panel breaking, cracking, or falling out as a result of this force or equivalent abuse.

C. All acoustical material must be accessible and removable for access into the plenum at any location.

D. Impaction Deceleration Clip ("keep clip") must be formed of spring steel to absorb impact, snapping panels back in place.

E. The exposed suspension components must ensure proper operation and rebound of the Impaction Deceleration Clip. The suspension components must be Underwriters Laboratories labeled for two-hour fire resistance rating.

F. Installation must be in full accordance with manufacturer's instructions, recommendations outlined in ASTM Specification C636, and the current Bulletin

of the Acoustical and Insulation Materials Association, consistent with U.L. requirements.

G. Impaction Deceleration Clip must be positioned and installed according to the manufacturer's instructions. These clips must provide access to the plenum at any location.

3.7 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 that cannot be successfully cleaned, 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 53 00

# 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:
   1. Surface preparation and field coating of the interior concrete repair work at the roof stairwell.
   2. Surface preparation and field coating of the interior side of the new, gypsum exterior wall at new roof stair enclosure.

B. Related Sections:
   1. Section 03 01 30 Maintenance of Cast-In-Place Concrete
   2. Section 09 21 16 Gypsum Board Assemblies

C. References:
   1. 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 must be deemed mandatory and applicable to the work.
      a. Federal Specifications (FS)
      b. American Society of Testing and Materials (ASTM)
      c. N.Y.S. Department of Environmental Conservation
      d. U.S. Department of Labor
      e. Occupational Safety and Health Administration (OSHA)
      f. Steel Structures Coating Council (SSPC)
      g. Department of Defense (DOD)

D. Definitions:
   1. The term "Coating" as used in this Section, means the application of all coatings such as coat, primer, enamel, varnish, shellac, oil, etc. as listed in the Coating Schedules.
   2. The term "Coating" also includes preparation of surfaces for such applications, and the clean-up as hereinafter specified.
   3. The term "Walls" means all surfaces from floor, or top of base, or top of wainscot, to ceiling or hung ceiling.
      a. Include pilasters, breaks, jambs, reveals, returns, arches.
      b. Include hardboards, pegboards.
      c. Include free standing columns, low partitions.
      d. Include masonry, plaster or gypsum board interiors of wardrobes or closets, cupboards and other enclosed spaces.

4. Touching-up bare spots specified for previously primed or coated surfaces is in addition to the coats specified for the coat system.
5. Finishes:
   a. Flat refers to a lusterless or matte finish with a gloss range below 15 when measured at an 85-degree meter.
   b. Satin refers to low-sheen finish with a gloss range between 15 and 35 when measured at a 60-degree meter.
6. The term “exposed” refers to any item which is not concealed.
   a. The term “exposed to public view” means situated so that it can be seen from eye level from a public location. A public location is that which is accessible to persons not responsible for operation or service of the building.

1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures”.

1.4 SUBMITTALS

A. Product Data
   1. Provide manufacturers' product literature for all materials specified and material manufacturer's printed directions and recommendations for environmental conditions, surface preparation, priming, mixing, reduction, spreading rate, application, storage and VOC content, as applicable for each of the materials specified.

B. Samples
   1. Initial Selection - Submit manufacturer's color charts for each type of finish for approval by the Commissioner. Verify colors specified with manufacturers' color charts for availability and notify the Commissioner of any discrepancies occurred.

1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Delivery - Deliver materials to the site in original, unopened containers bearing manufacturer’s name and label containing the following information:
   1. Product name or title of material
   2. Manufacturer's stock number, batch number, VOC content in grams per liter and date of manufacture.
   3. Manufacturer's name
   4. Federal Specification number, if applicable.
   5. Contents by volume for major pigment and vehicle constitutions
   6. Thinning instructions
   7. Application instructions
   8. Color name and number

B. Storage
   1. If approved, the Commissioner will designate a space on premises for storage of materials. Contractor must restrict storage in this area to coat materials and related equipment.
   2. Maintain storage area in clean condition, store materials not in use in tightly covered containers. Remove oily rags, waste and empty containers from site each night.
   3. Protect all materials from freezing.

1.7 PROJECT CONDITIONS

A. Environmental Requirements
   1. Comply with manufacturer's recommendations as to environmental conditions under which coatings and coating systems can be applied.
   2. Do not apply finish in areas where dust is being generated or will be generated while the material is drying.
   3. Provide coat and coating products to comply with applicable environmental regulations, VOC requirements and the NYC BC.
   4. In all areas, spaces and rooms being coated, the Contractor must ensure that there is adequate ventilation to ensure proper coat drying, along with minimizing coat odors.

PART 2 – PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. High-performance, single-component latex paint providing performance and protection to heavy high-traffic. Slight gloss, satin finish with high-quality appearance, longer life with minimal maintenance and repainting requirements.
   1. Patented scuff-resistance technology
   2. Block-resistant
   3. Low VOC

| | | |
|---|---|---|
| Vehicle | Proprietary Acrylic Copolymer | |
| Pigment | Titanium Dioxide | |
| Volume Solids | 40.7 ± 2% | |
| Spread Rate Per Gallon | 400 – 450 Sq. Ft. | |
| Recommended Film Thickness | Wet:<br>Dry: | 3.6 – 4.0 mils<br>1.5 – 1.6 mils |
| Viscosity | 93 ± 4 KU | |
| Flash Point | None | |
| Sheen / Gloss | 20 – 35 @ 60° | |
| VOC | 44 g/L | 0.37 g/L |

2.2 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Benjamin Moore and Co.
2. The Sherwin-Williams Co.
3. Tnemec Company, Inc.
4. Or approved equal.

2.3 MATERIALS

A. Provide products which meet all N.Y.S. Part 205-VOC requirements for applications outlined herein and comply with low V.O.C. requirements.

B. Provide products which meet all Federal regulations of less than 0.06% lead in non-volatile ingredients.

C. Provide best quality grade of various types of coatings as regularly manufactured by the applied coats manufacturers. Materials not displaying manufacturers' identification as a standard, best-grade product will not be acceptable.

D. Use only thinners approved by applied coats manufacturers for applications intended and use only within recommended limits.

2.4 REFERENCE STANDARDS

A. Coat materials must meet or exceed the requirements of the following standards:
Federal Specifications
1. Primers, Sealers, Undercoats
a. Metal Primer for Galvanized surfaces: FS TT-P-001984
FS TT-P-650-C
b. Metal Primer Aluminum or Steel surfaces: FS TT-P-57B

| | | |
|---|---|---|
| c. | Primer Sealer, Latex Base: | FS TT-P-650C |
| d. | Alkyd Primer (Corrosion Inhibiting) Lead-Free and Chromate Free, VOC Complying | FS TT-P664C |

2. Finish Coating

| | | |
|---|---|---|
| a. | Exterior Alkyd Modified Coat; Gloss: | FS TT-P-102E, Type II and Type III |
| b. | Ext. Acrylic Latex Coat; Flat: | FS TT-P-19 |
| c. | Gloss Acrylic Latex Enamel: | FS TT-P-1511-B |
| d. | Flat Vinyl Acrylic Latex Interior: | TT-P-29J |
| e. | Semi-Gloss Vinyl Acrylic Latex Enamel, Interior: | TT-P-1511-B |
| f. | Alkyd Odorless Semi-Gloss Enamel: | FS TT-E-529 FS TT-E-509C for white and tints; Class A for deep colors. |
| g. | Aluminum Coating (Ready Mixed): | FS TT-P-38D. |
| h. | Heat Resistant Semi-Gloss Enamel (400°F max. surface temperature): | FS TT-E-496 |
| i. | Smokestack Black Coat: | FS TT-E-496 |

3. Miscellaneous Materials:

| | | |
|---|---|---|
| a. | Mineral Spirits (Petroleum Coat Thinner): | FS TT-T-291 |

b. Color Pigments: Pure, non-fading, finely ground pigments, at least 99 percent passing a 325-mesh sieve. Color pigments that are to be used on masonry, concrete and plaster must be lime proof - FS-TT-P-381.

c. Surface Sealer: Pigmented Oil for Plaster & Wallboard - FS-TT-S-179.

B. Miscellaneous Standards and Requirements

1. Turpentine: ASTM D13.
2. Cold Galvanizing Compound: Single component material conforming to ASTM A780 giving 96% pure zinc in the dried film.
3. Cleaning Solvents: Low toxicity; flash point in excess of 100ºF.
4. Spackling Compound: ASTM C475.
5. Polyester Filler: Polyester resin base autobody filler standard weight or finishing grade required by conditions.

## 2.5 COLORS

A. Selection

1. Applied coatings colors, surface treatments and finishes will be selected by the Commissioner.

2. Color Schedule will be issued to the Contractor after award of the Contract.
3. Final acceptance of colors will be from actual job applications.

2.6 APPLIED COATINGS SCHEDULE

A. Interior Finish Schedule - Standard
1. All new and previously uncoated, surfaces must receive one (1) prime coat and two (2) finish coats unless otherwise specified.
2. All previously coated surfaces must be spot primed as needed and receive (2) finish coats unless otherwise specified.
a. All plaster and gypsum board ceilings must be off white .....(Flat)
b. All interior plaster, gypsum board, concrete, brick or block surfaces of walls throughout the building not otherwise specified .....(Semi Gloss)

2.7 INTERIOR APPLIED COATING SYSTEMS

A. Gypsum Drywall and Plaster:
1. Flat Finish (ceilings only):
a. 1st Coat - Vinyl Acrylic Latex Primer Sealer------(Flat)--1.0 Mils DFT
b. 2nd & 3rd Coats - Flat Vinyl Acrylic Latex---------.3 Mils DFT each coat

B. Ferrous Metal:
1. Semi-Gloss Finish: Convector enclosures, grilles, access doors, frames, Steel Doors and Frames, Trim, Partitions, Screens, Demountable Office Partitions, Office Railings, Wire mesh work.
a. *1st Coat - Alkyd Modified Acrylic Rust Preventive Latex Primer - 1.6 Mils DFT
b. 2nd & 3rd Coats - Semi-Gloss Vinyl Acrylic Latex Enamel 1.3 Mils DFT each coat

* Provide full prime coat on new and previously uncoated surfaces. Spot prime previously coated surfaces, including shop-primed items, as needed. Items shop primed with modified alkyd primer must be touched up with same primer.

2.8 EXTERIOR COAT SYSTEMS

A. Existing steel members exposed to view or the elements.

1. Provide the epoxy coat system, except the first coat must be an Epoxy polyamide, capable of coating on an SSPC-SP3 surface prep.

PART 3 - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 GENERAL TECHNICAL NOTES

A. Coat exposed surfaces, except where the coat schedules indicate that a surface or material is not to be coated or is to remain natural. If the coat schedules do not specifically mention an item or a surface, coat the item or surface as directed by the Commissioner. If the schedules do not indicate color or finish, the Commissioner will select from standard colors and finishes available.
   1. Coating may include field coating of exposed bare and covered pipes and ducts (including color coding), hangers, exposed steel and iron work, and primed metal surfaces of mechanical and electrical equipment.

B. Do not coat prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels.

3.3 EXAMINATION

A. Verification of Conditions
   l. The application of coater's finish to any surface must be taken to indicate that the Contractor considers such surfaces suitable for a first-class finish.
   2. Do not apply coater's finish in any locations until the work of other trades that might disturb the new finish is completed.
   3. Notify the Commissioner in writing regarding work by other trades that does not provide a suitable surface for the new finish.
   4. In case of dispute regarding the suitability of any surface, the Commissioner’s decision will be final and conclusive upon all concerned.
   5. Contractor must check the compatibility of previously coated surface with the new coating by applying a test panel 4-foot-wide x wall height. Allow test panel to dry thoroughly; verify proper adhesion before proceeding with coating work.

3.4 PREPARATION AND APPLICATION - EXISTING BUILDING

A. Protection
   1. In cases where the coating of surfaces involves removal or disturbance of existing coat, the following protection requirements must apply:
      a. All objects near or adjacent to the surface(s) to be coated must be moved a minimum of three feet away from that surface(s). Any immovable object**,** and the floor, within the three foot "work area" must be covered with one layer of 6-mil polyethylene, sealed on all edges to prevent the penetration of dust and debris. If the ceiling is to be coated, all objects in the room and the floor of the room must be covered in this manner.
      b. All objects bordering the three-foot work area must be completely covered with clean cloths, heavy building paper or clean plastic covering.
      c. If, during the removal of existing coat, the Contractor notices coat chips or other debris related to the ongoing work on objects beyond the border of the three-foot work area, these objects must be

cleaned by HEPA vacuuming and wet-wiping and then covered as described in (b) above.

d. For exterior metal surfaces on the building or site the ground beneath the work area must be surrounded on all sides by a washable construction tarp or 10-mil polyethylene. The covering need not be airtight; however, it must be of adequate size and durability to completely enclose the work area and prevent the dispersal of any coat chips or dust during coat removal activities. Any dust and debris must be contained in the work area and must be removed immediately upon generation. Protect from disturb landscaping, paving, and other improvements near the building. Protect and seal all windows and openings within the work area with a minimum of 1 layer of 6-mil polyethylene sheeting.

e. The protection must remain in place during all coat removal activities.

f. All protection is to be carefully removed, cleaned or discarded after coating is complete.

2. In cases where the coating of surfaces does not involve the removal or disturbance of existing coat, the following protection requirements must apply:

a. In each area to be coated, cover and protect furniture, equipment and floors from disturb with clean cloths, heavy building paper or clean plastic covering secured in place. All protection is to be carefully removed, cleaned or discarded after coating is complete.

B. Surface Preparation

1. Gently wet mist the surface to be scraped with water, then remove all loose coat with scraper and putty knife.
2. Sand existing surfaces to dull sheen and gloss. Before sanding, wet mist the area to be sanded. (Power sanding without a HEPA-filtered vacuum recovery system is not allowed).
3. Remove dust by washing with water, using damp sponge or cloth.
4. After washing, spot prime grease and water stains; magic markers marks, crayon marks, lipstick marks, etc; with a quick-drying alcohol base primer sealer to prevent bleeding.
5. Fill all cracks and holes with appropriate filler material, wet mist and sand flush with adjacent surfaces and spot prime. (Power sanding without a HEPA-filtered vacuum recovery system is not allowed).
6. Existing coat that was not removed with scraper and which appears to be sound must receive spackling compound around perimeter high spots and feathered out so that surface is smooth.
   Remove and install new material at gouges created by the scraping process and other imperfections in the existing surface with spackling compound to provide a smooth, even finished surface.
7. Apply number of finish coats specified herein or as many as may be necessary to obtain the proper finish and completely cover the substrate.

C. Touch-Up
1. Spot prime defects in existing work and work primed under other paragraphs of work as necessary to produce an even plane in the new finish.
2. All worn, scaled, blistered, crackled and discolored places in the existing stained and varnished work specified to be revarnished must be wet-misted prior to being scraped or sanded, then filled and touched up with stain as required to equalize the color. (Power sanding without a HEPA-filtered vacuum recovery system is not allowed).
3. Touch-up and equalize the color of new woodwork specified to be stained and varnished where disturbed, due to job fitting and trimming.
4. Touch-up all pitch streaks and knots in woodwork with shellac.

D. Existing Metal:
1. Prepare surfaces as indicated above.
2. Machine tool clean exposed steel to an SSPC-SP3 surface preparation.
3. For steel surfaces exposed to view, rework defects in surfaces to provide for an even plane in the new finish.
4. Use auto-body filler to even out surface and sand smooth.

3.5 APPLICATION

A. General
1. No work must be performed where cement or plaster is being applied or is in the process of drying.
2. No work must be performed in spaces that are not broom clean and free of dust and waste.
3. Apply coat materials to produce smooth finished surfaces, free of brush or roller marks, drops, runs, or sags.
4. Coat materials must be kept at a proper and uniform consistency.
5. Thin only when necessary to achieve best results.
6. Thinners must be material recommended by manufacturer of coat, and in quantity as recommended.
7. Excessive use of thinner as indicated by variation in absorption, lack of "hide", thickness of dry film, mottled or streaky coat, must be cause for rejection. Correct as directed.
8. Thinning of varnish or aluminum coat prohibited.
9. Apply all coats with brush or roller, varying slightly the color of succeeding coats. Spraying will not be permitted.
   a. If recommended by manufacturer, 100% acrylic resin concrete block filler may be spray applied and must be back-rolled as necessary to work material into substrate surface.
10. Brush out or roll on first or prime coat; work well into surface.
11. Each coat must be inspected, approved and dry before proceeding with additional coats.
12. Allow at least 48 hrs for enamels and exterior oil coat to dry.
13. The surfaces of interior woods and metals must be sanded or rubbed between coats to assure smooth finish and proper adhesion of subsequent coats.
14. Avoid lapping of coat on glass, hardware, or other adjoining surfaces.

15. Apply no coat to operating units where sliding contact of metals is necessary for proper functioning of unit.
16. Coating is not required on walls or ceilings in concealed and inaccessible areas.
17. Moving parts of operating units will not require finish coating unless otherwise required.
18. Do not coat over any code-required labels, such as Underwriter's Laboratories and Factory Mutual, or any equipment identification, performance rating, name or nomenclature plate.
19. Finish doors on tops, bottoms and side edges same as exterior faces.

## 3.6 FIELD QUALITY CONTROL

A. The Commissioner reserves the right to require the following material testing procedures at any time, and any number of times during period of field coating:
   1. Measurement of dry film thickness (DFT) by use of a dry film thickness gauge in accordance with use and calibration requirements of Structural Steel Coating Council [SSPC], "Method of Measurement of Dry Coat Thickness with Magnetic Gauges".
   2. Engage services of an independent testing laboratory, recommended by the City of New York to sample coat being used. Samples of materials delivered to construction site will be taken, identified and sealed, and certified in presence of Contractor
   3. Testing laboratory will perform appropriate tests for any or all of the following characteristics: Abrasion resistance, apparent reflectivity, flexibility, washability, absorption, accelerated weathering, dry opacity, accelerated yellowness, recoating, skinning, color retention, alkali resistance and quantitative materials analysis.
   4. If test results show that material being used does not comply with specified requirements, Contractor must be directed to stop coating work, remove non-complying coat; and recoat.

## 3.7 CLEANING

A. Clean-up behind each coat crew such that coating and clean-up will be a continuous uninterrupted operation. The practice of one general clean-up after completion of all coating will be strictly prohibited. This clean-up will include, but not be limited to the following:
   1. Remove spots or defacement resulting from work of this Section.
   2. Retouch all disturbed surfaces to leave work in perfect finished condition.
   3. If spots or defacement cannot be satisfactorily removed and retouched, re-finish the surfaces as directed.
   4. Within the three-foot work area created for removal and coating all objects and surfaces must be thoroughly HEPA vacuumed, wet-cleaned and HEPA vacuumed again. In rooms where the ceiling has been coated all surfaces and objects in the room must be cleaned in this manner.
   5. The contractor must ensure that the objects and surfaces under protective covering are free of any dust or debris created during coating activities. If necessary, these objects and surfaces must be wet cleaned and HEPA vacuumed.

6. The contractor must conduct any cleaning deemed necessary by the Commissioner.
7. Free all operating units of coated materials and leave them clean and in proper working order.
8. Remove from premises all surplus coat materials, debris and any other rubbish resulting from the work.
9. Leave storage space clean and in condition required for equivalent spaces in project.

3.8 PROTECTION

A. Provide caution tape and/or locked entryways during coat removal activities in existing buildings to prevent access to the work area from unauthorized personnel.

B. Provide "Wet Coat" signs to protect newly-coated finishes. Remove temporary protective wrappings provided by other trades for protection of their work after completion of coating operations.

C. At the completion of work of other trades, touch-up and rework all disturbed or defaced coated surfaces as directed by the Commissioner.

END OF SECTION - 09 91 23

# SECTION 09 96 53 - ELASTOMERIC COATINGS

## 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. Providing all labor, materials, transportation, equipment and services necessary to apply a single-component, high-build, water-based cross-linked acrylic, UV cured elastomeric waterproofing wall coating system, on masonry, block, brick, concrete, stone, cementitious material, plastic, metal, mastics, painted surfaces, plaster, or other approved substrate by manufacturer and shown on the drawings and described herein.

2. Surface preparation and application of this coating to the following exterior substrates:
   a. All stuccoed and exposed CMU walls at Cooling Tower Courtyard

   b. All metal sides of all ventilation wells at Main Roof level.

B. Related Sections:

1. Section 02 41 19 Selective Demolition
2. Section 03 31 30 Maintenance of Cast-In-Place Concrete
3. Section 07 56 00 Fluid-Applied Roofing
4. Section 07 64 13 Standing Seam Sheet Metal Wall Cladding
5. Section 07 76 16 Roof Decking Pavers

### 1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions section 01 33 00 ‘Submittal Procedures.”

### 1.4 SUBMITTALS

A. Product Data: Provide product data sheets and MSDS for each type of product indicated in this section.

B. Contractor Certification: Installer must provide written documentation from the manufacturer of their authorization to install the system.

C. Color Chart: Submit two (2) copies of the manufacturer’s standard color chart.

D. Certification showing full time quality control of production facilities and that each batch of material is tested to ensure conformance with the manufacturer's published physical properties. The manufacturer must have an ISO 9001-2000 certified quality system.

E. Samples for Verification: Submit samples of specified elastomeric wall coating system
1. Submit samples on same type of substrate as that to receive application, 6 inches square.
2. Samples must represent finished color and surface texture.

F. VOC Compliance: Manufacturer’s certification that all waterproofing system products meet current Volatile Organic Compound (VOC) regulations as established by the State of New York; and stating total VOC content, in grams per liter, for all system components (i.e. primers, adhesives, coatings, etc.).

G. Prior to commencement of the application of the coating system, the installer must submit the following to the Commissioner:
1. Photographs of the structure to be coated.

1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

1.6 COMPLIANCE

A. Work for this project must be conducted in accordance with all applicable New York City Building Code sections, State and Federal laws and regulations relevant to elastomeric coatings, including 40 CFR part 59, with the most restrictive law and regulations applying.

B. Permits, inspections and appropriate certificates as required by work under this section must be obtained by and paid for by the Contractor.

C. The Contractor must comply with all relevant ordinances regarding dust, debris and noise, including 15 RCNY Chapter 13, 15 RCNY Chapter 28, and the DEP Noise Code.

E. The Contractor must protect all adjacent surfaces, fixtures and equipment to prevent damage in any form.

F. Any adjacent surface, coating system, fixture or equipment damaged in this sequence of work must be restored or replaced at no cost to the City of New York by the Contractor to its original condition.

G. All waterproofing system components must meet current VOC regulations as established by applicable codes 6 CRR-NY 205.3, 6 CRR-NY 228-1.4, §§ 3-0301, 19-0301, 19-0303, 1-0101, 3-0301, 3-0303, 19-0103, 19-0301, 19-0105, 19-0305 of the Environmental Conservation Law, and stating total VOC content, in grams per liter, for all system components (i.e. primers, adhesives, coatings, etc.).

1.7 TESTING

A. Upon completion of the coating membrane work, the manufacturer’s representative and

the contractor will calculate the coverage rate and subsequent dry film thickness of the applied coating material to ensure that the minimal requirements of this technical specification have been met. If actual dry film thickness needs to be measured, then the dry film thickness may be measured with a Tooke Gage or cutting out of a physical sample and measurement under a graded reticule microscope.

B. If minimum dry film thickness requirements have not been met by the contractor, then additional coating membrane material must be applied by the contractor at their own cost to fulfill the specification requirements.

1.8 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to Project site in original containers with seals unbroken, labeled with waterproofing manufacturer's name, product brand name and type, date of manufacture, lot number, and directions for storing and mixing with other components.

B. Keep materials dry and do not allow materials to be exposed to moisture during transportation, storage, handling, and installation. Reject and remove from Site new materials which exhibit evidence of moisture during application, or have been exposed to moisture.

C. Store materials in original, undamaged containers in clean, dry, protected location on raised platforms with weather-protective coverings, within temperature range required by waterproofing manufacturer. Protect stored materials from direct sunlight. Waterproofing manufacturer's standard packaging and covering is not considered adequate weather protection. Use "breathable" type covers such as canvas tarpaulins to allow venting and protection from weather and moisture. Cover and protect materials at the end of each work day. Do not remove any protective tarpaulins until immediately before the material will be installed.

D. Store all materials at temperatures between 35°F and 86°F.

E. Remove and replace materials that cannot be applied within stated shelf life.

1.9 PROJECT CONDITIONS

A. All surfaces to be coated must be clean, sound and properly prepared for the coating application.

B. Verify existing dimensions and details prior to installation of materials. Notify the Commissioner of conditions found to be different than those indicated in Contract Documents. The Commissioner will review situation and inform Contractor and Installer of changes.

C. Observe building's limitations and restrictions for site use and accessibility.

D. Application of the coating membrane must not commence nor proceed during conditions outside of the general ambient parameters for application (between 40°F and 95°F), or during pending inclement weather. Inclement weather must be anticipated such that the applied coating/membrane is adequately dried and cured to prevent wash-off in driving rain.

E. All terminations for the waterproofing wall coating system must be as per the Commissioner's drawings and details.

F. Install materials in strict accordance with safety requirements required by waterproofing manufacturer, Material Safety Data Sheets, and local, state, and federal rules and regulations including the 2022 NYC Building Code Chapter 33, and OSHA standard 1926.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Elastomeric, UV curing, crack-bridging, anti-carbonation, fully reinforceable, acrylic protective coating. Providing protection to reinforced concrete from the ingress of carbon dioxide and other aggressive gasses. High resistance to chlorides and other waterborne salts and excellent UV light resistance. Cured by exposure to UV radiation which develops a surface skin relatively harder than the bulk of the coating beneath.

1. Solids Content — by weight — by volume
   a. Elastomeric Finish Coating — 62% — 55%
   b. Primer — 20% — 17%

2. Tensile Properties (ASTM D-412 modified after 21 days cure)
   a. Tensile Strength — 250 psi
   b. Elongation at Break — 675% at 73°F (23°C)
   c. Tensile Strength at 0°F (-18°C) — 1200 psi
   d. Elongation at Break at 0°F (-18°C) — 275%

3. Water Vapor Diffusion (at 16 mils = 400 microns dry film thickness)
   a. μ - value $H_2O$ (diffusion coefficient) = 2,146
   b. $SdH_2O$ (equivalent air thickness) = 2.6 ft. (0.8 m)

4. Carbon dioxide diffusion (at 16 mils = 400 microns dry film thickness)

   | | *After 2,000 hours |
   |---|---|
   | a. μ- value $CO_2$ (diffusion coefficient) = | 226,000 |
   | b. R (equivalent air thickness) = | 199 ft. (91 m) |
   | c. Sc (equivalent concrete thickness = | 9 inches (23 cm) |
   | d. *accelerated weathering | |

5. Crack-Bridging (at 16 mils = 400 microns DFT)
   a. Static (at -4°F/-20°C) — 30 mils (0.75 mm)
   b. Dynamic>1000 cycles (at -4°F/-20°C) — 12 mils (0.3 mm)

6. Moisture Vapor Permeability (ASTM E-96) — 14.5 Perms

7. Resistance to Wind Driven Rain (TT-C-555B) — No passage of water through the coating

8. Flame Spread and Smoke Development (ASTM E-84-94)
   a. Flame Spread: 5 Smoke Development: 5 Class Rating: A

9. Weathering (ASTM G-23) — 10,000 hours — Excellent, no chalking or cracking

2.2 MANUFACTURERS / PRODUCTS

A. Basis-of-Design Product: Subject to compliance with requirements, provide Sikagard 570 by Sika Corp. or comparable product by one of the following:

1. TREMCO
2. Pecora
3. Or approved equal.

2.3 ELASTOMERIC FINISH COATING

A. A single-component, high-build, water-based cross-linked acrylic, exhibiting excellent color retention, dirt resistant surface, capable of very high moisture vapor transmission, excellent low/high temperature crack bridging properties, UV cured elastomeric waterproof coating system designed to accommodate movement and cracking in structures.

1. Application:
   a. Spray, roller, or brush

2. Layers:
   a. 40mils base coat
   b. Reinforcing fabric
   c. 20 mils top coat

3. Accelerated Weathering:
   a. Excellent color retention, no loss of flexibility, and no surface defects, ASTM G23

4. Crack Bridging Capability:
   a. 30 mils static; 12 mils dynamic @ 16 mils DFT

5. Elongation:
   a. 275% at 0°F, 675% at 73°F

6. Solids by Volume:
   a. 55%

7. Solids by Weight:
   a. 62%

8. Water Vapor Permeability:
   a. 14.5 perms, BS.3177

9. VOC:
   a. 77 g/l

2.4 PRIMERS

A. A fast-drying, two-component, water-based, adducted polyamide epoxy primer for concrete, masonry and previously coated surfaces.

B. A two-component, anti-corrosive primer for exposed metal, concrete and bituminous substrates.

C. Acrylic latex bonding agent for concrete and masonry.

2.5 CONCRETE REPAIR MORTAR

A. A two-component, polymer-modified, Portland cement based, fast-setting, non-sag repair mortar for vertical and overhead surfaces containing a penetrating corrosion inhibitor.

B. A single component, polymer modified, fiber reinforced, Portland cement-based repair compound, which exhibits unique hydraulic properties to produce a rapid curing mortar with enhanced polymeric properties.

2.6 AUXILLARY MATERIALS

A. Crack Sealant Compound: A low-modulus, high-performance, 1-component, polyurethane-based, non-sag elastomeric sealant meeting Federal Specification TT-S-00230C, Type II, Class A; ASTM C-920, Type S, Grade NS, Class 100/50, use T, NT, G, M; Federal Specification for silicones - TT-S-001543 A, type non-sag approved by waterproofing manufacturer.

B. Local Reinforcement: A conformable, random woven fiberglass mat for total or localized reinforcement of the waterproofing membrane system, which provides greater impact resistance and greater resistance to excessive thermal and structural movement while maintaining elasticity and membrane film integrity.

PART 3 - PROCEDURES

3.1 EXECUTION REQUIREMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 INSPECTION

A. The Contractor must examine all surfaces to be coated with the specified coating membrane system to verify that it is acceptable and proper for the specified application.

B. The Contractor must not proceed with the scope of work until all defects in the substrate have noted, examined by the Commissioner, and approved for remedial and coating work.

3.3 SUBSTRATE PREPARATION

A. All surfaces to be coated must be clean, sound, and dry at the time of coating material application.

B. The existing coating system must be tightly adhered to the substrate. A bond and compatibility test must be conducted to qualify the existing coating system as a candidate for recoating with the new elastomeric waterproofing wall coating system.

Prior to application, the manufacturer's technical representative must be contacted to schedule the test.

C. Remove hardware and hardware accessories, plates, machined surfaces, light fixtures, and similar items already installed that are not to be coated. If removal is impractical or impossible because of size or weight if item, provide surface-applied protection before surface preparation and coating. After completing coating operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.

D. Pressure wash (3000 psi), with the spray tip no more than 4" from the surface, all coated and bare surfaces using a high-quality commercial detergent with clean water to remove all chalking effect, all loose coating material, light scale deposits and other surface contamination down to sound masonry substrate. Rinse with fresh water to ensure full cleanliness and removal of the detergent solution. Allow surfaces to dry thoroughly before continuing with surface preparation efforts. Pressure washed surfaces must be primed within a reasonable time frame before any re-contamination of the surface by airborne contaminants.

E. Visually inspect surface. Remove loose surface features back to sound masonry substrate and power tool clean area (CSP 2-4). In accordance with the Commissioner's aesthetic standards, fill to flush all spalled areas using the appropriate masonry repair mortar or appropriate caulking material. For heavily damaged areas, the concrete wall board must be removed and replaced with like material.

F. For spalled areas of concrete up to 3" deep, use a two-component, polymer-modified, Portland cement, fast-setting, non-sag, high performance repair mortar, or a single component, polymer modified, fiber reinforced, Portland cement based repair compound, which exhibits unique hydraulic properties to produce a rapid curing mortar with enhanced polymeric properties, mixed and applied per the instructions on the bag label and the product technical data sheet. Use a trowel of appropriate type and texture to match the texture of surrounding masonry surface and fill to flush.

G. Exposed metal substrates that are part of the wall envelope system (embedded metal, vents, flashings, etc.) must be power tool cleaned (SSPC 10) and primed with an epoxy primer/sealer within 5 hours of cleaning efforts and allowed to cure sufficiently before inclement weather to prevent wash-off by driven rain.

H. Clean substrates of substances that could impair bond of coatings, including dirt, oil, grease, and incompatible paints and encapsulants. Do not coat surfaces if moisture content or alkalinity of surfaces to be coated exceeds that permitted in manufacturer's written instructions.

I. Perform cleaning and coating application so dust and other contaminants from cleaning process will not fall on wet, newly coated surfaces.

## 3.4 CRACK REPAIRING WORK

A. After cleaning has been performed, cracks less than 1/16” wide must be sealed with a low-modulus elastomeric sealant approved equal by waterproofing manufacturer. Cracks must be cleared of all loose debris and dirt and widened slightly at the surface to accommodate crack filler application. Apply crack sealant by knifing into crack or gunning over the crack surface, followed by tooling to match adjacent surface profile, pressing the sealant into the crack cavity to fill completely.

B. Cracks 1/16” to 1/8” wide must be routed to a ½” by 1” groove, backer rod installed, and sealant applied as outlined above.

1. Glass fiber reinforcement mat is required.

C. All joints filled with silicone caulking where the silicone will remain in place require localized reinforcement mat.

3.5 COATING MEMBRANE APPLICATION

A. Apply the elastomeric waterproofing membrane system in accordance with the manufacturer’s written instructions.
1. Use equipment and techniques best suited for substrate and type of material being applied.
2. Coat surfaces behind movable items the same as similar exposed surfaces.
3. Apply each coat separately according to the manufacturer’s written instructions.
4. Mix all coating materials in strict accordance with the instructions on the container labels and the product technical data sheets.
5. Apply coatings to prepared surfaces as soon as practicable after preparation and before subsequent surface soiling or deterioration.

B. Prime all power tool cleaned exposed metal surfaces with epoxy primer/sealer applied by brush or roller at 4-5 mils WFT per coat, ensuring uniform film dimension without pinholes or holidays. The second coat may be applied over the first coat as soon as the first coat has dried through. Overlap at least 1” over the feathered edge of tightly adhered existing coating to ensure a full corrosion inhibitive barrier film. On uncoated surfaces, apply primer to the edge of the metal substrate ensuring full coverage at the border with surrounding concrete.

C. Membrane Reinforcement: Use glass fiber reinforcement mat into the base coat making sure to cover all wall penetrations, silicone sealant locations, repair crack widths exceeding 1/16”, and at all locations indicated on the approved architectural drawings. Ensure that reinforcing mesh is not in tension during embedment.

D. Apply base coat of the UV cross-linked acrylic elastomeric wall coating over properly primed surfaces (if necessary) by airless spray, brush or roller at 40 mils WFT/coat (40 $ft^2$/gallon/coat on a smooth surface) embedding reinforcement mat. Allow a minimum of two hours prior to recoating. Wait time may vary based on conditions. Apply top coat of UV cross-linked acrylic elastomeric wall coating at 20 mils WFT/coat (80 $ft^2$/gallon/coat on a smooth surface) Dry film thickness of coating membrane, once cured and dried, must total a minimum of 35 mils DFT. Ensure that all application is uniform, pinhole and holiday free and cosmetically acceptable to the Commissioner. Anticipate inclement weather to prevent wash-off of inadequately dried coating material.

E. Spray Application: Use spray equipment for application only when permitted by the NYC BC and NYC DEP. Wherever spray application is used, do not double back with spray equipment to build up film thickness of two coats in one pass.

3.6 CLEANING AND PROTECTION

A. At the end of each workday, remove trash, empty cans, rags and other discarded materials from Project site. Dispose of or recycle all trash and excess material in a matter conforming to the 2022 NYC BC, and current EPA, and DSNY regulations.

B. After completing coating application, clean glass and spattered surfaces. Remove spattered coatings by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C. Remove all masking before coating material has dried and protective shrouds after coating material has dried.

D. Protect work of other trades against damage from coating system. Correct damage to work of other trades by cleaning, and restoring/replacing, and refinishing, as approved by the Commissioner, and leave in an undamaged condition.

E. At completion of construction activities, touch up and restore damaged or defaced coated surfaces.

END OF SECTION - 09 96 53

# SECTION 22 00 00 - PLUMBING

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract (City of New York Standard Construction Contract).

### 1.2 SUMMARY

A. Section includes furnishing all labor, materials, equipment and appliances necessary and required to provide all Plumbing Work as indicated on the Drawings or described or referred to in the Specifications, including, but not limited to the following:

1. New storm piping systems (max 10 feet of pipe per drain), including all required connections to all plumbing branch piping and connections to the existing risers.
2. Plumbing fixtures and trim for same.
3. Make all plumbing connections required for equipment furnished under other Divisions or Sections of these Specifications.
4. Sleeves, hangers and supports.
5. Insulation for piping and equipment.
6. Apply for, obtain and pay for all permits, certificates, inspections and approvals required in connection with all Plumbing Work.
7. Shop drawings, samples and instructional manuals, tests and adjustments.
8. Installation of roof drains.
9. Color coding and identification of all piping systems.
10. Cutting and rough patching.
11. Cap flashing and prime painting.
12. Tests for all systems provided under this Section of the Specifications. Submit the results of all pressure tests and disinfection of potable water systems.
13. It is not the intention of these Specifications to describe, nor the Contract Drawings to show in detail, all the various pieces of apparatus and appurtenances and their connections. The Contractor must furnish and install all incidentals, such as piping, fittings, valves, etc., required to complete the installation of the equipment. The Contractor must refer to Architectural Drawings and Plumbing Drawings for exact location of fixtures including type and quantities. The Contractor will be responsible for providing and connecting all roof drains and equipment.
14. All work described in these Specifications and not shown on the Drawings, or vice versa, must be installed in a manner similar to the work shown or described.

B. Related work not included - The following principal items of work is to be provided under other Sections:

1. Finish painting.
2. Installation of access doors.

3. Finish painting and patching.
4. All electrical power wiring conduits, etc., for pumps, equipment, etc., must be coordinated with Division 26.
5. Drainage piping from HVAC equipment to and spilling over roof drain, except as noted.

1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures”.

1.4 SUBMITTALS

A. Submit shop drawings prior to installation covering the following items:

1. Valve tags, color coding and valve charts.
2. Insulation for piping and equipment.
3. All drains including floor, funnel, shower and area drains.
4. Sleeves, escutcheons, hangers, supports and inserts.
5. Gauges and thermometers.
6. All types of piping, fittings, valves, etc.

B. The above listed items are to be considered major equipment and do not limit the Contractor's responsibility from submitting shop drawings for all equipment and accessories which are to be provided under this Section.

1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

1.6 PERMITS AND CERTIFICATES

A. The Contractor will give necessary notices, file drawings and Specifications with the NYC Department of Buildings, obtain permits or licenses necessary to carry out the work and pay all fees therefore.

1.7 DISCREPANCIES

A. The Drawings and Specifications are intended to cooperate. Any materials, equipment, or systems related to this Section and exhibited on the Architectural and Plumbing Drawings but not mentioned in the Specifications are to be executed to the intent and meaning thereof, as if it were both mentioned in the Specifications and set forth on the Drawings.

B. In case of differences between the Drawings and Specifications, the Specifications must govern first, and then the Drawings. Large scale details will take precedence over smaller scale Drawings as to shape and details of construction. Specifications must govern as to materials.

C. Drawings and Specifications are intended to be fully cooperative and to agree, but should any discrepancy or apparent difference occur between Drawings and Specifications or should occur in the Work of other trades affecting the work, the Contractor must notify the Commissioner at once. If the Contractor proceeds with the Work affected without instructions from the Commissioner, Contractor must make good any resultant damage or defect. All misunderstandings of Drawings and Specifications will be clarified by the Commissioner.

1.8 CONCRETE WORK

A. All formed and poured-in-place concrete work including equipment housekeeping pads, sumps, etc., will be provided under another Division or Sections of these Specifications.

B. Furnish all required templates for anchor bolts, and dimension drawings for housekeeping pads and sumps. All concrete provided under the work of this Section must be in accordance with that specified in Division 3.

1.9 REPLACEMENT OF SURFACING

A. Where required by operations under this Section, the Contractor must remove and replace all street pavements, curbs, sidewalks, walkways, grassed areas and landscaped areas which are to remain, in a manner equal to their original condition when new, including sub-bases.

B. In those cases where final surfaces cannot be placed immediately, a temporary surfacing of two inches of bituminous concrete may be placed and maintained. This will be removed before placement of final surfacing.

1.10 COOPERATION WITH OTHER TRADES

A. Cooperate with other trades whose work is to be coordinated in order to avoid field interference, improper elevations, or inaccessibility to equipment. The Contractor will be responsible for any extra expensed occasioned by their lack of cooperation.

1.11 CLEANING, PROTECTION, AND ADJUSTMENTS

A. The Contractor will be responsible for the protection of all plumbing systems equipment against breakage or damage at all times until final acceptance of the job.

B. All openings left in floor for passage of supply pipes must be covered and protected. Due precautions will be taken against freezing during cold weather. All pipes must be protected with suitable coverings as soon as set. All open of pipes must be closed by a plug fitting to prevent obstruction and damage.

C. Frequently clean up and remove from the site all rubbish, scrap materials and debris caused by their work. Upon completion of the work and before final payment is made, the Contractor is to remove from the site all surplus material, temporary structures, tools and all debris resulting from their operation.

1.12 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to project properly identified with names, model numbers, types, grades, compliance labels, and similar information needed for distinct identifications; adequately packaged and protected to prevent damage during shipment, storage, and handling.

B. Where items are furnished by one trade and installed by another, the installing trade is to accept delivery from the furnishing trade at grade level items delivered. The installing trade must store, and protect items until scheduled for installation.

C. Store equipment and materials at the site, unless off-site storage is authorized in writing. Protect stored equipment and materials from damage.

D. Coordinate deliveries of materials and equipment to minimize construction site congestion. Limit each shipment of materials and equipment to the items and quantities needed for the smooth and efficient flow of installations.

E. Protect the work equipment and material of all other trades from damage by the work or other personnel, and are to make good all damage thus caused.

F. Contractor is responsible for all work, materials and equipment until finally inspected, tested and accepted; protect work against theft, injury or damage. Contractor must carefully store material and equipment received on site which are not immediately installed. Close open ends of work with temporary covers or plugs during construction to prevent entry of obstruction material. Contractor must cover and protect in an acceptable manner to the Commissioner, all equipment and materials from damage due to water, spray-on fireproofing, construction debris, etc.

1.13 PIPING AND EQUIPMENT IDENTIFICATION

A. Piping and equipment identification must include:

1. Nameplates
2. Tags
3. Pipe Markers

B. Reference Standards

1. ANSI/ASME A 13.1 - Scheme for the Identification of Piping Systems; The American Society of Mechanical Engineers; 2007.

C. Submittals

1. List: Submit list of wording, symbols, letter size, and color coding for plumbing identification.
2. Chart and Schedule: Submit valve chart and schedule, include valve tag number, location, function, and valve manufacturer’s name and model number.

D. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Brady Corporation
2. Seton Identification
3. Kolbi
4. Or approved equal.

E. Nameplates

1. Description: Laminated three-layer plastic with engraved letters.

a. Letter Color: White
b. Letter Height: ¼ inch
c. Background Color: Black

F. Tags (furnish and attach to each valve)

1. Metal Tags: Brass with ½" indented numbers filled with black compound; tag size minimum 1½ inch diameter with smooth edges. Tags must be securely attached to stems with brass “5” hooks.
2. Valve Tag Chart: Typewritten letter size list in anodized aluminum frame.

G. Pipe Markers

1. Color: Conform to ANSI/ASME A 13.1 2007. Standard for the Identification of Pipes.
2. Plastic Pipe Markers: Factory fabricated, flexible, semi-rigid plastic, preformed to fit around pipe or pipe covering; minimum information indicating flow direction arrow and identification of fluid being conveyed.

H. Degrease and clean surfaces to receive adhesive for identification materials.

I. Installation

1. Install plastic pipe markers in accordance with manufacturer’s instructions.
2. Install plastic tape pipe markers complete around pipe in accordance with manufacturer’s instructions.
3. Identify pumps, hot water heaters, and tanks, with plastics nameplates. Small devices, such as in-line pumps, may be identified with tags.
4. Identify control panels and major control components outside panels with plastic nameplates.
5. Identify piping, concealed or exposed, with plastic pipe markers. Use tags on piping ¾ inch diameter and smaller. Identify service, flow direction, and pressure. Install in clear view and align with axis of piping. Locate identification not to exceed 20 feet on straight runs including risers and drops, adjacent to each valve and Tee, at each side of penetration of structure or enclosure, and at each obstruction.
6. Locate ceiling tacks to locate valves above lay-in panel ceilings. Locate in corner of panel closest to equipment.

1.14 FLASHING

A. Provide flexible flashing and metal counter flashing where piping penetrates weather or waterproofed walls, floors, and roofs.

B. For pipes through outside walls, turn flanges back into wall and caulk, metal counter flash and seal.

C. Provide acoustical lead flashing around pipes penetrating equipment rooms, installed in accordance with manufacturer's instructions for sound control.

D. Metal Flashing: 26 gage galvanized steel.

E. Flexible Flashing: 47 mil thick sheet butyl compatible with roofing.

F. Caps: Steel, 22 gage minimum; 16 gauge at fire resistant elements.

1.15 DRIP PANS

A. Examine the drawings and in cooperation with the electrical trade, confirm the final location of all electrical equipment to be installed in the vicinity of piping. Plan and arrange all overhead piping no closer than two (2) feet from a vertical line to electric motors and controllers, switchboards, panelboards, or similar equipment.

B. Plan and arrange all overhead piping no closer than two (2) feet from a vertical line to electric motors and controllers, switchboards, panelboards, or similar equipment.

C. Where the installation of piping does not comply with the requirements of the foregoing paragraph, where feasible the piping must be relocated.

D. Provide drip pans as follows:

1. Construct drip pans of 18-gauge stainless steel with caulked joints, or of 20 ounce cold rolled copper under every pipe which is within two (2) feet of being vertically over any motor, electrical controllers, switchboards, panelboards, or the like.
2. Soldered and make watertight copper pans, properly suspended and carefully pitch to a convenient point for draining. Provide a ¾” drain with valve as directed, to nearest floor drain or slop sink, as approved.
3. In lieu of such separate gutters, a continuous protection sheet of similar construction, adequately supported and braced, properly rimmed, pitched and drained, may be provided over any such motor and extending 2'-0" in all directions beyond the motor over which such piping has to run.

1.16 ESCUTCHEONS

A. One-Piece, Cast-Brass Type: With polished, chrome-plated finish and setscrew fastener.

B. One-Piece, Deep-Pattern Type: Deep-drawn, box-shaped brass with chrome-plated finish and spring-clip fasteners.

C. One-Piece, Stamped-Steel Type: With chrome-plated finish and spring-clip fasteners.

D. Split-Casting Brass Type: With polished, chrome-plated finish and with concealed hinge and setscrew.

E. Split-Plate, Stamped-Steel Type: With chrome-plated finish, concealed hinge, and spring-clip fasteners.

1.17 FLOOR PLATES

A. One-Piece Floor Plates: Cast-iron flange with holes for fasteners.

B. Split-Casting Floor Plates: Cast brass with concealed hinge.

PART 2 - PRODUCTS

Not used

PART 3 - EXECUTION

Not used

END OF SECTION - 22 00 00

# SECTION 22 05 05 - SELECTIVE DEMOLITION FOR PLUMBING

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract (City of New York Standard Construction Contract).

### 1.2 SUMMARY

A. Section Includes:

1. Demolition and removal of selected portions of Plumbing systems.
2. Demolition and removal of selected site elements.
3. Salvage of existing items to be reused or recycled.

### 1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 "Submittal Procedures".

### 1.4 SUBMITTALS

A. "Schedule of Selective Demolition Activities" Paragraph below may be used to track Contractor's progress; it may also be used to determine that selective demolition will not interfere with the City of New York's operations.

B. Schedule of Selective Demolition Activities:

1. Indicate the following:

a. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure the City of New York's on-site operations are uninterrupted.
b. Use of elevator and stairs.
c. Coordination of continuing occupancy of portions of existing building as well as re-occupancy in the building areas where work is completed.

C. Pre-demolition Photographs or Video: Show existing conditions of adjoining construction, including finish surfaces, that might be misconstrued as damage caused by salvage and demolition operations. Submit before work begins.

### 1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 "Quality Requirements".

1.6 FIELD CONDITIONS

A. The City of New York will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so the City of New York's operations will not be disrupted.

B. Notify the Commissioner of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

C. Hazardous Materials: Present in buildings and structures to be selectively demolished. A report on the presence of hazardous materials is on file for review and use. Examine report to become aware of locations where hazardous materials are present.

1. Hazardous material remediation is specified elsewhere in the Contract Documents.

D. Storage or sale of removed items or materials on-site is not permitted.

E. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

1. Maintain fire-protection facilities in service during selective demolition operations.

1.7 COORDINATION

A. Arrange selective demolition schedule so as not to interfere with the City of New York's operations.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of the City of New York.

B. Standards: Comply with ANSI/ASSP A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting selective demolition operations.

B. Review Project Record Documents of existing construction or other existing condition and hazardous material information provided by the City of New York. The City of New York does not guarantee that existing conditions are same as those indicated in Project Record Documents.

C. Perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective building demolition operations.

1. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

D. Steel Tendons: Locate tensioned steel tendons and include recommendations for de-tensioning.

E. Verify that hazardous materials have been remediated before proceeding with building demolition operations.

F. Survey of Existing Conditions: Record existing conditions by use of measured drawings preconstruction photographs or video templates.

1. Inventory and record the condition of items to be removed and salvaged.
2. Before selective demolition or removal of existing building elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.

3.3 EXISTING UTILITIES

A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

1. Comply with requirements for existing services/systems interruptions per DDC General Conditions.

B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off utility services and mechanical/electrical systems serving areas to be selectively demolished.

1. Coordinate with the Commissioner to arrange to shut off indicated services/systems.
2. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
3. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated on Drawings to be removed.

a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material and leave in place.
c. Equipment to Be Removed: Disconnect and cap services and remove equipment.
d. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
e. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to the City of New York.
f. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
g. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material and leave in place.

3.4 PROTECTION

A. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
4. Cover and protect furniture, furnishings, and equipment that have not been removed.
5. Comply with DDC General Conditions for requirements of temporary enclosures, dust control, heating, and cooling.

B. Temporary Shoring: Design, provide, and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

1. Strengthen or add new supports when required during progress of selective demolition.

C. Remove temporary barricades and protections where hazards no longer exist.

3.5 SELECTIVE DEMOLITION, GENERAL

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work as follows:

1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
5. Maintain fire watch during and for at least 4 hours after flame-cutting operations.
6. Maintain adequate ventilation when using cutting torches.
7. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
8. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
9. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
10. Dispose of demolished items and materials promptly.

B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

C. Removed and Salvaged Items:

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 the City of New York.
4. Transport items to the City of New York's storage area designated by the Commissioner.
5. Protect items from damage during transport and storage.

D. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse.
2. Pack or crate items after cleaning and repairing. Identify contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

E. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Commissioner, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

3.6 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

A. Concrete: Demolish in small sections. Using power-driven saw, cut concrete to a depth of at least 3/4 inch at junctures with construction to remain. Dislodge concrete from reinforcement at perimeter of areas being demolished, cut reinforcement, and then remove remainder of concrete. Neatly trim openings to dimensions indicated.

B. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, and then remove masonry between saw cuts.

C. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, and then break up and remove.

D. Roofing: Remove no more existing roofing than what can be covered in one day by new roofing and so that building interior remains watertight and weathertight.

1. Remove existing roof membrane, flashings, copings, and roof accessories.
2. Remove existing roofing system down to substrate.

3.7 DISPOSAL OF DEMOLISHED MATERIALS

A. Remove demolition waste materials from Project site and dispose of them in an EPA-approved construction and demolition waste landfill.

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

B. Burning: Do not burn demolished materials.

3.8 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION - 22 05 05

# SECTION 22 05 17 - SLEEVES AND SLEEVE SEALS FOR PLUMBING PIPING

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract (City of New York Standard Construction Contract).

### 1.2 SUMMARY

A. Section Includes:

1. Sleeves.
2. Grout.

### 1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures”.

### 1.4 SUBMITTALS

A. Product Data: For each type of product indicated.

### 1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

## PART 2 - PRODUCTS

### 2.1 SLEEVES

A. Cast-Iron Wall Pipes: Cast or fabricated of cast or ductile iron and equivalent to ductile-iron pressure pipe, with plain ends and integral water-stop unless otherwise indicated.

B. Galvanized-Steel Wall Pipes: ASTM A 53/A 53M, Schedule 40, with plain ends and welded steel collar; zinc coated.

C. Galvanized-Steel-Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, zinc coated, with plain ends.

D. Galvanized-Steel-Sheet Sleeves: 0.0239-inch minimum thickness; round tube closed with welded longitudinal joint.

### 2.2 GROUT

A. Standard: ASTM C 1107/C 1107M, Grade B, post-hardening and volume-adjusting, dry, hydraulic-cement grout.

B. Characteristics: Non-shrink; recommended for interior and exterior applications.

C. Design Mix: 5000-psi, 28-day compressive strength.

D. Packaging: Premixed and factory packaged.

PART 3 - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 SLEEVE INSTALLATION

A. Install sleeves for piping passing through penetrations in floors, partitions, roofs, and walls.

B. For sleeves that will have sleeve-seal system installed, select sleeves of size large enough to provide 1-inch annular clear space between piping and concrete slabs and walls.

1. Sleeves are not required for core-drilled holes.

C. Install sleeves in concrete floors, concrete roof slabs, and concrete walls as new slabs and walls are constructed.

1. Cut sleeves to length for mounting flush with both surfaces.

a. Exception: Extend sleeves installed in floors of mechanical equipment areas or other wet areas 2 inches above finished floor level.

2. Using grout, seal the space outside of sleeves in slabs and walls without sleeve-seal system.

D. Install sleeves for pipes passing through interior partitions.

1. Cut sleeves to length for mounting flush with both surfaces.
2. Install sleeves that are large enough to provide 1/4-inch annular clear space between sleeve and pipe or pipe insulation.
3. Seal annular space between sleeve and piping or piping insulation; use joint sealants appropriate for size, depth, and location of joint. Comply with requirements for sealants specified in Division 07 Section "Joint Sealants."

E. Fire-Barrier Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with firestop materials. Comply with requirements for firestopping specified in Division 07 Section "Penetration Firestopping."

3.3 SLEEVE AND SLEEVE-SEAL SCHEDULE

A. Use sleeves and sleeve seals for the following piping-penetration applications:

1. Concrete Slabs above Grade:

a. Piping Smaller Than NPS 6: Galvanized-steel-pipe.
b. Piping NPS 6 and Larger: Galvanized-steel-pipe sleeves.

2. Interior Partitions:

a. Piping Smaller Than NPS 6: Galvanized-steel-pipe sleeves.
b. Piping NPS 6 and Larger.

END OF SECTION - 22 05 17

# SECTION 22 05 29 - HANGERS AND SUPPORTS FOR PLUMBING PIPING

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract (City of New York Standard Construction Contract).

### 1.2 SUMMARY

A. Section includes:

1. The work of this section includes providing all labor, materials, accessories, services and tests necessary to install complete and make ready for operation by the City of New York, all Hangers and Supports for Plumbing and Fire Protection Systems as shown on the Drawings and as specified hereinafter.

B Definitions:

1. MSS: Manufacturers Standardization Society of The Valve and Fittings Industry Inc.

### 1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures”.

### 1.4 SUBMITTALS

A. Provide data for all products.

### 1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

### 1.6 SPECIFIC REQUIREMENTS

A. Provide submittals for all insulation at hangers, expansion joints, anchors, guides, etc. with details.

B. Provide products which are Underwriters Laboratories listed and Factory Mutual approved.

C. Provide pipe hangers and supports of which materials, design, and manufacture comply with ANSI/MSS SP-58.

D. Select and apply pipe hangers and supports, complying with MSS SP-69.

E. Fabricate and install pipe hangers and supports complying with MSS SP-89.

F. Assume the responsibility for the proper transfer of the loads of the piping system to the structure.

G. Supports and hangers will be provided for all horizontal and vertical piping. The hanger design must conform to the ASA Code for Pressure Piping. Hangers will be kept outside of pipe insulation.

H. All bracket clamps and rod sizes indicated in these Specifications are minimum size only. This Contractor is to be responsible for structural integrity of all supports. All structural hanging material must have a safety factor of five (5) built in.

I. All horizontal cast iron pipe is to be supported every five (5) feet and at each hub and/or "no-hub" clamping assembly. When a concentration of fittings occurs, additional support will be installed consistent with good trade practices. "No-hub" system must be supported in accordance with Standard CISPI-310-78.

## PART 2 - PRODUCTS

### 2.1 PERFORMANCE REQUIREMENTS

A. Engineering Services: Engage a qualified professional engineer licensed in the State of New York, as defined in DDC General Conditions, to design trapeze pipe hangers and equipment supports.

B. Structural Performance: Hangers and supports for plumbing piping and equipment shall withstand the effects of gravity loads and stresses within limits and under conditions indicated according to ASCE/SEI 7.

1. Design supports for multiple pipes, including pipe stands, capable of supporting combined weight of supported systems, system contents, and test water.
2. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.
3. Design seismic-restraint hangers and supports for piping and equipment and obtain approval from Commissioner.

### 2.2 METAL PIPE HANGERS AND SUPPORTS

A. Carbon-Steel Pipe Hangers and Supports:

1. Description: MSS SP-58, Types 1 through 58, factory-fabricated components.
2. Galvanized Metallic Coatings: Pregalvanized, hot-dip galvanized, or electro-galvanized.
3. Nonmetallic Coatings: Plastic coated or epoxy powder coated.
4. Padded Hangers: Hanger with fiberglass or other pipe insulation pad or cushion to support bearing surface of piping.
5. Hanger Rods: Continuous-thread rod, nuts, and washer made of carbon steel .

B. Stainless-Steel Pipe Hangers and Supports:

1. Description: MSS SP-58, Types 1 through 58, factory-fabricated components.
2. Padded Hangers: Hanger with fiberglass or other pipe insulation pad or cushion to support bearing surface of piping.
3. Hanger Rods: Continuous-thread rod, nuts, and washer made of stainless steel.

C. Copper Pipe and Tube Hangers:

1. Description: MSS SP-58, Types 1 through 58, copper-coated-steel, factory-fabricated components.
2. Hanger Rods: Continuous-thread rod, nuts, and washer made of stainless steel.

2.3 TRAPEZE PIPE HANGERS

A. Description: MSS SP-58, Type 59, shop- or field-fabricated pipe-support assembly, made from structural-carbon-steel shapes, with MSS SP-58 carbon-steel hanger rods, nuts, saddles, and U-bolts.

2.4 THERMAL HANGER-SHIELD INSERTS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. ERICO International Corporation.
2. National Pipe Hanger Corporation.
3. Pipe Shields Inc.
4. Piping Technology & Products, Inc.
5. Or approved equal.

B. Insulation-Insert Material for Cold Piping: ASTM C 552, Type II cellular glass with 100-psig minimum compressive strength and vapor barrier.

C. Insulation-Insert Material for Hot Piping: Water-repellent-treated, ASTM C 533, Type I calcium silicate with 100-psig () minimum compressive strength.

D. For Trapeze or Clamped Systems: Insert and shield shall cover entire circumference of pipe.

E. For Clevis or Band Hangers: Insert and shield shall cover lower 180 degrees of pipe.

F. Insert Length: Extend 2 inches () beyond sheet metal shield for piping operating below ambient air temperature.

2.5 FASTENER SYSTEMS

A. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete, with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Hilti, Inc.
    b. ITW Ramset/Red Head; Illinois Tool Works, Inc.
    c. MKT Fastening, LLC.
    d. Simpson Strong-Tie Co., Inc.
    e. Or approved equal.

B. Mechanical-Expansion Anchors: Insert-wedge-type anchors, for use in hardened portland cement concrete, with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. B-line, an Eaton business.
    b. Empire Tool and Manufacturing Co., Inc.
    c. Hilti, Inc.
    d. ITW Ramset/Red Head; Illinois Tool Works, Inc.
    e. MKT Fastening, LLC.
    f. Or approved equal.

2. Indoor Applications: Zinc-coated steel.
3. Outdoor Applications: Stainless steel.

2.6 MATERIALS

A. Carbon Steel: ASTM A 1011/A 1011M.

B. Stainless Steel: ASTM A 240/A 240M.

C. Grout: ASTM C 1107/C 1107M, factory-mixed and -packaged, dry, hydraulic-cement, nonshrink and nonmetallic grout; suitable for interior and exterior applications.

1. Properties: Nonstaining, noncorrosive, and nongaseous.
2. Design Mix: 5000-psi 28-day compressive strength.

PART 3 - EXECUTION

3.1 EXECUTION REQUIRMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 INSTALLATION REQUIREMENTS

A. Provide necessary structural members, hangers and supports of approved design to keep piping in proper alignment and prevent transmission of injurious thrusts and vibrations. In all cases where hangers, brackets, etc., are supported from concrete construction, care must be taken not to weaken concrete or penetrate waterproofing. All hangers and

supports must be capable of screw adjustment after piping is erected. Hangers supporting piping expanding into loops, bends and offsets must be secured to the building structure in such a manner that horizontal adjustment perpendicular to the run of piping supported may be made to accommodate displacement due to expansion. All such hangers must be finally adjusted, both in the vertical and horizontal direction. Hangers in contact with copper or brass pipe must be copper plated steel.

B. Pipe hangers must be of the clevis and pipe roller types, except where otherwise noted.

C. Where piping is run near the floor and not hung from the ceiling construction but is supported from the floor, such supports must be of pipe standards with base flange and adjustable top yoke.

D. Except where otherwise noted, piping will be supported from structural steel only. Provide supplementary steel where required.

E. Piping shall not be hung from other piping, ducts, conduits or from equipment of other trades.

F. All water piping connected to rotating equipment within 5 feet from it will be isolated from the building structure by means of vibration hangers inserted in the hanger rods. The vibration hangers will consist of a steel spring in combination with a double deflection neoprene element within a rectangular steel housing. Combined static deflection must be 1.375" minimum. Hangers will have capability of supporting the piping at a fixed elevation during installation and must incorporate an adjusting device to transfer the load to the spring. Deflection will be indicated by means of scale.

G. Where additional steel is required for the support of hangers, furnish and install same subject to the approval of the Commissioner. Piping must not be supported from the metal deck slab construction.

H. All piping running on walls will be supported by means of hanger suspended from heavy angle iron wall brackets. No wall hooks will be permitted.

I. Lateral bracing of horizontal pipe will be provided where required to prevent side sway or vibration. The lateral bracing must be of a type approved by the Commissioner and is to be installed where directed by the Commissioner.

J. All anchors are to be separate and independent of all hangers, guides and supports. Anchors must be of heavy blacksmith construction suitable in every way for the work approved by the Commissioner. Anchors must be welded to the pipe and fastened to the structure with anchor type bolts.

K. Anchors must be fabricated and assembled in such a form as to secure the piping in a fixed position. They will permit the line to take up its expansion and contraction freely in opposite directions away from the anchored points; and will be so arranged as to be structurally suitable for particular location and line loading. Submit details for approval.

L. All horizontal steel and copper pipe are to be supported at maximum intervals as follows: Steel pipe - up to 1¼" - 8'-0"; 1½" to 2½" - 10'-0"; 3" and larger - 12'-0". Copper tube and Brass Pipe - up to 1¼" - 6'-0"; 1½" to 2½" - 8'-0"; 3" and larger - 10'-0". There will be no metal-to-metal contact at supports for non-ferrous pipes. Provide $^{1}/_{8}$" thick neoprene strips or pipe clamps under uninsulated piping at supports. Hangers and supports are to be installed outside of insulation or insulated piping.

M. All horizontal drainage piping installed below slab on grade will be supported from the reinforcing bars in concrete slab using rods. All parts of support must be coated twice by asphaltic or bitumenistic paint. Supports must be located at each joint of the pipe.

N. Trapeze type hangers are to be made up of angles bolted back-to-back or channels for supporting parallel lines of piping. Trapeze type hangers will be supported with suspension rods having double nuts, and securely attached to construction with inserts, beam clamps, steel fishplates, cantilever brackets, lag screws or other approved means. Use approved type brackets for supporting piping attached along walls. Non-insulated piping (compressed air, gas, etc.) supported by trapeze hangers will be provided with hold down clamps at the trapeze hangers. If only non-ferrous piping (copper, etc.) is supported on the trapeze hangers, the trapeze and hold down clamps will be copperclad.

O. Maximum weights on hanger rods must be such that stress in tension will not exceed 9,000 psi, using root area of threaded portion. In no case will hanger sizes be less than 3/8" for pipe up to 2", ½" for pipe 1½" to 3½", $^{5}/_{8}$" for pipe 4" to 5", ¾" for pipe 6", $^{7}/_{8}$" for pipe 8" to 12".

P. Supports for vertical piping must be double bolt riser clamps, with each end having equal bearing on the building structure located at alternate floors. Cast iron soil pipe must be supported at every floor and at its base.

Q. All auxiliary steel for pipe supports will be furnished and installed under this Section.

R. All hangers, rods, inserts, clamps, stanchions, brackets, etc., must be dipped in zinc chromate primer before installation and provided with one (1) coat of approved type paint after installation. Chains, straps, perforated iron or wire hangers are not permitted.

S. The Commissioner must approve method of supporting pipes from building structure before work is started. The Contractor will bear all responsibility for materials and workmanship as described in this Section and must make sure that all hangers and supports are properly and permanently connected to building structure. No piping will be hung from metal deck; auxiliary steel must be provided.

T. All pipe support will be installed to avoid interference with other piping, hangers, electrical conduits and supports, building structures and equipment.

END OF SECTION - 22 05 29

# SECTION 22 05 53 - IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract (City of New York Standard Construction Contract).

### 1.2 SUMMARY

A. Section Includes:

1. Warning signs and labels.
2. Pipe labels.
3. Stencils.
4. Valve tags.
5. Warning tags.

### 1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures”

### 1.4 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples: For color, letter style, and graphic representation required for each identification material and device.

C. Equipment Label Schedule: Include a listing of all equipment to be labeled with the proposed content for each label.

D. Valve numbering scheme.

E. Valve Schedules: For each piping system to include in maintenance manuals.

### 1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

### 1.6 COORDINATION

A. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.

B. Coordinate installation of identifying devices with locations of access panels and doors.

C. Install identifying devices before installing acoustical ceilings and similar concealment.

PART 2 - PRODUCTS

2.1 WARNING SIGNS AND LABELS

A. Material and Thickness: Multilayer, multicolor, plastic labels for mechanical engraving, 1/8-inch-thick, and having predrilled holes for attachment hardware.

B. Letter Color: Black.

C. Background Color: Yellow.

D. Maximum Temperature: Able to withstand temperatures up to 160 deg F.

E. Minimum Label Size: Length and width vary for required label content, but not less than 2-1/2 by 3/4 inch.

F. Minimum Letter Size: 1/4 inch for name of units if viewing distance is less than 24 inches, 1/2 inch for viewing distances up to 72 inches, and proportionately larger lettering for greater viewing distances. Include secondary lettering two-thirds to three-fourths the size of principal lettering.

G. Fasteners: Stainless-steel rivets or self-tapping screws.

H. Adhesive: Contact-type permanent adhesive, compatible with label and with substrate.

I. Label Content: Include caution and warning information, plus emergency notification instructions.

2.2 PIPE LABELS

A. General Requirements for Manufactured Pipe Labels: Preprinted, color-coded, with lettering indicating service, and showing flow direction.

B. ASME A 13.1- Scheme for the Identification of Piping Systems; The American Society of Mechanical Engineers; 2007.

C. Pretensioned Pipe Labels: Pre-coiled, semirigid plastic formed to partially cover circumference of pipe and to attach to pipe without fasteners or adhesive.

D. Self-Adhesive Pipe Labels: Printed plastic with contact-type, permanent-adhesive backing.

E. Pipe Label Contents: Include identification of piping service using same designations or abbreviations as used on Drawings, pipe size, and an arrow indicating flow direction.

1. Flow-Direction Arrows: Integral with piping system service lettering to accommodate both directions, or as separate unit on each pipe label to indicate flow direction.
2. Lettering Size: At least 1-1/2 inches high.

2.3 STENCILS

A. Stencils: Prepared with letter sizes and color according to ASME A13.1 for piping; and minimum letter height of 3/4 inch for access panel and door labels, equipment labels, and similar operational instructions.

1. Stencil Paint: Exterior, gloss, acrylic enamel black unless otherwise indicated. Paint may be in pressurized spray-can form.
2. Identification Paint: Exterior, acrylic enamel in colors according to ASME A13.1 unless otherwise indicated.

2.4 WARNING TAGS

A. Warning Tags: Preprinted or partially preprinted, accident-prevention tags, of plasticized card stock with matte finish suitable for writing.

1. Size: Approximately 4 by 7 inches.
2. Fasteners: Brass grommet and wire.
3. Nomenclature: Large-size primary caption such as "DANGER," "CAUTION," or "DO NOT OPERATE."
4. Color: Yellow background with black lettering.

PART 3 - EXECUTION

3.1 EXECUTION REQUIRMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 PREPARATION

A. Clean piping and equipment surfaces of substances that could impair bond of identification devices, including dirt, oil, grease, release agents, and incompatible primers, paints, and encapsulants.

3.3 PIPE LABEL INSTALLATION

A. Stenciled Pipe Label Option: Stenciled labels may be provided instead of manufactured pipe labels, at Installer's option. Install stenciled pipe labels with painted, color-coded bands or rectangles on each piping system.

1. Identification Paint: Use for contrasting background.
2. Stencil Paint: Use for pipe marking.

B. Locate pipe labels where piping is exposed or above accessible ceilings in finished spaces; machine rooms; accessible maintenance spaces such as shafts, tunnels, and plenums; and exterior exposed locations as follows:

1. Near each valve and control device.
2. Near each branch connection, excluding short takeoffs for fixtures and terminal units. Where flow pattern is not obvious, mark each pipe at branch.

3. Near penetrations through walls, floors, ceilings, and inaccessible enclosures.
4. At access doors, manholes, and similar access points that permit view of concealed piping.
5. Near major equipment items and other points of origination and termination.
6. Spaced at maximum intervals of 50 feet along each run. Reduce intervals to 25 feet in areas of congested piping and equipment.
7. On piping above removable acoustical ceilings. Omit intermediately spaced labels.

3.4 WARNING-TAG INSTALLATION

A. Write required message on, and attach warning tags to, equipment and other items where required.

END OF SECTION - 22 05 53

# SECTION 22 07 19 - PLUMBING PIPING 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 SUMMARY

A. Section includes insulating the following plumbing piping services:

1. Roof drains and rainwater leaders.

B. The Work of this section includes providing all labor, materials, accessories, services and tests necessary to install complete and make ready for operation by the City of New York, all work as shown on Drawings and as specified hereinafter.

C. The piping systems and equipment to be insulated may include, but not be limited to the following:

1. Interior storm/water drainage piping.
2. All insulation to meet latest New York City Energy Conservation Code (NYCECC).

D. Section 22 00 00 - Plumbing is to apply.

### 1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures”.

### 1.4 SUBMITTALS

A. Data for all products.

### 1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

## PART 2 - PRODUCTS

### 2.1 INSULATING MATERIALS

A. All insulation will have a composite (insulation, jacket facing and adhesive used to adhere jacket or facing to the insulation) fire and smoke hazard ratings as tested by Procedure ASTM E-84, NFPA 255 and UL 73, not exceeding flame spread of 25, fuel contributed of 50, and smoke developed of 50. Accessories such as adhesives, mastics, cements, tapes

and cloths for fittings must have component ratings as listed above. Insulation must be glass fiber with a maximum K factor 0.23 at 75°F. mean temperature. Density must not be less than 3 lbs. per cu. ft.

B. Materials as specified below:

1. Fiberglass Pipe Insulation: FS HH-I-558B, Form D, Type III, Class as indicated.

   a. Provide Class 12 for hot and cold plumbing piping.

2. Fiberglass Pipe Fitting Insulation: FS HH-I-558, Form E, Class as indicated.

   a. Provide Class 16 for use with Class 12 pipe insulation, where temperature does not exceed 450°F.

3. Flexible Unicellular Pipe Insulation: FS HH-I-573, Class T.

   a. Calcium Silicate Pipe Insulation: FS HH-I-523, Type II, except Type I where needed, factory applied jacket Class B.

4. Vapor Barrier Materials: FS HH-B-100, Type I, paper-backed aluminum foil, except as otherwise indicated, strength and permeability rating equivalent to adjoining pipe insulation jacketing.
5. Bends must be 0.016-inch-thick, ½" aluminum spaced 18" on center, with finish cement or smooth coat.
6. Wires must be 20 gage galvanized annealed steel, with sealer.
7. Jacketing Material for Equipment Insulation: Provide pre-sized glass cloth or canvas material, not less than 7.8 ounces per square yard.

2.2 ADHESIVES

A. Materials are compatible with insulation materials, jackets, and substrates and for bonding insulation to itself and to surfaces to be insulated unless otherwise indicated.

B. Cellular-Glass Adhesive: Two-component, thermosetting urethane adhesive containing no flammable solvents, with a service temperature range of minus 100 to plus 200 deg F (minus 73 to plus 93 deg C).

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

   a. Foster Brand; H. B. Fuller Construction Products.
   b. Knauf Insulation.
   c. Foamglas insulation.
   d. Or approved equal.

2.3 MASTICS AND COATINGS

A. Materials are compatible with insulation materials, jackets, and substrates.

B. Vapor-Retarder Mastic, Water Based: Suitable for indoor use on below-ambient services.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Childers Brand; H. B. Fuller Construction Products.
b. Foster Brand; H. B. Fuller Construction Products.
c. Knauf Insulation.
d. Mon-Eco Industries, Inc.
e. Vimasco Corporation.
f. Or approved equal.

2. Water-Vapor Permeance: Comply with ASTM E96/E96M or ASTM F1249.

3. Service Temperature Range: Minus 20 to plus 180 deg F (Minus 29 to plus 82 deg C).

4. Comply with MIL-PRF-19565C, Type II, for permeance requirements, with supplier listing on DOD QPD - Qualified Products Database.

5. Color: White.

2.4 SEALANTS

A. Materials are as recommended by the insulation manufacturer and are compatible with insulation materials, jackets, and substrates.

B. Joint Sealants:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Childers Brand; H. B. Fuller Construction Products.
b. Foster Brand; H. B. Fuller Construction Products.
c. Mon-Eco Industries, Inc.
d. Or approved equal.

2. Permanently flexible, elastomeric sealant.
3. Service Temperature Range: Minus 58 to plus 176 deg F (Minus 50 to plus 80 deg C).
4. Color: White or gray.

C. FSK and Metal Jacket Flashing Sealants:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Childers Brand; H. B. Fuller Construction Products.

b. Foster Brand; H. B. Fuller Construction Products.
c. Mon-Eco Industries, Inc.
d. Or approved equal.

2. Fire- and water-resistant, flexible, elastomeric sealant.
3. Service Temperature Range: Minus 40 to plus 250 deg F (Minus 40 to plus 121 deg C).
4. Color: Aluminum.

2.5 RELATED MATERIALS AND REQUIREMENTS

A. At pipe supports, pipe saddles and matching hanger will be used. Joints of insulation abutting pipe saddles will be butted with a one-part, non-slump, moisture cure sealant/adhesive, and the joints firmly pressed together.

B. All concealed and exposed piping will be provided with factory ASJ secured in place with vapor barrier adhesive. Provide ½" aluminum bands spaced 18" on centers.

2.6 INSULATION REQUIREMENTS

A. Storm Water Piping

1. Storm Water Piping – all size - 1" fiberglass insulation, A.S. jacket.

PART 3 - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 GENERAL REQUIREMENTS

A. Maintain integrity of vapor-barrier jackets on pipe insulation and protect to prevent puncture or other damage. Staples must not be used on vapor barrier.

B. Cover valves, flanges, fittings and similar items in each piping system with equivalent thickness and composition of insulation as applied to adjoining pipe run. Install factory, precut or job fabricated units (at Installer's option) except where a specific form or type is indicated.

C. Extend piping insulation without interruption through walls, floors and similar piping penetrations, except where otherwise indicated.

D. Install protective metal shields and insulated inserts at each hanger and support to prevent compression of insulation.

E. Do not apply insulation to hot equipment.

F. Apply insulation using the staggered joint method for both single- and double-layer construction, where feasible. Apply each layer of insulation separately.

G. Coat insulated surfaces of equipment with layer of insulating cement, troweled in a workmanlike manner, leaving a smooth continuous surface. Fill in scored block, seams, chopped edges and depressions, and cover wire netting and joints with cement of sufficient thickness to remove surface irregularities.

H. Cover insulated equipment surface with jacketing neatly fitted and firmly secured. Lap seams at least two inches. Apply over vapor barrier where applicable.

I. Direct contact between pipe and hanger will be avoided. Hanger will pass outside of metal saddle which cover a section of high-density insulation (such as calcium silicate) of sufficient length to support pipe without crushing insulation. Hangers or saddles must not pierce insulation and vapor barriers.

3.3 INSTALLATION REQUIREMENTS

A. Install insulation products in accordance with the manufacturer's written instructions, and in accordance with recognized industry practices to ensure that the insulation serves its intended purpose.

B. Install insulation on pipe systems subsequent to testing and acceptance of tests.

C. Install insulation materials with smooth and even surfaces. Insulate each continuous run of piping with full-length units of insulation, with a single cut piece to complete the run. Do not use cut pieces of scraps abutting each other.

D. Clean and dry pipe surfaces prior to insulating. Butt insulation joints firmly together to ensure a complete and tight fit over surfaces to be covered.

E. The Contractor must take every precaution necessary to ensure that the covering material is in satisfactory condition to receive painting.

F. Penetration of walls and floors by piping connection to rotating equipment will be provided with a fiberglass sleeve, the full depth of pipe penetration.

G. Do not insulate hand holes, cleanouts, ASME stamp, or the manufacturer's nameplate. Provide neatly beveled edge at interruptions of insulation.

H. Replace damaged insulation which cannot be repaired satisfactorily, including units with vapor barrier damage and moisture saturated units.

I. The installer of the piping insulation must advise Contractor of required protection for the insulation work during the remainder of the construction period, to avoid damage and deterioration.

END OF SECTION - 22 07 19

# SECTION 22 14 13 - FACILITY STORM DRAINAGE PIPING

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract (City of New York Standard Construction Contract).

### 1.2 SUMMARY

A. Section Includes:

1. Pipe, tube, and fittings.
2. Specialty pipe fittings.

### 1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures”.

### 1.4 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: Include plans, elevations, sections, and details.

C. Field quality-control reports.

### 1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

### 1.6 PROJECT CONDITIONS

A. Interruption of Existing Storm Service: Do not interrupt service to facilities occupied by the City of New York unless permitted under the following conditions and then only after arranging to provide temporary service according to requirements indicated:

1. Notify Commissioner no fewer than two days in advance of proposed interruption of sanitary waste service.
2. Do not proceed with interruption of sanitary waste service without Commissioner's written permission.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Components and installation must be capable of withstanding the following minimum working pressure unless otherwise indicated:

1. Storm Drainage Piping: 10-foot head of water (30 kPa).

2.2 PIPING MATERIALS

A. Comply with requirements in "Piping Schedule" Article for applications of pipe, tube, fitting materials, and joining methods for specific services, service locations, and pipe sizes.

2.3 HUBLESS, CAST-IRON STORM PIPE AND FITTINGS

A. Pipe and Fittings: ASTM A 888 or CISPI 301.

1. Standards: ASTM C 1277 and CISPI 310.
2. Description: Stainless-steel corrugated shield with stainless-steel bands and tightening devices; and ASTM C 564, rubber sleeve with integral, center pipe stop.
3. Interior above ground, storm piping will be service weight cast iron soil pipe with no-hub (4) band couplings joints. Couplings in first paragraph below are made in NPS 1-1/2 to NPS 15 (DN 40 to DN 375). Couplings in paragraph below are made in NPS 1-1/2 to NPS 10 (DN 40 to DN 250).

B. Manufactures for CISPI, Hubless-Piping Couplings: Subject to compliance with requirements, provide products by one of the following:

1. Charlotte Pipe.
2. MIFAB, Inc.
3. Tyler Pipe.
4. Or approved equal.

2.4 SPECIALTY PIPE FITTINGS

A. Transition Couplings:

1. General Requirements: Fitting or device for joining piping with small differences in OD's or of different materials. Include end connections same size as and compatible with pipes to be joined.
2. Fitting-Type Transition Couplings: Manufactured piping coupling or specified piping system fitting.
3. Unshielded, Non-pressure Transition Couplings:

a. Standard: ASTM C 1173.

b. Description: Elastomeric, sleeve-type, reducing or transition pattern. Include shear ring and corrosion-resistant-metal tension band and tightening mechanism on each end.
c. Sleeve Materials:

1) For Cast-Iron Soil Pipes: ASTM C 564, rubber.
2) For Dissimilar Pipes: ASTM D 5926, or other material compatible with pipe materials being joined.

B. Manufacturers for Transition Couplings: Subject to compliance with requirements, provide products by one of the following:

1. Dallas Specialty & Mfg. Co.
2. Mission Rubber Company; a division of MCP Industries, Inc.
3. Plastic Oddities; a division of Diverse Corporate Technologies, Inc.
4. Or approved equal.

C. Shielded, Non-pressure Transition Couplings:

1. Standard: ASTM C 1460.
2. Description: Elastomeric or rubber sleeve with full-length, corrosion-resistant outer shield and corrosion-resistant-metal tension band and tightening mechanism on each end.

D. Manufacturers for Shielded, Non-pressure Transition Couplings: Subject to compliance with requirements, provide products by one of the following:

1. Cascade Waterworks Mfg. Co.
2. Mission Rubber Company; a division of MCP Industries, Inc.
3. Dallas Specialty & Mfg. Co.
4. Or approved equal.

E. Dielectric Fittings:

1. General Requirements: Assembly of copper alloy and ferrous materials with separating nonconductive insulating material. Include end connections compatible with pipes to be joined.

F. Dielectric Unions:

1. Description:

a. Standard: ASSE 1079.
b. Pressure Rating: 125 psig (860 kPa) minimum at 180 deg F (82 deg C).

G. Manufacturers for Dielectric Unions: Subject to compliance with requirements, provide products by one of the following:

1. Capitol Manufacturing Company.

2. Watts Regulator Co.; a division of Watts Water Technologies, Inc.
3. Wilkins; a Zurn company.
4. Or approved equal.

PART 3 - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 PIPING INSTALLATION

A. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems. Indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated unless deviations to layout are approved on coordination drawings.

B. Install piping in concealed locations unless otherwise indicated and except in equipment rooms and service areas.

C. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.

D. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal.

E. Install piping to permit valve servicing.

F. Install piping at indicated slopes.

G. Install piping free of sags and bends.

H. Install fittings for changes in direction and branch connections.

I. Install piping to allow application of insulation.

J. Make changes in direction for storm drainage piping using appropriate drainpipe. Do not change direction of flow more than 90 degrees. Use proper size of standard increasers and reducers if pipes of different sizes are connected. Reducing size of drainage piping in direction of flow is prohibited.

K. Install storm drainage piping at the following minimum slopes unless otherwise indicated:

1. The drainage piping 2½” or less must be run at a minimum grade of ¼” per foot downward in the direction of flow. The drainage piping 3” to 6” must be run at a minimum grade of $^{1}/_{8}$" per foot downward in the direction of flow. Wherever possible, a ¼" per foot pitch must be maintained. Maintain the ceiling heights established.

L. Install cast-iron soil piping according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook," Chapter IV, "Installation of Cast Iron Soil Pipe and Fittings."

M. Do not enclose, cover, or put piping into operation until it is inspected and approved by the NYC Department of Buildings.

N. Install sleeves for piping penetrations of walls, ceilings, and floors. Comply with requirements for sleeves specified in Section 22 05 17 "Sleeves and Sleeve Seals for Plumbing Piping."

O. Install sleeve seals for piping penetrations of concrete walls and slabs. Comply with requirements for sleeve seals specified in Section 22 05 17 "Sleeves and Sleeve Seals for Plumbing Piping."

P. Install escutcheons for piping penetrations of walls, ceilings, and floors. Comply with requirements for escutcheons specified in Section 22 00 00 "Plumbing."

3.3 JOINT CONSTRUCTION

A. Join hubless, cast-iron soil piping according to CISPI 310 and CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for hubless-piping 4 ban clamp coupling joints.

B. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:

1. Apply appropriate tape or thread compound to external pipe threads unless dry seal threading is specified.
2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.

3.4 SPECIALTY PIPE FITTING INSTALLATION

A. Transition Couplings:

1. Install transition couplings at joints of piping with small differences in OD's.

a. NPS 1-1/2 (DN 40) and Smaller: Fitting-type transition couplings.
b. NPS 2 (DN 50) and Larger: Pressure transition couplings.

B. Dielectric Fittings:

1. Install dielectric fittings in piping at connections of dissimilar metal piping and tubing.

3.5 HANGER AND SUPPORT INSTALLATION

A. Comply with requirements for pipe hanger and support devices and installation specified in Section 22 05 29 "Hangers and Supports for Plumbing Piping and Equipment."

1. Vertical Piping: MSS Type 8 or Type 42, clamps.
2. Install individual, straight, horizontal piping runs:

a. 100 Feet (30 m) and Less: MSS Type 1, adjustable, steel clevis hangers.
b. Longer Than 100 Feet (30 m): MSS Type 43, adjustable roller hangers.

3. Multiple, Straight, Horizontal Piping Runs 100 Feet (30 m) or Longer: MSS Type 44, pipe rolls. Support pipe rolls on trapeze.
4. Base of Vertical Piping: MSS Type 52, spring hangers.

B. Support horizontal piping and tubing within 12 inches (300 mm) of each fitting and coupling.

C. Support vertical piping and tubing at base and at each floor.

D. Rod diameter may be reduced one size for double-rod hangers, with 3/8-inch (10-mm) minimum rods.

E. Install hangers for cast-iron soil piping with the following maximum horizontal spacing and minimum rod diameters:

1. NPS 1-1/4 and NPS 2 (DN 40 and DN 50): 60 inches (1500 mm) with 3/8-inch (10-mm) rod.
2. NPS 3 (DN 80): 60 inches (1500 mm) with 1/2-inch (13-mm) rod.
3. NPS 4 and NPS 5 (DN 100 and DN 125): 60 inches (1500 mm) with 5/8-inch (16-mm) rod.
4. NPS 6 and NPS 8 (DN 150 and DN 200): 60 inches (1500 mm) with 3/4-inch (19-mm) rod.

F. Install supports for vertical cast-iron soil piping every 15 feet (4.5 m).

3.6 CONNECTIONS

A. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Connect drainage piping to the following:

1. Plumbing Specialties: Connect storm piping in sizes indicated, but not smaller than required by plumbing code.
2. Install test tees (wall cleanouts) in conductors near floor and floor cleanouts with cover flush with floor.

C. Where installing piping adjacent to equipment, allow space for service and maintenance of equipment.

3.7 IDENTIFICATION

A. Identify exposed storm drainage piping. Comply with requirements for identification specified in Section 22 05 53 "Identification for Plumbing Piping and Equipment."

3.8 FIELD QUALITY CONTROL

A. During installation, notify the Commissioner at least 24 hours before inspection. Perform tests specified below in presence of the Commissioner.

1. Roughing-in Inspection: Arrange for inspection of piping before concealing or closing-in after roughing-in and before setting fixtures.
2. Final Inspection: Arrange for final inspection by the NYC Department of Buildings Inspector to ensure compliance with requirements.

B. Reinspection: If the NYC Department of Buildings Inspector finds that piping will not pass test or inspection, make required corrections and arrange for reinspection.

C. Reports: Prepare inspection reports and have them signed by the NYC Department of Buildings Inspector.

1. Prepare reports for tests and required corrective action.

3.9 CLEANING AND PROTECTION

A. Clean interior of piping. Remove dirt and debris as work progresses.

B. Protect drains during remainder of construction period to avoid clogging with dirt and debris and to prevent damage from traffic and construction work.

C. Place plugs in ends of uncompleted piping at end of day and when work stops.

3.10 PIPING SCHEDULE

A. Flanges and unions may be used on aboveground pressure piping unless otherwise indicated.

B. Aboveground, storm piping must be the following:

1. Hubless, cast-iron storm pipe and fittings; CISPI hubless-piping couplings; and coupled joints, coupling to have minimum of 4 ban clamps.

3.11 INSTALLATION NOTES FOR INTERIOR PIPING SYSTEMS

A. It is the intent that each part of the plumbing systems must be complete in all details and all lines provided with all control valves as indicated on Drawings, or as may be required for the proper control of the pipe lines under this Section so that any fixture, line or piece

of apparatus may be cut out for restoration without interference or interruption of the service to the rest of the building.

B. The size of storm piping must be as determined by the NYC Plumbing Code for plumbing and drainage, except where specifically noted to be larger by the Specifications or plans; and all fixed rules of installation as set forth in the NYC Plumbing Code must be followed as part of the Specifications.

C. The Contractor must examine carefully the architectural plans and details and be familiar with all conditions relative to the installation of piping, particularly where same is concealed behind furring or in hung ceilings.

D. Do not permit the pipes to be exposed beyond finished plaster lines unless specifically shown on Drawings. Contractor to consult with the other trades in the building and install piping in such a way as to least interfere with the installation of other trades.

E. Piping must be installed, whether indicated or not, so as to rise and/or drop to clear any and all conduits larger than 1", lighting fixtures, ductwork and heating mains, to maintain the desired clear heights. The Contractor to consult with the other trades and facilitate the erection of the equipment and piping.

F. Run piping straight and as direct as possible. In general, form right angles with or parallel to walls or other piping. Risers will be erected plumb and true.

G. After cutting, all pipes must be reamed out to full bore and before erection the inside of all pipes must be thoroughly cleaned.

H. No piping or work will be concealed or insulated until all required tests have been satisfactorily completed and work has been approved by the Commissioner.

I. Branch connections of the drainage systems will be made with "Wye" and long "Tee-Wye" fittings, short ¼" bends, common offsets and double hubs will not be permitted. Short "Tee-Wye"" fittings are to be used in vertical piping only.

J. Cleanouts must be provided at foot of all stacks, all changes of directions, at the ends of branch runs where shown, every 50'-0" and as required by Code and must be furnished as described under cleanouts.

K. All piping installed in finished areas must be completely concealed within hung ceiling, furrings, soffits, pipe spaces, etc.

L. Where complete concealment is impossible because of obstructions such as beams, ducts, lights, piping, etc., the Contractor must not install any work before first consulting with the Commissioner. Follow all requirements set forth in the Contract.

END OF SECTION - 22 14 13

# SECTION 22 14 23 - STORM DRAINAGE PIPING 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 SUMMARY

A. Section Includes:

1. Retrofit Roof Drains
2. Replacement Roof Drains

### 1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures”.

### 1.4 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: Include plans, elevations, sections, and details.

C. Field quality-control reports.

### 1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

B. Piping materials must bear label, stamp, or other markings of specified testing agency.

### 1.6 PROJECT CONDITIONS

A. Interruption of Existing Storm Service: Do not interrupt service to facilities occupied by the City of New York unless permitted under the following conditions and then only after arranging to provide temporary service according to requirements indicated:

1. Notify Commissioner no fewer than two days in advance of proposed interruption of sanitary waste service.
2. Do not proceed with interruption of sanitary waste service without Commissioner’s written permission.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis of Design Product: Subject to compliance with requirements, provide products by Zurn Industries, or comparable by one of the following:

1. Marathon Roofing Products.
2. Smith, Jay R. Mfg. Co.
3. Or approved equal.

2.2 RETROFIT ROOF DRAINS

A. Replacement Roof Drain, cast iron with enhanced epoxy coating coated inside and out with a two-component, solvent-free epoxy that provides additional protection again corrosive environment. Refer to Plumbing Drain Schedule on Drawing P-001.00.

B. Standard: ASME A112.6.4, for roof drains.

C. Body Material: Cast iron with cast iron dome.

D. Dimension of Body: Nominal 15-inch diameter.

E. Outlet: Bottom.

F. Provide static extension and adjustable extension assembly as needed to ensure roof drain height will be flush to new roof level height.

2.3 REPLACEMENT ROOF DRAINS

A. Roof Drain with duco cast iron body with combined flashing clamp, gravel stop, sump receiver, adjustable extension assembly, combination membrane flashing clamp/gravel stop and vandal proof galvanized cast-iron dome.

B. Standard: ASME A112.6.4, for roof drains.

C. Body Material: Cast iron with galvanized cast iron dome.

D. Dimension of Body: Nominal 15-inch diameter.

E. Outlet: Bottom.

F. Provide static extension and adjustable extension assembly as needed to ensure roof drain height will be flush to new roof level height.

PART 3 - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 INSTALLATION

A. Install roof drains at low points of roof areas according to roof membrane manufacturer's written installation instructions.

B. Install flashing collar or flange of roof drain to prevent leakage between drain and adjoining roofing. Maintain integrity of waterproof membranes where penetrated.

C. Install expansion joints, if indicated, in roof drain outlets.

D. Position roof drains for easy access and maintenance.

3.3 IDENTIFICATION

A. Identify exposed storm drainage piping. Comply with requirements for identification specified in Section 22 05 53 "Identification for Plumbing Piping and Equipment."

3.4 FIELD QUALITY CONTROL

A. During installation, notify Commissioner and the NYC Department of Buildings at least 24 hours before inspection. Perform tests specified below in presence of the Commissioner or a representative of the NYC Department of Buildings.

1. Roughing-in Inspection: Arrange for inspection of piping before concealing or closing-in after roughing-in and before setting fixtures.
2. Final Inspection: Arrange for final inspection by the NYC Department of Buildings inspector and Commissioner to observe tests.

B. Reinspection: If inspector finds that piping will not pass test or inspection, make required corrections and arrange for reinspection.

C. Reports: Prepare inspection reports and have them signed by the Commissioner and the NYC Department of Buildings inspector.

1. Prepare reports for tests and required corrective action.

3.5 CLEANING AND PROTECTION

A. Clean interior of piping. Remove dirt and debris as work progresses.

B. Protect drains during remainder of construction period to avoid clogging with dirt and debris and to prevent damage from traffic and construction work.

C. Place plugs in ends of uncompleted piping at end of day and when work stops.

END OF SECTION - 22 14 23

# SECTION 22 14 26 – FACILITY STORM DRAINS

## 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. Hubless, cast-iron soil pipe and fittings.
2. Replacement Roof Drains

### 1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures”.

### 1.4 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: Include plans, elevations, sections, and details.

C. Field quality-control reports.

### 1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

### 1.6 PROJECT CONDITIONS

A. Interruption of Existing Storm Service: Do not interrupt service to facilities occupied by the City of New York unless permitted under the following conditions and then only after arranging to provide temporary service according to requirements indicated:

1. Notify Commissioner no fewer than two days in advance of proposed interruption of sanitary waste service.
2. Do not proceed with interruption of sanitary waste service without Commissioner's written permission.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers for Hubless, Cast-Iron Soil Pipe and Fittings: Subject to compliance with requirements, provide products by one of the following:

1. AB & I Foundry; a part of the McWane family of companies.
2. Charlotte Pipe and Foundry Company.
3. Tyler Pipe; a part of McWane family of companies.
4. Or approved equal.

B. Manufacturers for Standard, Hubless-Piping Couplings: Subject to compliance with requirements, provide products by one of the following:

1. Fernco Inc.
2. MIFAB, Inc.
3. Tyler Pipe; a subsidiary of McWane Inc.
4. Or approved equal.

C. Manufacturers for Cast-Iron, Hubless-Piping Couplings: Subject to compliance with requirements, provide products by one of the following:

1. MG Piping Products Company.
2. Fernco Inc.
3. MIFAB, Inc.
4. Or approved equal.

D. Manufacturers for Retrofit Roof Drains: Subject to compliance with requirements, provide products by one of the following, :

1. Zurn Industries
2. Marathon Roofing Products
3. Smith, Jay R. Mfg. Co.
4. Or approved equal.

2.2 PIPING MATERIALS

A. Piping materials to bear label, stamp, or other markings of specified testing agency.

2.3 HUBLESS, CAST-IRON SOIL PIPE AND FITTINGS

A. Pipe and Fittings:

1. Marked with CISPI collective trademark and NSF certification mark.
2. Standards: ASTM A888 and CISPI 301.

B. Standard, Hubless-Piping Couplings:

1. Marked with CISPI collective trademark and NSF certification mark.
2. Standards: ASTM C1277 and CISPI 310.
3. Description: Stainless steel corrugated shield with stainless steel bands and tightening devices; and ASTM C564, rubber sleeve with integral, center pipe stop.

C. Cast-Iron, Hubless-Piping Couplings:

1. Standard: ASTM A1056.
2. Description: Two-piece ASTM A48/A48M, cast-iron housing; stainless steel bolts and nuts; and ASTM C564, rubber sleeve with integral, center pipe stop.

2.4 ROOF DRAINS

A. Retrofit Roof Drains

1. Retrofit Roof Drain with enhanced epoxy coating, coated inside and out with a two-component solve-free epoxy that provides additional protection against corrosive environment. Roof drain consists of cast iron body with static extension, adjustably extension assembly, combination membrane flashing clamp/gravel guard, Top-Set roof deck plate with deck clamp, secondary clamping collar, roof sump receiver and cast-iron dome with stainless steel mesh screen and vandal proof secured top. Refer to Plumbing Drain Schedule on Drawing P-001.00.
2. Standard: ASME A112.6.4, for roof drains.
3. Body Material: Cast iron with cast iron dome.
4. Dimension of Body: Nominal 15-inch diameter.
5. Outlet: Bottom.
6. Provide static extension and adjustable extension assembly as needed to ensure roof drain height will be flush to new roof level height.
7. Body Material: Cast iron with cast iron dome.
8. Dimension of Body: Nominal 15-inch diameter.

B. Replacement Roof Drains

1. Roof Drain with duco cast iron body with combined flashing clamp, gravel stop, sump receiver, adjustable extension assembly, combination membrane flashing clamp/gravel stop and vandal proof galvanized cast-iron dome.
2. Standard: ASME A112.6.4, for roof drains.
3. Body Material: Cast iron with galvanized cast iron dome.
4. Dimension of Body: Nominal 15-inch diameter.
5. Outlet: Bottom.
6. Provide static extension and adjustable extension assembly as needed to ensure roof drain height will be flush to new roof level height.

PART 3 - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 INSTALLATION

A. Install roof drains at low points of roof areas according to roof membrane manufacturer's written installation instructions.

B. Install flashing collar or flange of roof drain to prevent leakage between drain and adjoining roofing. Maintain integrity of waterproof membranes where penetrated.

C. Install expansion joints, if indicated, in roof drain outlets.

D. Position roof drains for easy access and maintenance.

3.3 IDENTIFICATION

A. Identify exposed storm drainage piping. Comply with requirements for identification specified in Section 22 05 53 "Identification for Plumbing Piping and Equipment."

3.4 INSTALLATION OF PIPING

A. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems.

B. Install piping as indicated unless deviations from layout are approved on coordination drawings.

C. Install piping in concealed locations.

1. Piping installed in equipment rooms, service areas, and where indicated may be exposed.

D. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal.

E. Install piping to match the existing pipe slopes

F. Install piping free of sags and bends.

G. Install fittings for changes in direction and branch connections.

H. Install piping to allow application of insulation.

I. Make changes in direction for piping using appropriate branches, bends, and long-sweep bends.

1. Do not change direction of flow more than 90 degrees.
2. Use proper size of standard increasers and reducers if pipes of different sizes are connected.

    a. Reducing size of drainage piping in direction of flow is prohibited.

J. Install piping at the following minimum slopes unless otherwise indicated.

1. Building Storm Drain: 1/4 inch per foot downward in direction of flow for piping NPS 3 and smaller; 1/4 inch per foot downward in direction of flow for piping NPS 4 and larger.
2. Horizontal Storm Drainage Piping: 1/4 inch per foot downward in direction of flow.

K. Install cast-iron soil piping in accordance with CISPI's "Cast Iron Soil Pipe and Fittings Handbook," Ch IV, "Installation of Cast Iron Soil Pipe and Fittings."

1. Install encasement on underground piping in accordance with ASTM A674 or AWWA C105/A 21.5.

L. Plumbing Specialties:

1. Install cleanouts in storm drainage gravity-flow piping in accessible locations.

    a. Install cleanout fitting with closure plug inside the building in storm drainage force-main piping.
    b. Comply with requirements for cleanouts specified in Section 22 14 23 "Storm Drainage Piping Specialties."

2. Install drains in storm drainage gravity-flow piping.

    a. Comply with requirements for drains specified in Section 22 14 23 "Storm Drainage Piping Specialties."

M. Do not enclose, cover, or put piping into operation until it is inspected and approved by the NYC Department of Buildings.

N. Install sleeves for piping penetrations of walls, ceilings, and floors.

1. Comply with requirements for sleeves specified in Section 22 05 17 "Sleeves and Sleeve Seals for Plumbing Piping."

O. Install escutcheons for piping penetrations of walls, ceilings, and floors.

1. Comply with requirements for escutcheons specified in Section 22 00 00 "Plumbing."

3.5 JOINT CONSTRUCTION

A. Hubless, Cast-Iron Soil Piping Coupled Joints: Join in accordance with CISPI 310 and CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for hubless-piping coupling joints.

3.6 FIELD QUALITY CONTROL

A. During installation, notify Commissioner and the NYC Department of Buildings at least 24 hours before inspection. Perform tests specified below in presence of the Commissioner or a representative of the NYC Department of Buildings.

1. Roughing-in Inspection: Arrange for inspection of piping before concealing or closing-in after roughing-in and before setting fixtures.
2. Final Inspection: Arrange for final inspection by the NYC Department of Buildings inspector and Commissioner to observe tests.

B. Reinspection: If the NYC Department of Buildings inspector finds that piping will not pass test or inspection, make required corrections and arrange for reinspection.

C. Reports: Prepare inspection reports and have them signed by the Commissioner and NYC Department of Buildings inspector.

1. Prepare reports for tests and required corrective action.

D. Test storm drainage piping in accordance with procedures of the NYC Plumbing Code or, in absence of published procedures, as follows:

1. Test for leaks and defects in new piping and parts of existing piping that have been altered, extended, or repaired.

a. If testing is performed in segments, submit separate report for each test, complete with diagram of portion of piping tested.

2. Leave uncovered and unconcealed new, altered, extended, or replaced storm drainage piping until it has been tested and approved.

a. Expose work that was covered or concealed before it was tested.

3. Test Procedure:

a. Test storm drainage piping, except outside leaders, on completion of roughing-in.
b. Close openings in piping system and fill with water to point of overflow, but not less than 10-foot head of water .
c. From 15 minutes before inspection starts until completion of inspection, water level must not drop.
d. Inspect joints for leaks.

4. Restore leaks and defects with new materials and retest piping, or portion thereof, until satisfactory results are obtained.
5. Prepare reports for tests and required corrective action.

3.7 CLEANING AND PROTECTION

A. Clean interior of piping. Remove dirt and debris as work progresses.

B. Protect drains during remainder of construction period to avoid clogging with dirt and debris and to prevent damage from traffic and construction work.

C. Place plugs in ends of uncompleted piping at end of day and when work stops.

3.8 PIPING SCHEDULE

A. Aboveground storm drainage piping NPS 6 and smaller is to be any of the following:

1. Hubless, cast-iron soil pipe and fittings; CISPI, hubless-piping couplings; and coupled joints.

B. Aboveground, storm drainage piping NPS 8 and larger is to be any of the following:

1. Hubless, cast-iron soil pipe and fittings; heavy-duty, hubless-piping couplings; and coupled joints.

END OF SECTION - 22 14 26

# SECTION 23 00 00 – HEATING, VENTILATING, AND AIR CONDITIOING (HVAC)

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract (City of New York Standard Construction Contract).

### 1.2 SUMMARY

A. Section includes:

1. It is the intention of the Specifications and Drawings to call for finished work, tested, and ready for operation. All materials, equipment, and apparatus shall be new and of first-class quality.
2. Any apparatus, appliance, material, or work not shown on Drawings, but mentioned in the Specifications, or vice versa, or any incidental accessories, or minor details not shown but necessary to make the work complete and perfect in all respects and ready for operation, even if not particularly specified, shall be provided without additional expense to the City of New York.
3. Codes and Standards

    a. New York City Building Codes
    b. New York City Mechanical Codes
    c. New York City Fire Code
    d. New York City Fuel Gas Code
    e. N.Y. State Fire Prevention and Building Code
    f. NFPA National Fire Protection Association
    g. ASME American Society of Mechanical Engineers
    h. ANSI American National Standards Institute
    i. ASTM American Society for Testing Materials
    j. AWWA American Water Works Association
    k. IBR Institute of Boiler and Radiator Manufacturers
    l. NEMA National Electrical Manufacturers Association
    m. ASHRAE American Society of Heating, Refrigeration and Air Conditioning Engineers
    n. SMACNA Sheet Metal and Air Conditioning Contractors National Association, Inc.
    o. AHRI Air Conditioning and Refrigeration Institute
    p. UL Underwriters' Laboratories
    q. AMCA Air Moving and Conditioning Association
    r. ADC Air Diffusion Council
    s. AABC Associated Air Balance Council
    t. National Standard Plumbing Code
    u. New York City Department of Environmental Protection and Plumbing Code
    v. NFPA-90A Air Conditioning and Ventilation Systems

w. National Electric Code

1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures.”

1.4 TEMPORARY OPENINGS

A. Ascertain from the review of the Architectural Drawings whether any special temporary openings in the building will be required for the delivery and installation of equipment provided under this Contact and notify the Commissioner accordingly. In the event of failure to give sufficient notice to the Commissioner in time to arrange for these openings during construction, assume all costs of providing such openings thereafter.

1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements.”

1.6 SHUTDOWNS

A. When installation of a new system requires the temporary shutdown of an existing operating system, the connection of the new system must be performed at such regular time or at overtime when designated by the Commissioner.

B. The City of New York must be notified of the estimated duration of the shutdown period at least ten (10) days in advance of the date the work is to be performed.

C. Work must be arranged for continuous performance to assure that existing operating services will be shut down only during the time actually required to make necessary connections.

1.7 SCAFFOLDING, RIGGING, HOISTING

A. Provide all scaffolding, rigging, hoisting and services necessary for erection and delivery into the premises of all equipment and materials furnished under this Section of the Specifications, and remove same from premises when no longer required.

B. In the event that supplementary bracing of the basic building structure is required to assure a secure rigging procedure and a secure route for the equipment being handled, assume full responsibility for such supplementary bracing.

C. Rigger must be licensed rigger in the State of New York.

D. Rigger must submit a rigging plan for approval by the Commissioner prior to removal and installation of new rooftop AHUs.

1.8 BASES AND SUPPORTS

A. Provide all bases and supports not part of the building structure of required size, type and strength, as approved by the Commissioner, for all equipment and materials furnished.

All equipment, bases, and supports shall be adequately anchored to the building structure to prevent shifting of position under operating conditions.

B. The Section furnishing the equipment must provide not less than six-inch high concrete housekeeping pads for all pumps, refrigeration machines, compressors, tanks, air handling units, motor control craters, rotating machinery, and all floor mounted equipment. Bases must extend six inches beyond machinery base in all directions, with top edge chamfered. Provide ½" x 6" steel dowels into floors to anchor bases. Provide anchor bolts set in pipe sleeves, two sizes larger than anchor bolts for securing machinery. After anchor bolts are aligned with equipment bases, fill sleeves with concrete and allow to set.

C. For concrete housekeeping pad specifications refer to Division 3 - Concrete Section 03 11 13 “Structural Cast-in-Place Concrete Forming.” Each sub-contractor must furnish dimensioned drawings to the General Construction trade. Steel dowels, sleeves and anchor bolts must be coordinated with the General Construction trade.

D. Existing rooftop Air conditioning units being replaced to be furnished with new roof curbs as indicated on the Contract Documents.

1.9 SLEEVES, PIPE AND CONDUIT INSERTS AND ANCHOR BOLTS

A. Provide and assume responsibility for the location and maintenance in proper position of all sleeves, inserts, and anchor bolts required for the work. In the event that failure to do so requires cutting and patching of finished work, it must be done without additional cost to the City of New York.

B. All pipes and conduits passing through masonry walls or partitions must be provided with sleeves having an internal diameter larger than the outside diameter of the pipe or insulation enclosing the pipe or conduit. Sleeves must be Schedule 40 black steel pipe.

C. Sleeves through foundation walls must be cast iron wall sleeve with intermediate integral flange or steel with steel flange. Sleeves must be set with ends flush with each face of wall. The space between sleeve and pipe must be packed with a mechanical rubber seal, and then with oakum to within 2" of each face of the wall. The remaining space must be packed and made watertight with a waterproof compound.

D. Sleeves through concrete floors or interior masonry walls or curtain walls/slabs must be Schedule 40 black steel pipe, set flush with finished wall surfaces, but extending 3" above finished floors. The open sleeve space must be packed with non-combustible materials.

E. Sleeves through non-masonry partitions must be 22-gauge galvanized sheet steel, set flush with finished surfaces of partitions.

F. Inserts must be preset concrete inserts with steel reinforced rods through the insert and both ends hooked over the reinforced mesh. Inserts must be of individual type of malleable iron construction with accommodation for removable nuts and threaded rods up to ¾" diameter, permitting lateral adjustment, except as otherwise noted. Individual inserts must be provided up to 5" pipe and conduit, 6" and up to 8" pipe and conduit, above 8" and up to 12" pipe and conduit. Insert must come with an opening at the tip to allow reinforcing

rods up to ½" diameter to be passed through the insert body. Rods must extend a minimum of 4" on either side of the insert. Pipes larger than 12" must be suspended from steel members only.

G. In general, all piping and conduit must be supported from structural steel building members only or approved malleable steel inserts imbedded in concrete pours. All other loads must be hung from steel building members. Inserts must not be located in the same deck flute as ceiling tabs nor within 2 feet in any direction from ceiling tabs. Inserts must not be spaced closer than 4 feet on center in all directions.

H. Where layout revisions are required, and are approved after concrete deck is poured, piping and conduit 3" and smaller may be supported at Intermediate Points by Phillips' ¾" expansion bolts with lead shields, provided main supports are welded to structural steel and are not more than twenty feet on centers.

I. Piping and conduit 3" and smaller must be supported from slab by ¾ expansion bolts with lead shields. Piping 4" and larger must be supported by means of 4" x 4" x 3/8" clip knee angle with ¾" expansion bolt in shear and supporting rod at 90° from another bolt pr using two expansion bolts per hanging post - pipes 8' and larger musty be supported from steel building members.

J. Provide sleeves for pipes passing through roofs. Sleeves passing through roofs must be as detailed on drawings extending min. 18" above finished roof. All pipes passing through roof must be minimum of 10" from walls or other construction to permit proper flashing. Provide counter flashing.

K. Where sleeves pass through waterproofed floors, they must be IPS brass pipe sleeves of the required diameter, brazed at the bottom to 18" x 18", 16-ounce copper flashing for bond with waterproofing. The tops of the sleeves must extend ½" above finished floor.

L. No ductwork, piping, conduit or equipment must be supported from corrugated decking construction. For this area provide supplementary steel to support ductwork, piping, conduit or equipment. Supplemental steel members must be attached to building structural steel as approved by the Commissioner.

M. All hangers, rods and supports must be installed prior to construction fireproofing.

N. The required fire resistance rating of floor or floor/ceiling assemblies and walls must be maintained where a penetration is made for electrical, mechanical, plumbing pipes, conduits, ducts and systems. Fire stopping must be provided at openings around vents, pipes, ducts, conduits at floor levels and walls with non-combustible materials, such as rockwool or equal.

O. For openings around pipes and conduits and/or sleeves, provide caulking to ensure complete seal.

1.10 ESCUTCHEONS

A. Provide escutcheons on pipes wherever they pass through ceilings, walls, or partitions.

B. Escutcheons or pipes passing through outside walls must be solid, cast brass, flat type secured to pipe with set screw.

C. Escutcheons for pipes passing through floors must be split-hinged, cast brass type, designed to fit pipe on one end and cover sleeve projecting through floor on the other end.

D. Escutcheons for pipes passing through interior walls, partitions, and ceilings must be split-hinged, cast brass chromium plated type.

1.11 RUBBISH REMOVAL

A. See to it that the project is at all times maintained free of all rubbish, rubble, waste material, packaging materials, etc. accumulating as a result of the work. Assume responsibility for the cleaning up of packaging removed from materials and equipment furnished by other trades for the installation. Note that final acceptance of the work is contingent upon the project being free of all excess and waste materials resulting from the work.

1.12 CLEANING, PIPING, DUCTS AND EQUIPMENT

A. Clean all piping, ducts, and equipment of all foreign substances inside and out before being placed in operation.

B. If any part of a system should be stopped by foreign matter after being placed in operation, the system must be disconnected, cleaned, and reconnected wherever necessary to locate and remove obstructions. Any work damaged in the course of removing obstructions must be repaired when the system is reconnected at no additional cost to the City of New York.

C. During construction, properly cap all pipes and equipment nozzles so as to prevent the entrance of sand, debris, dirt, etc.

1.13 LUBRICATION

A. Assume responsibility that all rotating equipment is properly lubricated as soon as it is connected by the Electrical Subcontractor before operation of this equipment is started. Assume responsibility for any damage to any equipment that is turned on without previously having been oiled or greased when connected up.

1.14 OPERATING INSTRUCTIONS

A. Two months prior to the completion of all work and the final inspection of the installation by the City of New York, submit 3 copies (or number as required by the DDC General Conditions) of the complete Instruction Manual, bound in booklet form and suitably indexed, must be submitted to the Commissioner for review. Table of Contents (HVAC) and manual must be submitted as per DDC General Conditions.

B. The Manual must contain the following items:

1. Table of Contents (HVAC and Electrical)

a. Introduction - Explanation of Manual and its use.
b. Description of Systems

1) Complete schematic drawings of all systems.
2) Functional and sequential description of all systems.
3) Relationship of system where applicable to the supervisory data system.

c. Systems Operation

1) Start-up procedures.
2) Shut-down procedures.
3) Reset and adjustment and balancing procedures.
4) Seasonal operation.
5) All posted instruction charts.
6) Lay-up procedures.

d. Maintenance

1) Cleaning and replacement - lines, components, filters, strainers, ducts, fans, etc.
2) Lubrication.
3) Charging and filling.
4) Purging and draining.
5) Systems trouble shooting charts.
6) Instruments checking and calibration.
7) Procedures for checking out functions with remote (Supervisory Data Console) indication and control.
8) Recommended list of spare parts.

e. Listing of Manufacturers

f. Manufacturer's Data (Where multiple model, type and size listings are included, clearly and conspicuously indicate those that are pertinent to this installation).

1) Description - Literature, drawings, illustrations, certified performance charts, water flows, air flows, pressures, and other technical data, etc.
2) Operation.
3) Maintenance - including complete trouble-shooting charts.
4) Parts List.
5) Names, addresses and telephone numbers of local recommended repair and service companies.
6) Guarantee data.
7) Model No. and Serial No. of all equipment.

1.15 OPERATION PRIOR TO COMPLETION

A. The City of New York may require operation of parts or all of the installation for the! beneficial occupancy prior to final completion and acceptance of the building.

B. The operation must not be construed to mean acceptance of the work by the! Commissioner. Contractor!must continue to assume responsibility of operation.

1.16 INSTALLATION OF MOTORS AND CONTROL EQUIPMENT

A. Contractor must refer to plumbing and electrical drawings and specifications for more information.

B. The Contractor must furnish and install power wiring for all electrical devices, and individual motor starters, and variable frequency drives, furnished at the job site by other trades.

C. The Contractor must provide all wiring for the Automatic Temperature Controls, air conditioning system, FAS dampers controls, except as otherwise specified herein.

D. The Contractor must, except where otherwise noted, provide wiring for all Plumbing and and Alarm Systems. The Contractor must provide all devices in connection with same.

E. For single phase motors which are not interlocked with other motors, and which have temperature control or motor control devices in the power circuit, furnishing of control devices, installation and wiring provided by the Contractor and must be coordinated with Division 26.

F. Contractor must provide all 3-phase motors or equipment, temperature control wiring, motor control wiring and associated interlocks, including the installation of all control devices.

G. To meet the work schedule, electrically operated equipment supplied to be installed and wired by the Contractor must be delivered with detailed instructions for installation and wiring in sufficient time and proper sequence.

H. Contractor must furnish all electrical motors, starters and other motor control devices for motor driven equipment required for the work. The Contractor must provide the code required disconnect switches for all motors, except where otherwise noted. The setting of all motors, required for mechanical equipment, including unmounted motors, must be done as part of the mechanical work.

I. If a motor is replaced (even with the same horsepower), a new starter must be provided for that motor.

J. Equipment which includes a group of electrical control devices mounted in a single enclosure or on a common base with equipment, must be supplied completely wired as a unit with terminal boxes or leads ready for external wiring.

K. All electrical items furnished and/or installed as part of the work must conform to NEMA Standards, to the requirements of the National Fire Protection Association, and to the requirements of the National Electric Code. Any field modifications required to ensure such conformance must be included as part of the mechanical work.

L. The furnishing of floor mounted motor starting equipment must include the purchase and delivery of channel sills for mounting.

M. Whether or not shown on the drawings, the Contractor must furnish and install a local disconnect switch at each motor which is not in sight from the controller location.

N. The supplying of any and all "field instruction" diagrams deemed necessary by the Commissioner for the complete delineation of electrical wiring for mechanical equipment must be included as part of the mechanical work.

O. The drawings describing the electrical or the mechanical work include explanatory wiring diagrams indicating the function intended for the motor control circuits of certain motors. The "field instructions" wiring diagrams required as part of the mechanical work must conform to these intended functions.

1.17 ELECTRIC MOTORS

A. Contractor must provide all electric motors required for driving all motor driven equipment required to be furnished under HVAC/Plumbing/ Electrical Section of the Specification.

B. All motors must be designed for 3 phase, 60 cycle alternating current operation with volts across the motor terminals as indicated, except that, unless otherwise specified herein, all motors 1/3 HP and smaller must be designed for single phase, 60 cycle alternating current at 120 volts across the terminals. Before ordering motors, ascertain the actual voltages and other current characteristics that will be available and permissible for each motor. Report the same in writing to the Commissioner and obtain approval before ordering motors.

C. The speed, horsepower, type and other essential data for each motor, if not given under paragraphs describing the various motor driven apparatus, or in schedules on the drawings must be obtained from the manufacturer of the respective apparatus and must be submitted to the Commissioner for review. All two speed motors must be single winding type.

D. Provide oversized motor junction box for 2 speed motors.

E. All motors must be built in accordance with the latest rules of the National Electrical Manufacturers Assn., and of the Institute of Electrical and Electronic Engineers and also as hereinafter specified.

F. Motors ½ HP and larger must have Class B insulation. All motors must be rated for continuous duty and must be designed for temperature rises not to exceed 55°C. for fully enclosed type, 55°C. for splashproof types and 40°C for all other motors excepting as otherwise specified herein. Motors must be capable of withstanding momentary overloads of fifty (50%) without injurious heating. They shall operate without excessive heating,

flashing or sparking under any conditions within the specified capacity of load and speed. All motors must operate quietly and must be replaced if, in the Commissioner's opinion, they do not do so. All motors which are in the airstream of air conditioning units, must be totally enclosed type.

G. Motors ½ HP and larger must have ball or roller bearings with pressure grease lubrication, except where otherwise noted.

H. Direct connected motors must be furnished without an adjustable base. All motors connected to driven equipment by belt must be furnished with adjustable sliding bases, except fractional motors with slotted mounting holes.

I. All motor leads must be permanently identified and supplied with connectors.

J. Motors must have nameplates giving manufacturer's name, serial number, horsepower, speed, voltage, phase and current characteristics.

K. The insulation resistance between stator conductors and frames of motors at the time of final inspection must be not less than one-half megohm.

L. All motors must be of the proper type for the duty and must have sufficient torque to start and run the equipment to which they are connected and starting currents and running currents must not exceed the limits imposed by the laws or rules and regulations of the New York City Energy Code or of the electrical utility company. All motors must have sufficient horsepower capacity and rated duty to operate the apparatus to which they are connected so as to give the speeds and performances specified, but the horsepower must be in no case less than that started herein or shown on the drawings. A schedule giving the characteristics of the motors proposed for each type of service must be submitted to the Commissioner for approval.

M. The maximum full load speed of each direct connected motor must be suitable for the equipment it drives.

N. Except where V-belt drive is specified, the fan wheels for ventilating fans must be mounted on the motor shafts, which must be designed for this duty.

O. All motors except motors furnished as an integral part of equipment and factory installed on the equipment, must be of same manufacturer.

P. Polyphase motors must be squirrel cage induction high efficiency energy saver type, suitable for the starting torque and current requirements.

Q. Single phase motors must be of the capacitor start induction run or split phase type as required for proper operation of the driven equipment.

R. Motors must be “premium efficiency” type. The following is minimum acceptable efficiency of motors:

| OPEN DRIP-PROOF (ODP) | | | | TOTALLY ENCLOSED FAN-COOLED (TEFC) | | | |
|---|---|---|---|---|---|---|---|
| Motor Size (HP) | Speed (RPM) | | | Motor Size (HP) | Speed (RPM) | | |
| | 1200 | 1800 | 3600 | | 1200 | 1800 | 3600 |
| | NEMA Nominal Efficiency | | | | NEMA Nominal Efficiency | | |
| 1 | 82.5% | 85.5% | 77.0% | 1 | 82.5% | 85.5% | 77.0% |
| 1.5 | 86.5% | 86.5% | 84.0% | 1.5 | 87.5% | 86.5% | 84.0% |
| 2 | 87.5% | 86.5% | 85.5% | 2 | 88.5% | 86.5% | 85.5% |
| 3 | 88.5% | 89.5% | 85.5% | 3 | 89.5% | 89.5% | 86.5% |
| 5 | 89.5% | 89.5% | 86.5% | 5 | 89.5% | 89.5% | 88.5% |
| 7.5 | 90.2% | 91.0% | 88.5% | 7.5 | 91.0% | 91.7% | 89.5% |
| 10 | 91.7% | 91.7% | 89.5% | 10 | 91.0% | 91.7% | 90.2% |
| 15 | 91.7% | 93.0% | 90.2% | 15 | 91.7% | 92.4% | 91.0% |
| 20 | 92.4% | 93.0% | 91.0% | 20 | 91.7% | 93.0% | 91.0% |
| 25 | 93.0% | 93.6% | 91.7% | 25 | 93.0% | 93.6% | 91.7% |

1.18 INDIVIDUAL MOTOR STARTERS

A. For single-phase motors 1/3 HP or smaller, starters must be manual, 120 volts, single-pole or 240 volts, 2-pole with thermal overload protection and pilot light. Where interlocking or automatic control (other than for unit and cabinet heaters) is required, starters must be combination circuit breaker and magnetic starter with pilot light.

B. For 3-phase motors ½ HP and over, starters must be full-voltage combination circuit breaker and magnetic across-the-line contactor, rated 208 or 480 volts, 3-pole. All magnetic starters must have three thermal overloads.

C. Unless otherwise specified, motors 50 HP and over, rated 200 volts and motors 100 HP and over, rated 480 volts must be furnished with combination circuit breaker and magnetic reduced voltage starter of the autotransformer closed transition type.

D. For motors requiring electric interlocks, or automatic control features, starters must be equipped with the necessary auxiliary relays and contacts to provide the control features desired. Such starters must be also provided with "hand-off-auto" pushbuttons mounted in cover. For two-speed motors, provide "high-low-off-auto" four position selector switch. Furnish adjustable 20-second time delay between high and low speeds for motors 10 HP and above.

E. In addition to any auxiliary contacts required for interlocking purposes, each magnetic starter must be equipped with one normally open auxiliary control circuit contact either for "sealing in" or as a spare for future use.

F. Indicating lights must be transformer or series resistor type. There must be one red light for each single speed motor to indicate when motor is running. For multiple speed motors one indicating light for each speed shall be provided.

G. The starter disconnecting means must be circuit breakers. The external operating handle must clearly indicate "ON" or "OFF" position of the switch and must be interlocked with the door to require throwing the handle to the "OFF" position to open the door. The handle must

be arranged for locking both the door closed and the disconnect in the "OFF" position with up to 3 padlocks. Provide defeat device in cover to permit opening door in "ON" position.

H. Circuit breakers in combination starter units must be of the magnetic trip type with an adjustable trip setting for selecting instantaneous trip points of fault protection (motor circuit protector). Field adjustment of the instantaneous trip must be coordinated with Division 26. Select the trip setting at approximately 10 times the motor nameplate full-load current. If the circuit breaker trips on starting, incrementally increase the settings. In no case must the trip setting exceed 13 times the motor full-load current.

I. Overload heaters must be furnished for all starters and must be sized in range of 115 to 125 percent of full load current. The motor starters must be shipped with the overload heaters inside the compartment but not installed. Coordinate with Division 26 to verify the ratings of the heater coils based on the motor nameplate data before installing the overloads. The Trade supplying the starter must replace any improperly selected heaters.

J. A transformer must be supplied in each starter unit for 120 volt control voltage. Transformer capacity must be adequate to supply the holding coil requirements plus the solenoids, e-p switches, relays and other devices required to be controlled from the starter. A fuse must be supplied in one secondary terminal of the control transformer. The other terminal must be grounded to the housing of the starter. Fuses must be also provided in the transformer primary leads per the National Electrical Code.

K. All enclosures must be NEMA Type I sheet steel with hinged cover for general purpose indoor application, unless otherwise indicated. Enclosures must be arranged for equipment or wall mounting. Weatherproof NEMA Type 4 or 4X enclosures must be provided for all outdoor starters as indicated.

L. Each starter must be clearly identified by engraved nameplates after installation. The nameplates must be bakelite black plates with ½" high white letters and must be securely fastened to starter with mounting screws made of non-corrosive metals.

M. Stainless steel flush mounted starter and enclosures must be provided for all starters located in the kitchen and dishwasher areas.

N. All starters, except those furnished as an integral part of equipment and factory installed on the equipment, must be of the same manufacturer.

O. Shop drawings must be provided with dimensions, ratings, wiring diagrams and schedule of nameplates for approval prior to fabrication.

1.19 MOTOR CONTROLLERS

A. Motor controllers must be defined as control devices such as pushbuttons, switches, etc. which are not mounted in starter cover, required for remote control of motors.

B. Unless otherwise noted, motor controllers must be housed in NEMA Type 1 general purpose enclosures. Outdoor controllers must be provided with weatherproof NEMA Type 4 or 4X enclosures as indicated. Provide nameplate to indicate the motor with which they are associated.

C. The controllers to be installed in finished area must be flush mounted.

D. Install and provide wiring for motor controllers. The Trade providing the motor must furnish the controllers.

E. Unless otherwise noted, pushbuttons must be of the normal duty, spring return momentary type.

F. Selector switches and pushbuttons must be equipped with nameplates indicating the function of each of their positions as noted in the list of electric motors and motor controls or shown on the drawings.

G. Pilot light must be transformer or series resistor type for operation at 120 V.

H. Pilot lights must be equipped with nameplates indicating the operating conditions they annunciate as noted in the list of electric motors and motor controls or shown on the drawings.

PART 2 - PRODUCTS – (NOT USED)

PART 3 - EXECUTION – (NOT USED)

END OF SECTION - 23 00 00

# SECTION 23 05 00 – COMMON WORK RESULTS FOR HVAC

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract (City of New York Standard Construction Contract).

### 1.2 SUMMARY

A. Section includes:

1. The work includes providing all labor, materials, equipment, accessories, services and tests necessary to complete and make ready for operation by the City of New York, all Heating, Ventilating and Air Conditioning Work as shown on the Drawings and hereinafter specified, including, but not limited to the following:

    a. All motor starters and controllers for equipment furnished. Packaged type units must be furnished completely prewired with panels mounted on the units as specified. All other motor starters and controllers will be turned over to the Contractor for installation and wiring.
    b. Rooftop AC Units.
    c. Filters.
    d. Accessories such as V-belt drives, flow measuring devices, draft gauges, machinery guards, pressure gauges, etc.
    e. Sheet metal ductwork and accessories such as plenums, air outlets, dampers, access doors, etc.
    f. Fire dampers, smoke dampers, combination fire and smoke dampers.
    g. Installation of smoke detectors in ductwork.
    h. Elevator rooms air conditioning systems.
    i. Temperature Control including control wiring, interlock wiring, complete Direct Digital Control system of temperature control must be installed in connection with the HVAC systems.
    j. Painting and pipe identification for all work by the Contractor.
    k. Test and balancing.
    l. Sleeves, pipe inserts and anchor bolts, escutcheons, prefabricated roof curbs, etc., as hereinafter specified.
    m. Identification, name plates, tags and charts.
    n. Cutting and rough patching.
    o. Furnishing and setting of electric motors.
    p. Furnishing of starters, and motor control devices as specified in Section 23 00 00 “Heating, Ventilation and Air Conditioning (HVAC).”
    q. Templates and anchor bolts for equipment bases.
    r. Cap flashing or pipe and duct passing through roof.
    s. Framed openings as shown on the Drawings.

t. Outside air inlets, exhaust outlets, louvers and screens through walls, and elsewhere as noted on the Drawings. Motorized dampers furnished and installed under this Division.
u. Setting of access doors for the rooftop units.
v. All motor disconnect switches, except where in combination starters and where otherwise noted.
w. Finish painting.
x. Furnishing and locating access doors in ceiling and walls.
y. Fan shutdown system for fire mode.
z. Mounting of all starters, starter panel boards, and motor control devices.

1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures.”

1.4 SUBMITTALS

A. Submit shop drawings covering the following items:

1. Coordination drawings.
2. Supply and exhaust air handling units with components, construction details.
3. Sleeve and ductwork penetration drawings.
4. Identification schedule and samples.
5. Rooftop AC units.
6. Air filters and draft gauges.
7. Schedule of ductwork, joints, gauges, supports, flexible connections, fire dampers, access doors, etc.
8. Sheet metal fabrication drawings, shop standards.
9. Schedule of piping and fitting materials.
10. Piping shop drawings.
11. Equipment, air system, ducts, piping system testing and balancing reports.
12. Schedule of pipe and ductwork supports, including inserts, escutcheons, etc.
13. All motor starters, and motor control devices.
14. Building management system.

B. All shop drawings being submitted that include electrical work must be submitted with all internal and external wiring diagrams.

C. The previously listed items are major equipment and do not limit this Division's responsibility to submit shop drawings for all equipment and accessories which are to be provided under this Division of the Specifications.

1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements.”

PART 2 - PRODUCTS

(NOT USED)

PART 3 - EXECUTION

(NOT USED)

END OF SECTION 23 05 00

# SECTION 23 05 05 - SELECTIVE DEMOLITION FOR HVAC WORK

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract (City of New York Standard Construction Contract).

### 1.2 SUMMARY

A. Section Includes:

1. Demolition and removal of selected portions of HVAC systems.
2. Demolition and removal of selected site elements.
3. Salvage of existing items to be reused or recycled.

### 1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures.”

### 1.4 SUBMITTALS

A. "Schedule of Selective Demolition Activities" Paragraph below may be used to track Contractor's progress; it may also be used to determine that selective demolition will not interfere with the City of New York's operations.

B. Schedule of Selective Demolition Activities:

1. Indicate the following:

a. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure City of New York's on-site operations are uninterrupted.
b. Use of elevator and stairs.
c. Coordination of continuing occupancy of portions of existing building as well as re-occupancy in the building areas where work is completed.

C. Predemolition Photographs or Video: Show existing conditions of adjoining construction, including finish surfaces, that might be misconstrued as damage caused by salvage and demolition operations. Submit before Work begins.

D. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 "Quality Requirements".

1.6 FIELD CONDITIONS

A. The City of New York will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so the City of New York's operations will not be disrupted.

B. Notify the Commissioner of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

C. Hazardous Materials: Present in buildings and structures to be selectively demolished. A report on the presence of hazardous materials is on file for review and use. Examine report to become aware of locations where hazardous materials are present.

1. Hazardous material remediation is specified elsewhere in the Contract Documents.

D. Storage or sale of removed items or materials on-site is not permitted.

E. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

1. Maintain fire-protection facilities in service during selective demolition operations.

1.7 COORDINATION

A. Arrange selective demolition schedule so as not to interfere with the City of New York's operations.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with hauling and disposal regulations of the NYC DEP, NYC Fire Department, NYC DOB, and OSHA.

B. Standards: Comply with ANSI/ASSP A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting selective demolition operations.

B. Review Project Record Documents of existing construction or other existing condition and hazardous material information provided by the City of New York. The City of New York does not guarantee that existing conditions are same as those indicated in Project Record Documents.

C. Perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective building demolition operations.

1. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

D. Steel Tendons: Locate tensioned steel tendons and include recommendations for de-tensioning.

E. Verify that hazardous materials have been remediated before proceeding with building demolition operations.

F. Survey of Existing Conditions: Record existing conditions by use of measured drawings preconstruction photographs or video templates.

1. Inventory and record the condition of items to be removed and salvaged.
2. Before selective demolition or removal of existing building elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.

3.3 PREPARATION

A. Refrigerant: Before starting demolition, remove refrigerant from mechanical equipment according to 40 CFR 82.

3.4 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

1. Comply with requirements for existing services/systems interruptions per DDC General Conditions.

B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off utility services and mechanical/electrical systems serving areas to be selectively demolished.

1. The Commissioner will arrange to shut off indicated services/systems when requested by Contractor.
2. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
3. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated on Drawings to be removed.

    a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
    b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material and leave in place.
    c. Equipment to Be Removed: Disconnect and cap services and remove equipment.
    d. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
    e. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to the City of New York.
    f. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
    g. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material and leave in place.

## 3.5 PROTECTION

A. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
4. Cover and protect furniture, furnishings, and equipment that have not been removed.
5. Comply with DDC General Conditions for requirements of temporary enclosures, dust control, heating, and cooling.

B. Temporary Shoring: Design, provide, and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

1. Strengthen or add new supports when required during progress of selective demolition.

C. Remove temporary barricades and protections where hazards no longer exist.

3.6 SELECTIVE DEMOLITION, GENERAL

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work as follows:

1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
5. Maintain fire watch during and for at least 4 hours after flame-cutting operations.
6. Maintain adequate ventilation when using cutting torches.
7. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
8. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
9. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
10. Dispose of demolished items and materials promptly. Comply with DDC General Conditions.

B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

C. Removed and Salvaged Items:

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 the City of New York.
4. Transport items to the City of New York's storage area designated by Commissioner.
5. Protect items from damage during transport and storage.

D. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse.
2. Pack or crate items after cleaning and repairing. Identify contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

E. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Commissioner, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

3.7 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

A. Concrete: Demolish in small sections. Using power-driven saw, cut concrete to a depth of at least 3/4 inch at junctures with construction to remain. Dislodge concrete from reinforcement at perimeter of areas being demolished, cut reinforcement, and then remove remainder of concrete. Neatly trim openings to dimensions indicated.

B. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, and then remove masonry between saw cuts.

C. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, and then break up and remove.

D. Roofing: Remove no more existing roofing than what can be covered in one day by new roofing and so that building interior remains watertight and weathertight.

1. Remove existing roof membrane, flashings, copings, and roof accessories.
2. Remove existing roofing system down to substrate.

3.8 DISPOSAL OF DEMOLISHED MATERIALS

A. Remove demolition waste materials from Project site and dispose of them in an EPA-approved construction and demolition waste landfill.

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

B. Burning: Do not burn demolished materials.

3.9 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION - 23 05 05

# SECTION 23 05 13 - COMMON MOTOR REQUIREMENTS FOR HVAC EQUIPMENT

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract (City of New York Standard Construction Contract).

### 1.2 SUMMARY

A. Section includes:

1. General requirements for single-phase and polyphase, general-purpose, horizontal, small and medium, squirrel-cage induction motors for use on ac power systems up to 600 V and installed at equipment manufacturer's factory or shipped separately by equipment manufacturer for field installation.

### 1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures.”

### 1.4 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements.”

### 1.5 COORDINATION

A. Coordinate features of motors, installed units, and accessory devices to be compatible with the following:

1. Motor controllers.
2. Torque, speed, and horsepower requirements of the load.
3. Ratings and characteristics of supply circuit and required control sequence.
4. Ambient and environmental conditions of installation location.

## PART 2 - PRODUCTS

### 2.1 GENERAL MOTOR REQUIREMENTS

A. Comply with NEMA MG 1 unless otherwise indicated.

B. Comply with IEEE 841 for severe-duty motors.

C. Motors must be ECM or greater than 70% efficiency as per 2020 NYCECC.

2.2 MOTOR CHARACTERISTICS

A. Duty: Continuous duty at ambient temperature of 105 deg F and at altitude of 3300 feet above sea level.

B. Capacity and Torque Characteristics: Sufficient to start, accelerate, and operate connected loads at designated speeds, at installed altitude and environment, with indicated operating sequence, and without exceeding nameplate ratings or considering service factor.

2.3 POLYPHASE MOTORS

A. Description: NEMA MG 1, Design B, medium induction motor.

B. Efficiency: Premium and energy efficient, as defined in NEMA MG 1.

C. Service Factor: 1.15.

D. Multispeed Motors: Variable torque.

1. For motors with 2:1 speed ratio, consequent pole, single winding.
2. For motors with other than 2:1 speed ratio, separate winding for each speed.

E. Multispeed Motors: Separate winding for each speed.

F. Rotor: Random-wound, squirrel cage.

G. Bearings: Re-greasable, shielded, antifriction ball bearings suitable for radial and thrust loading.

H. Temperature Rise: Match insulation rating.

I. Insulation: Class F.

J. Code Letter Designation:

1. Motors 15 HP and Larger: NEMA starting Code F or Code G.
2. Motors smaller than 15 HP: Manufacturer's standard starting characteristic.

K. Enclosure Material: Cast iron for motor frame sizes 324T and larger; rolled steel for motor frame sizes smaller than 324T.

2.4 POLYPHASE MOTORS WITH ADDITIONAL REQUIREMENTS

A. Motors Used with Reduced-Voltage and Multispeed Controllers: Match wiring connection requirements for controller with required motor leads. Provide terminals in motor terminal box, suited to control method.

B. Motors Used with Variable Frequency Controllers: Ratings, characteristics, and features coordinated with and approved by controller manufacturer.

1. Windings: Copper magnet wire with moisture-resistant insulation varnish, designed and tested to resist transient spikes, high frequencies, and short time rise pulses produced by pulse-width modulated inverters.
2. Energy- and Premium-Efficient Motors: Class B temperature rise; Class F insulation.
3. Inverter-Duty Motors: Class F temperature rise; Class H insulation.
4. Thermal Protection: Comply with NEMA MG 1 requirements for thermally protected motors.

C. Severe-Duty Motors: Comply with IEEE 841, with 1.15 minimum service factor.

2.5 SINGLE-PHASE MOTORS

A. Motors larger than 1/20 hp must be one of the following, to suit starting torque and requirements of specific motor application:

1. Permanent-split capacitor.
2. Split phase.
3. Capacitor start, inductor run.
4. Capacitor start, capacitor run.

B. Multispeed Motors: Variable-torque, permanent-split-capacitor type.

C. Bearings: Pre-lubricated, antifriction ball bearings or sleeve bearings suitable for radial and thrust loading.

D. Motors 1/20 HP and Smaller: Shaded-pole type.

E. Thermal Protection: Internal protection to automatically open power supply circuit to motor when winding temperature exceeds a safe value calibrated to temperature rating of motor insulation. Thermal-protection device must automatically reset when motor temperature returns to normal range.

PART 3 - EXECUTION (Not Applicable)

END OF SECTION - 23 05 13

# SECTION 23 05 29 - HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract (City of New York Standard Construction Contract).

### 1.2 SUMMARY

A. Section Includes:

1. Pipe stands.

B. Related Requirements:

1. Section 23 31 13 "Metal Ducts" for duct hangers and supports.

### 1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 "Submittal Procedures."

### 1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: Show fabrication and installation details and include calculations for the following: include Product Data for components:

1. Pipe stands.

### 1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 "Quality Requirements."

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. MIRO Industries
2. PHP Systems/Design
3. Rooftop Support Systems, a division of Eberl Iron Works, Inc.
4. Or approved equal.

2.2 PERFORMANCE REQUIREMENTS

A. Structural Performance: Hangers and supports for HVAC piping and equipment must withstand the effects of gravity loads and stresses within limits and under conditions indicated according to ASCE/SEI 7.

1. Design supports for multiple pipes, including pipe stands, capable of supporting combined weight of supported systems, system contents, and test water.
2. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.

2.3 PIPE STANDS

A. General Requirements for Pipe Stands: Shop- or field-fabricated assemblies made of manufactured corrosion-resistant components to support roof-mounted piping.

1. Description: Single base unit with integral-rod roller, pipe clamps, or V-shaped cradle to support pipe, for roof installation without membrane penetration.
2. Base: Single, vulcanized rubber, molded polypropylene, or polycarbonate.
3. Hardware: Galvanized steel or polycarbonate.
4. Accessories: Protection pads.

B. Manufacturers for Compact Pipe Stand: Subject to compliance with requirements, provide products by one of the following:

1. MIRO Industries.
2. PHP Systems/Design.
3. Rooftop Support Systems, a division of Eberl Iron Works, Inc.
4. Or approved equal.

PART 3 - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 APPLICATION

A. Comply with requirements in Section 07 84 13 "Penetration Firestopping" for firestopping materials and installation for penetrations through fire-rated walls, ceilings, and assemblies.

B. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination must be weight of supported components plus 200 lb.

3.3 HANGER AND SUPPORT INSTALLATION

A. Pipe Stand Installation:

1. Pipe Stand Types except Curb-Mounted Type: Assemble components and mount on smooth roof surface. Do not penetrate roof membrane.

END OF SECTION - 23 05 29

# SECTION 23 05 93 - TESTING, ADJUSTING, AND BALANCING FOR HVAC

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract (City of New York Standard Construction Contract).

### 1.2 SUMMARY

A. Section Includes:

1. Balancing Air Systems:

a. Constant-volume air systems.

### 1.3 DEFINITIONS

1. AABC: Associated Air Balance Council.
2. NEBB: National Environmental Balancing Bureau.
3. TAB: Testing, adjusting, and balancing.
4. TABB: Testing, Adjusting, and Balancing Bureau.
5. TAB Specialist: An entity engaged to perform TAB Work.

### 1.4 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures”.

### 1.5 SUBMITTALS

A. Qualification Data: Within 30 days of Contractor's Notice to Proceed, submit documentation that the TAB subcontractor and this Project's TAB team members meet the qualifications specified in "Quality Assurance" Article.

B. Contract Documents Examination Report: Within 45 days of Contractor's Notice to Proceed, submit the Contract Documents review report as specified in Part 3.

C. Strategies and Procedures Plan: Within 60 days from Contractor's Notice to Proceed, submit 7 copies of TAB strategies and step-by-step procedures as specified in Part 3 "Preparation" Article. Include a complete set of report forms intended for use on this Project.

D. Certified TAB Reports: Submit two copies of reports prepared, as specified in this Section, on approved forms certified by TAB firm.

E. Sample report forms.

F. Instrument calibration reports, to include the following:

1. Instrument type and make.
2. Serial number.
3. Application.
4. Dates of use.
5. Dates of calibration.

1.6 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

1.7 PROJECT CONDITIONS

A. Full City of New York Occupancy: The City of New York will occupy the site and existing building during entire TAB period. Cooperate with the City of New York during TAB operations to minimize conflicts with the City of New York's operations.

1.8 COORDINATION

A. Coordinate the efforts of factory-authorized service representatives for systems and equipment, boiler controls installers, and other mechanics to operate boilers and equipment to support and assist TAB activities.

B. Notice: Provide seven days' advance notice for each test. Include scheduled test dates and times.

C. Perform TAB after leakage and pressure tests on air and water distribution systems have been satisfactorily completed.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 EXAMINATION

A. Examine the Contract Documents to become familiar with Project requirements and to discover conditions in systems' designs that may preclude proper TAB of systems and equipment.

B. Examine systems for installed balancing devices, such as test ports, gage cocks, thermometer wells, flow-control devices, balancing valves and fittings, and manual volume dampers. Verify that locations of these balancing devices are accessible.

C. Examine the approved submittals for HVAC systems and equipment.

D. Examine design data including HVAC system descriptions, statements of design assumptions for environmental conditions and systems' output, and statements of philosophies and assumptions about HVAC system and equipment controls.

E. Examine ceiling plenums used for supply, return, or relief air to verify that they meet the leakage class of connected ducts as specified in Section 23 31 13 "Metal Ducts" and are properly separated from adjacent areas. Verify that penetrations in plenum walls are sealed and fire-stopped if required.

F. Examine equipment performance data including fan curves.

1. Relate performance data to Project conditions and requirements, including system effects that can create undesired or unpredicted conditions that cause reduced capacities in all or part of a system.
2. Calculate system-effect factors to reduce performance ratings of HVAC equipment when installed under conditions different from the conditions used to rate equipment performance. To calculate system effects for air systems, use tables and charts found in AMCA 201, "Fans and Systems," or in SMACNA's "HVAC Systems - Duct Design." Compare results with the design data and installed conditions.

G. Examine system and equipment installations and verify that field quality-control testing, cleaning, and adjusting specified in individual Sections have been performed.

H. Examine test reports specified in individual system and equipment Sections.

I. Examine HVAC equipment and filters and verify that bearings are greased, belts are aligned and tight, and equipment with functioning controls is ready for operation.

J. Examine operating safety interlocks and controls on HVAC equipment.

K. Report deficiencies discovered before and during performance of TAB procedures. Observe and record system reactions to changes in conditions. Record default set points if different from indicated values.

3.3 PREPARATION

A. Prepare a TAB plan that includes strategies and step-by-step procedures.

B. Complete system-readiness checks and prepare reports. Verify the following:

1. Permanent electrical-power wiring is complete.
2. Automatic temperature-control systems are operational.
3. Equipment and duct access doors are securely closed.
4. Balance, smoke, and fire dampers are open.

3.4 GENERAL PROCEDURES FOR TESTING AND BALANCING

A. Perform testing and balancing procedures on each system according to the procedures contained in SMACNA's "HVAC Systems - Testing, Adjusting, and Balancing and in this Section.

1. Comply with requirements in ASHRAE 62.1, Section 7.2.2 - "Air Balancing."

B. Cut insulation, ducts, pipes, and equipment cabinets for installation of test probes to the minimum extent necessary for TAB procedures.

1. After testing and balancing, patch probe holes in ducts with same material and thickness as used to construct ducts.
2. After testing and balancing, install test ports and duct access doors.
3. Install and join new insulation that matches removed materials. Restore insulation, coverings, vapor barrier, and finish according to Section 23 07 13 "Duct Insulation".

C. Mark equipment and balancing devices, including damper-control positions, valve position indicators, fan-speed-control levers, and similar controls and devices, with paint or other suitable, permanent identification material to show final settings.

D. Take and report testing and balancing measurements in inch-pound (IP) units.

3.5 GENERAL PROCEDURES FOR BALANCING AIR SYSTEMS

A. Prepare test reports for both fans and outlets. Obtain manufacturer's outlet factors and recommended testing procedures. Crosscheck the summation of required outlet volumes with required fan volumes.

B. Measure existing system CFM at supply main, return main and all air outlets and record before any construction begins. Issue results to the City of New York, and Commissioner.

C. Prepare schematic diagrams of systems' "as-built" duct layouts.

D. Determine the best locations in main and branch ducts for accurate duct-airflow measurements.

E. Check airflow patterns from the outdoor-air louvers and dampers and the return- and exhaust-air dampers through the supply-fan discharge and mixing dampers.

F. Locate start-stop and disconnect switches, electrical interlocks, and motor starters.

G. Verify that motor starters are equipped with properly sized thermal protection.

H. Check dampers for proper position to achieve desired airflow path.

I. Check for airflow blockages.

J. Check condensate drains for proper connections and functioning.

K. Check for proper sealing of air-handling-unit components.

L. Verify that air duct system is sealed as specified in Section 23 31 13 "Metal Ducts."

3.6 PROCEDURES FOR CONSTANT-VOLUME AIR SYSTEMS

A. Adjust fans to deliver total indicated airflows within the maximum allowable fan speed listed by fan manufacturer.

1. Measure total airflow.

a. Where sufficient space in ducts is unavailable for Pitot-tube traverse measurements, measure airflow at terminal outlets and inlets and calculate the total airflow.

2. Measure fan static pressures as follows to determine actual static pressure:

a. Measure outlet static pressure as far downstream from the fan as practical and upstream from restrictions in ducts such as elbows and transitions.
b. Measure static pressure directly at the fan outlet or through the flexible connection.
c. Measure inlet static pressure of single-inlet fans in the inlet duct as near the fan as possible, upstream from the flexible connection, and downstream from duct restrictions.
d. Measure inlet static pressure of double-inlet fans through the wall of the plenum that houses the fan.

3. Measure static pressure across each component that makes up an air-handling unit, rooftop unit, and other air handling and treating equipment.

a. Report the cleanliness status of filters and the time static pressures are measured.

4. Measure static pressures entering and leaving other devices, such as sound traps, heat-recovery equipment, and air washers, under final balanced conditions.
5. Review Record Documents to determine variations in design static pressures versus actual static pressures. Calculate actual system-effect factors. Recommend adjustments to accommodate actual conditions.
6. Obtain approval from Commissioner for adjustment of fan speed higher or lower than indicated speed. Comply with requirements in HVAC Sections for air-handling units for adjustment of fans, belts, and pulley sizes to achieve indicated air handling unit performance.
7. Do not make fan-speed adjustments that result in motor overload. Consult equipment manufacturers about fan-speed safety factors. Modulate dampers and measure fan-motor amperage to ensure that no overload will occur. Measure amperage in full-cooling, full-heating, economizer, and any other operating mode to determine the maximum required brake horsepower.

B. Adjust volume dampers for main duct, submain ducts, and major branch ducts to indicated airflows within specified tolerances.

1. Measure airflow of submain and branch ducts.

a. Where sufficient space in submain and branch ducts is unavailable for Pitot-tube traverse measurements, measure airflow at terminal outlets and inlets and calculate the total airflow for that zone.

2. Measure static pressure at a point downstream from the balancing damper, and adjust volume dampers until the proper static pressure is achieved.
3. Remeasure each submain and branch duct after all have been adjusted. Continue to adjust submain and branch ducts to indicated airflows within specified tolerances.

C. Measure air outlets and inlets without making adjustments.

1. Measure terminal outlets using a direct-reading hood or outlet manufacturer's written instructions and calculating factors.

D. Adjust air outlets and inlets for each space to indicated airflows within specified tolerances of indicated values. Make adjustments using branch volume dampers rather than extractors and the dampers at air terminals.

1. Adjust each outlet in same room or space to within specified tolerances of indicated quantities without generating noise levels above the limitations prescribed by the Contract Documents.
2. Adjust patterns of adjustable outlets for proper distribution without drafts.

## 3.7 PROCEDURES FOR MOTORS

A. Motors, 1/2 HP and Larger: Test at final balanced conditions and record the following data:

1. Manufacturer's name, model number, and serial number.
2. Motor horsepower rating.
3. Motor rpm.
4. Efficiency rating.
5. Nameplate and measured voltage, each phase.
6. Nameplate and measured amperage, each phase.
7. Starter thermal-protection-element rating.

B. Motors Driven by Variable-Frequency Controllers: Test for proper operation at speeds varying from minimum to maximum. Test the manual bypass of the controller to prove proper operation. Record observations including name of controller manufacturer, model number, serial number, and nameplate data.

## 3.8 TOLERANCES

A. Set HVAC system's air flow rates and water flow rates within the following tolerances:

1. Supply, Return, and Exhaust Fans and Equipment with Fans: Plus, or minus 10 percent.
2. Air Outlets and Inlets: Plus, or minus 10 percent.
3. Heating-Water Flow Rate: Plus, or minus 10 percent.

3.9 REPORTING

A. Initial Construction-Phase Report: Based on examination of the Contract Documents as specified in "Examination" Article, prepare a report on the adequacy of design for systems' balancing devices. Recommend changes and additions to systems' balancing devices to facilitate proper performance measuring and balancing. Recommend changes and additions to HVAC systems and general construction to allow access for performance measuring and balancing devices.

B. Status Reports: Prepare biweekly progress reports to describe completed procedures, procedures in progress, and scheduled procedures. Include a list of deficiencies and problems found in systems being tested and balanced. Prepare a separate report for each system and each building floor for systems serving multiple floors.

3.10 FINAL REPORT

A. General: Prepare a certified written report; tabulate and divide the report into separate sections for tested systems and balanced systems.

1. Include a certification sheet at the front of the report's binder, signed and sealed by the certified testing and balancing company.
2. Include a list of instruments used for procedures, along with proof of calibration.

B. Final Report Contents: In addition to certified field-report data, include the following:

1. Fan curves.
2. Manufacturers' test data.
3. Field test reports prepared by system and equipment installers.
4. Other information relative to equipment performance; do not include Shop Drawings and product data.
5. Final reporting for all systems.

C. General Report Data: In addition to form titles and entries, include the following data:

1. Title page.
2. Name and address of the TAB subcontractor.
3. Project name.
4. Project location.
5. Commissioner's name and address.
6. Contractor's name and address.
7. Report date.
8. Signature of TAB supervisor who certifies the report.
9. Table of Contents with the total number of pages defined for each section of the report. Number each page in the report.

10. Summary of contents including the following:

    a. Indicated versus final performance.
    b. Notable characteristics of systems.
    c. Description of system operation sequence if it varies from the Contract Documents.

11. Nomenclature sheets for each item of equipment.
12. Data for terminal units, including manufacturer's name, type, size, and fittings.
13. Notes to explain why certain final data in the body of reports vary from indicated values.
14. Test conditions for fans and pump performance forms including the following:

    a. Settings for outdoor-, return-, and exhaust-air dampers.
    b. Conditions of filters.
    c. Cooling coil, wet- and dry-bulb conditions.
    d. Fan drive settings including settings and percentage of maximum pitch diameter.
    e. Settings for supply-air, static-pressure controller.
    f. Other system operating conditions that affect performance.

D. System Diagrams: Include schematic layouts of air distribution systems. Present each system with single-line diagram and include the following:

1. Quantities of outdoor, supply, return, and exhaust airflows.
2. Duct, outlet, and inlet sizes.
3. Terminal units.

E. Air-Handling-Unit Test Reports: For air-handling units with coils, include the following:

1. Unit Data:

    a. Unit identification.
    b. Location.
    c. Make and type.
    d. Model number and unit size.
    e. Manufacturer's serial number.
    f. Unit arrangement and class.
    g. Discharge arrangement.
    h. Sheave make, size in inches, and bore.
    i. Center-to-center dimensions of sheave, and amount of adjustments in inches.
    j. Number, make, and size of belts.
    k. Number, type, and size of filters.

2. Motor Data:

    a. Motor maker, and frame type and size.
    b. Horsepower and rpm.

c. Volts, phase, and hertz.
d. Full-load amperage and service factor.
e. Sheave make, size in inches, and bore.
f. Center-to-center dimensions of sheave, and amount of adjustments in inches.

3. Test Data (Indicated and Actual Values):

a. Total air flow rate in cfm.
b. Total system static pressure in inches wg.
c. Fan rpm.
d. Discharge static pressure in inches wg.
e. Filter static-pressure differential in inches wg.
f. Heating-coil static-pressure differential in inches wg.
g. Outdoor airflow in cfm.
h. Outdoor-air damper position.

F. Apparatus-Coil Test Reports:

1. Coil Data:

a. System identification.
b. Location.
c. Coil type.
d. Number of rows.
e. Fin spacing in fins per inch o.c.
f. Make and model number.
g. Face area in sq. ft.
h. Tube size in NPS.
i. Tube and fin materials.
j. Circuiting arrangement.

2. Test Data (Indicated and Actual Values):

a. Air flow rate in cfm.
b. Average face velocity in fpm.
c. Air pressure drop in inches wg.
d. Outdoor-air, wet- and dry-bulb temperatures in deg F.
e. Leaving-air, wet- and dry-bulb temperatures in deg F.
f. Refrigerant expansion valve and refrigerant types.
g. Refrigerant suction pressure in psig.
h. Refrigerant suction temperature in deg F.
i. Inlet steam pressure in psig.

G. Fan Test Reports: For supply, and exhaust fans, include the following:

1. Fan Data:

a. System identification.
b. Location.

c. Make and type.
d. Model number and size.
e. Manufacturer's serial number.
f. Arrangement and class.
g. Sheave make, size in inches, and bore.
h. Center-to-center dimensions of sheave, and amount of adjustments in inches.

2. Motor Data:

a. Motor make, and frame type and size.
b. Horsepower and rpm.
c. Volts, phase, and hertz.
d. Full-load amperage and service factor.
e. Sheave make, size in inches, and bore.
f. Center-to-center dimensions of sheave, and amount of adjustments in inches.
g. Number, make, and size of belts.

3. Test Data (Indicated and Actual Values):

a. Total airflow rate in cfm.
b. Total system static pressure in inches wg.
c. Fan rpm.
d. Discharge static pressure in inches wg.
e. Suction static pressure in inches wg.

H. Duct Traverse Reports: Include a diagram with a grid representing the duct cross-section and record the following:

1. Report Data:

a. System and air-handling-unit number.
b. Location and zone.
c. Traverse air temperature in deg F.
d. Duct static pressure in inches wg.
e. Duct size in inches.
f. Duct area in sq. ft.
g. Indicated air flow rate in cfm.
h. Indicated velocity in fpm.
i. Actual air flow rate in cfm.
j. Actual average velocity in fpm.
k. Barometric pressure in psig.

I. Instrument Calibration Reports:

1. Report Data:

a. Instrument type and make.
b. Serial number.
c. Application.

d. Dates of use.
e. Dates of calibration.

3.11 INSPECTIONS

A. Initial Inspection:

1. After testing and balancing are complete, operate each system and randomly check measurements to verify that the system is operating according to the final test and balance readings documented in the final report.
2. Check the following for each system:

a. Measure airflow of at least 10 percent of air outlets.
b. Measure water flow of at least 5 percent of terminals.
c. Measure room temperature at each thermostat/temperature sensor. Compare the reading to the set point.
d. Verify that balancing devices are marked with final balance position.
e. Note deviations from the Contract Documents in the final report.

B. Final Inspection:

1. After initial inspection is complete and documentation by random checks verifies that testing and balancing are complete and accurately documented in the final report, request that a final inspection be made by the Commissioner.
2. The TAB subcontractor's test and balance company must conduct the inspection in the presence of Commissioner.
3. Commissioner must randomly select measurements, documented in the final report, to be rechecked. Rechecking must be limited to either 10 percent of the total measurements recorded or the extent of measurements that can be accomplished in a normal 8-hour business day.
4. If rechecks yield measurements that differ from the measurements documented in the final report by more than the tolerances allowed, the measurements must be noted as "FAILED."
5. If the number of "FAILED" measurements is greater than 10 percent of the total measurements checked during the final inspection, the testing and balancing must be considered incomplete and must be rejected.

C. TAB Work will be considered defective if it does not pass final inspections. If TAB Work fails, proceed as follows:

1. Recheck all measurements and make adjustments. Revise the final report and balancing device settings to include all changes; resubmit the final report and request a second final inspection.

D. Prepare test and inspection reports.

3.12 ADDITIONAL TESTS

A. Within 90 days of completing TAB, perform additional TAB to verify that balanced conditions are being maintained throughout and to correct unusual conditions.

B. Seasonal Periods: If initial TAB procedures were not performed during near-peak summer and winter conditions, perform additional TAB during near-peak summer and winter conditions.

END OF SECTION - 23 05 93

# SECTION 23 07 13 - DUCT 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 SUMMARY

A. Section includes insulating the following duct services:

1. Indoor, concealed supply and outdoor air.
2. Indoor, exposed supply and outdoor air.
3. Outdoor, exposed supply and return ducts
4. Outdoor, exposed supply and return.

### 1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures”.

### 1.4 ACTION SUBMITTALS

A. Product Data: For each type of product indicated. Include thermal conductivity, water-vapor permeance thickness, and jackets (both factory- and field-applied if any).

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

1. Detail application of protective shields, saddles, and inserts at hangers for each type of insulation and hanger.
2. Detail insulation application at elbows, fittings, dampers, specialties and flanges for each type of insulation.
3. Detail application of field-applied jackets.
4. Detail application at linkages of control devices.

C. Samples: For each type of insulation and jacket indicated. Identify each Sample, describing product and intended use. Sample sizes are as follows:

1. Sheet Form Insulation Materials: 12 inches square.
2. Sheet Jacket Materials: 12 inches square.
3. Manufacturer's Color Charts: For products where color is specified, show the full range of colors available for each type of finish material.

1.5 INFORMATIONAL SUBMITTALS

A. Material Test Reports: From a qualified testing agency indicating, interpreting, and certifying test results for compliance of insulation materials, sealers, attachments, cements, and jackets, with requirements indicated. Include dates of tests and test methods employed.

B. Field quality-control reports.

1.6 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Packaging: Insulation material containers are to be marked with the manufacturer's name, appropriate ASTM standard designation, type and grade, and maximum use temperature.

1.8 COORDINATION

A. Coordinate sizes and locations of supports, hangers, and insulation shields specified in Section 23 05 29 "Hangers and Supports for HVAC Piping and Equipment."

B. Coordinate clearance requirements with duct Installer for duct insulation application. Before preparing ductwork Shop Drawings, establish and maintain clearance requirements for installation of insulation and field-applied jackets and finishes and for space required for maintenance.

1.9 SCHEDULING

A. Schedule insulation application after pressure testing systems and, where required, after installing and testing heat tracing. Insulation application may begin on segments that have satisfactory test results.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Surface-Burning Characteristics: For insulation and related materials, as determined by testing identical products in accordance with ASTM E84, by a qualified testing agency. Factory label insulation, jacket materials, adhesive, mastic, tapes, and cement material containers with appropriate markings of applicable testing agency.

1. All Insulation Installed Indoors and Outdoors: Flame-spread index of 25 or less, and smoke-developed index of 50 or less.

2.2 INSULATION MATERIALS

A. Comply with requirements in "Duct Insulation Schedule, General," "Indoor Duct and Plenum Insulation Schedule," and "Aboveground, Outdoor Duct and Plenum Insulation Schedule" articles for where insulating materials are to be applied.

B. Products must not contain asbestos, lead, mercury, or mercury compounds.

C. Products that come in contact with stainless steel must have a leachable chloride content of less than 50 ppm when tested according to ASTM C 871.

D. Insulation materials for use on austenitic stainless steel are qualified as acceptable in accordance with ASTM C795. Duct & Plenum insulation must be in compliance with New York City Energy Conservation Code (NYCECC).

E. Foam insulation materials do not use CFC or HCFC blowing agents in the manufacturing process.

F. Mineral or Glass-Fiber Blanket: Mineral or Glass fibers bonded with a thermosetting resin; suitable for maximum use temperature up to 450 deg F in accordance with ASTM C411. Comply with ASTM C553, Type II, and ASTM C1290, Type III with factory-applied FSK jacket. Factory-applied jacket requirements are specified in "Factory-Applied Jackets" Article.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. CertainTeed Corporation; Saint-Gobain North America.
    b. Johns Manville; a Berkshire Hathaway company.
    c. Knauf Insulation.
    d. Manson Insulation Inc.
    e. Owens Corning.
    f. Or approved equal.

G. High-Temperature, Glass-Fiber Blanket: Glass fibers bonded with a thermosetting resin, unfaced; suitable for maximum use temperature up to 1000 deg F. Comply with ASTM C553, Type V.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. CertainTeed Corporation; Saint-Gobain North America.
    b. Johns Manville; a Berkshire Hathaway company.
    c. Knauf Insulation.
    d. Manson Insulation Inc.
    e. Owens Corning.
    f. Or approved equal.

H. Mineral Wool Blanket: Basalt volcanic rock-derived fibers bonded with a thermosetting resin, unfaced; suitable for maximum use temperature up to 1200 deg F in accordance with ASTM C447. Comply with ASTM C553.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Johns Manville; a Berkshire Hathaway company.
b. Owens Corning.
c. ROCKWOOL Technical Insulation.
d. Or approved equal.

I. Mineral or Glass-Fiber Board Insulation: Mineral or Glass fibers bonded with a thermosetting resin; suitable for maximum use temperature between 35 deg F and 250 deg F for jacketed and between 35 deg F and 450 deg F for unfaced in accordance with ASTM C411. Comply with ASTM C612, Type IA or Type IB. For duct and plenum applications, provide insulation with factory-applied FSK jacket.

J. High-Temperature, Glass-Fiber Board: Glass fibers bonded with a thermosetting resin; suitable for maximum use temperature up to 1000 deg F in accordance with ASTM C411. Comply with ASTM C612, Type III, unfaced.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. CertainTeed Corporation; Saint-Gobain North America.
b. Johns Manville; a Berkshire Hathaway company.
c. Knauf Insulation.
d. Manson Insulation Inc.
e. Owens Corning.
f. Or approved equal.

K. Mineral Wool Board: Basalt volcanic rock-derived fibers bonded with a thermosetting resin; suitable for maximum use temperature up to 1100 deg F in accordance with ASTM C411. Comply with ASTM C612, Type III, unfaced.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Johns Manville; a Berkshire Hathaway company.
b. Owens Corning.
c. ROCKWOOL Technical Insulation.
d. Or approved equal.

## 2.3 FIRE-RATED INSULATION SYSTEMS

A. Fire-Rated Board: Structural-grade, press-molded, xonolite calcium silicate, fireproofing board suitable for operating temperatures up to 1700 deg F. Comply with ASTM C656, Type II, Grade 6. Tested and certified to provide a 2-hour fire rating by an NRTL.

B. Fire-Rated Blanket: High-temperature, flexible, blanket insulation with FSK jacket that is tested and certified to provide a 2-hour fire rating by a qualified NRTL.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. 3M.
b. Thermal Ceramics.
c. Unifrax Corporation.
d. Or approved equal.

2.4 ADHESIVES

A. Materials are compatible with insulation materials, jackets, and substrates and for bonding insulation to itself and to surfaces to be insulated unless otherwise indicated.

B. Flexible Elastomeric and Polyolefin Adhesive: Comply with MIL-A-24179A, Type II, Class I.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Aeroflex USA.
b. Armacell LLC.
c. Childers Brand; H. B. Fuller Construction Products.
d. Foster Brand; H. B. Fuller Construction Products.
e. K-Flex USA.
f. Or approved equal.

C. Glass-Fiber and Mineral Wool Adhesive: Comply with MIL-A-3316C, Class 2, Grade A.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Childers Brand; H. B. Fuller Construction Products.
b. Eagle Bridges - Marathon Industries.
c. Foster Brand; H. B. Fuller Construction Products.
d. Mon-Eco Industries, Inc.
e. Or approved equal.

D. ASJ Adhesive, and FSK Jacket Adhesive: Comply with MIL-A-3316C, Class 2, Grade A for bonding insulation jacket lap seams and joints.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Childers Brand; H. B. Fuller Construction Products.
b. Eagle Bridges - Marathon Industries.
c. Foster Brand; H. B. Fuller Construction Products.

d. Mon-Eco Industries, Inc.
e. Or approved equal.

E. PVC Jacket Adhesive: Compatible with PVC jacket.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Dow Consumer Solutions.
b. Johns Manville; a Berkshire Hathaway company.
c. P.I.C. Plastics, Inc.
d. Proto Corporation.
e. Speedline Corporation.
f. Or approved equal.

2.5 MASTICS AND COATINGS

A. Materials are compatible with insulation materials, jackets, and substrates.

B. Vapor-Retarder Mastic: Water based; suitable for indoor use on below ambient services.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Childers Brand; H. B. Fuller Construction Products.
b. Foster Brand; H. B. Fuller Construction Products.
c. Knauf Insulation.
d. Vimasco Corporation.
e. Or approved equal.

2. Water-Vapor Permeance: Comply with ASTM C755, Section 7.2.2, Table 2, for insulation type and service conditions.
3. Service Temperature Range: Minus 20 to plus 180 deg F.
4. Comply with MIL-PRF-19565C, Type II, for permeance requirements, with supplier listing on DOD QPD - Qualified Products Database.
5. Color: White.

2.6 LAGGING ADHESIVES

A. Description: Comply with MIL-A-3316C, Class I, Grade A and are compatible with insulation materials, jackets, and substrates.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Childers Brand; H. B. Fuller Construction Products.
b. Foster Brand; H. B. Fuller Construction Products.
c. Vimasco Corporation.

d. Or approved equal.

2. Fire-resistant, water-based lagging adhesive and coating for use indoors to adhere fire-resistant lagging cloths over duct insulation.
3. Service Temperature Range: 0 to plus 180 deg F.
4. Color: White.

2.7 SEALANTS

A. FSK and Metal Jacket Flashing Sealants:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Childers Brand; H. B. Fuller Construction Products.
b. Eagle Bridges - Marathon Industries.
c. Foster Brand; H. B. Fuller Construction Products.
d. Mon-Eco Industries, Inc.
e. Or approved equal.

2. Materials are compatible with insulation materials, jackets, and substrates.
3. Fire- and water-resistant, flexible, elastomeric sealant.
4. Service Temperature Range: Minus 40 to plus 250 deg F.
5. Color: Aluminum.

B. ASJ Flashing Sealants, and Vinyl and PVC Jacket Flashing Sealants:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Childers Brand; H. B. Fuller Construction Products.
b. Foster Brand; H. B. Fuller Construction Products.
c. Mon-Eco Industries, Inc.
d. Or approved equal.

2. Materials are compatible with insulation materials, jackets, and substrates.
3. Fire- and water-resistant, flexible, elastomeric sealant.
4. Service Temperature Range: Minus 40 to plus 250 deg F.
5. Color: White.

2.8 FACTORY-APPLIED JACKETS

A. Insulation system schedules indicate factory-applied jackets on various applications. When factory-applied jackets are indicated, comply with the following:

1. ASJ: White, kraft-paper, fiberglass-reinforced scrim with aluminum-foil backing; complying with ASTM C1136, Type I.
2. FSK Jacket: Aluminum-foil, fiberglass-reinforced scrim with kraft-paper backing; complying with ASTM C1136, Type II.

2.9 FIELD-APPLIED JACKETS

A. Field-applied jackets comply with ASTM C921, Type I, unless otherwise indicated.

B. FSK Jacket: Aluminum-foil-face, fiberglass-reinforced scrim with kraft-paper backing.

2.10 TAPES

A. ASJ Tape: White vapor-retarder tape matching factory-applied jacket with acrylic adhesive, complying with ASTM C1136.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. 3M Industrial Adhesives and Tapes Division.
b. Avery Dennison Corporation, Specialty Tapes Division.
c. Ideal Tape Co., Inc., an American Biltrite Company.
d. Knauf Insulation.
e. Or approved equal.

2. Width: 3 inches.
3. Thickness: 11.5 mils.
4. Adhesion: 90 ounces force/inch in width.
5. Elongation: 2 percent.
6. Tensile Strength: 40 lbf/inch in width.
7. ASJ Tape Disks and Squares: Precut disks or squares of ASJ tape.

B. FSK Tape: Foil-face, vapor-retarder tape matching factory-applied jacket with acrylic adhesive; complying with ASTM C1136.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. 3M Industrial Adhesives and Tapes Division.
b. Avery Dennison Corporation, Specialty Tapes Division.
c. Ideal Tape Co., Inc., an American Biltrite Company.
d. Knauf Insulation.
e. Or approved equal.

2. Width: 3 inches.
3. Thickness: 6.5 mils.
4. Adhesion: 90 ounces force/inch in width.
5. Elongation: 2 percent.
6. Tensile Strength: 40 lbf/inch in width.
7. FSK Tape Disks and Squares: Precut disks or squares of FSK tape.

C. Aluminum-Foil Tape: Vapor-retarder tape with acrylic adhesive.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. 3M Industrial Adhesives and Tapes Division.
    b. Avery Dennison Corporation, Specialty Tapes Division.
    c. Ideal Tape Co., Inc., an American Biltrite Company.
    d. Knauf Insulation.
    e. Or approved equal.

2. Width: 2 inches.
3. Thickness: 3.7 mils.
4. Adhesion: 100 ounces force/inch in width.
5. Elongation: 5 percent.
6. Tensile Strength: 34 lbf/inch in width.

2.11 SECUREMENTS

A. Bands:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Johns Manville; a Berkshire Hathaway company.
    b. RPR Products, Inc.
    c. Unline Shtrapping.
    d. Or approved equal.

2. Stainless Steel: ASTM A240/A240M, Type 304; 0.015 inch thick, 3/4 inch wide with closed seal.
3. Aluminum: ASTM B209, Alloy 3003, 3005, 3105, or 5005; Temper H-14, 0.020 inch thick, 1/2 inch wide with closed seal.
4. Springs: Twin spring set constructed of stainless steel with ends flat and slotted to accept metal bands. Spring size determined by manufacturer for application.

B. Insulation Pins and Hangers:

1. Capacitor-Discharge-Weld Pins: Copper- or zinc-coated steel pin, fully annealed for capacitor-discharge welding, 0.135-inch- diameter shank, length to suit depth of insulation indicated.

    a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

        1) AGM Industries, Inc.
        2) Gemco.
        3) Midwest Fasteners, Inc.
        4) Nelson Stud Welding.
        5) Or approved equal.

2. Metal, Adhesively Attached, Perforated-Base Insulation Hangers: Baseplate welded to projecting spindle that is capable of holding insulation, of thickness indicated, securely in position indicated when self-locking washer is in place. Comply with the following requirements:

   a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

      1) AGM Industries, Inc.
      2) Gemco.
      3) Midwest Fasteners, Inc.
      4) Or approved equal.

   b. Baseplate: Perforated, galvanized carbon-steel sheet, 0.030 inch thick by 2 inches square.
   c. Spindle: Stainless steel, fully annealed, 0.106-inch- diameter shank, length to suit depth of insulation indicated.
   d. Adhesive: Recommended by hanger manufacturer. Product with demonstrated capability to bond insulation hanger securely to substrates indicated without damaging insulation, hangers, and substrates.

C. Staples: Outward-clinching insulation staples, nominal 3/4-inch- wide, stainless steel or Monel.

D. Wire: 0.062-inch soft-annealed, galvanized steel.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

   a. C & F Wire.
   b. Johns Manville; a Berkshire Hathaway company.
   c. RPR Products, Inc.
   d. Or approved equal.

2.12 CORNER ANGLES

A. Stainless-Steel Corner Angles: 0.024 inch thick, minimum 1 by 1 inch, stainless steel in accordance with ASTM A167 or ASTM A240/A240M, Type 304.

PART 3 - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 EXAMINATION

A. Examine substrates and conditions for compliance with requirements for installation tolerances and other conditions affecting performance of insulation application.

1. Verify that systems to be insulated have been tested and are free of defects.
2. Verify that surfaces to be insulated are clean and dry.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 PREPARATION

A. Surface Preparation: Clean and dry surfaces to receive insulation. Remove materials that will adversely affect insulation application.

3.4 GENERAL INSTALLATION REQUIREMENTS

A. Install insulation materials, accessories, and finishes with smooth, straight, and even surfaces, free of voids throughout the length of ducts and fittings.

B. Install insulation materials, vapor barriers or retarders, jackets, and thicknesses required for each item of duct system as specified in insulation system schedules.

C. Install accessories compatible with insulation materials and suitable for the service. Install accessories that do not corrode, compress, or otherwise damage insulation or jacket.

D. Install insulation with longitudinal seams at top and bottom of horizontal runs.

E. Install multiple layers of insulation with longitudinal and end seams staggered.

F. Keep insulation materials dry during application and finishing. Replace insulation materials that get wet during storage or in the installation process before being properly covered and sealed in accordance with Contract Documents, unless otherwise approved by the Commissioner.

G. Install insulation with tight longitudinal seams and end joints. Bond seams and joints with adhesive recommended by insulation material manufacturer.

H. Install insulation with least number of joints practical.

I. Where vapor barrier is indicated, seal joints, seams, and penetrations in insulation at hangers, supports, anchors, and other projections with vapor-barrier mastic.

1. Install insulation continuously through hangers and around anchor attachments.
2. For insulation application where vapor barriers are indicated, extend insulation on anchor legs from point of attachment to supported item to point of attachment to structure. Taper and seal ends at attachment to structure with vapor-barrier mastic.
3. Install insert materials and install insulation to tightly join the insert. Seal insulation to insulation inserts with adhesive or sealing compound recommended by insulation material manufacturer.

J. Apply adhesives, mastics, and sealants at manufacturer's recommended coverage rate and wet and dry film thicknesses.

K. Install insulation with factory-applied jackets as follows:

1. Draw jacket tight and smooth, but not to the extent of creating wrinkles or areas of compression in the insulation.
2. Cover circumferential joints with 3-inch- wide strips, of same material as insulation jacket. Secure strips with adhesive and outward clinching staples along both edges of strip, spaced 4 inches o.c.
3. Overlap jacket longitudinal seams at least 1-1/2 inches. Clean and dry surface to receive self-sealing lap. Staple laps with outward clinching staples along edge at 4 inches o.c.

    a. For below ambient services, apply vapor-barrier mastic over staples.

4. Cover joints and seams with tape, according to insulation material manufacturer's written instructions, to maintain vapor seal.
5. Where vapor barriers are indicated, apply vapor-barrier mastic on seams and joints and at ends adjacent to duct flanges and fittings.

L. Cut insulation in a manner to avoid compressing insulation.

M. Finish installation with systems at operating conditions. Repair joint separations and cracking due to thermal movement.

N. Repair damaged insulation facings by applying same facing material over damaged areas. Extend patches at least 4 inches beyond damaged areas. Adhere, staple, and seal patches similar to butt joints.

3.5 PENETRATIONS

A. Insulation Installation at Roof Penetrations: Install insulation continuously through roof penetrations.

1. Seal penetrations with flashing sealant.
2. For applications requiring only indoor insulation, terminate insulation above roof surface and seal with joint sealant. For applications requiring indoor and outdoor insulation, install insulation for outdoor applications tightly joined to indoor insulation ends. Seal joint with joint sealant.
3. Extend jacket of outdoor insulation outside roof flashing at least 2 inches below top of roof flashing.
4. Seal jacket to roof flashing with flashing sealant.

B. Insulation Installation at Aboveground Exterior Wall Penetrations: Install insulation continuously through wall penetrations.

1. Seal penetrations with flashing sealant.

2. For applications requiring only indoor insulation, terminate insulation inside wall surface and seal with joint sealant. For applications requiring indoor and outdoor insulation, install insulation for outdoor applications tightly joined to indoor insulation ends. Seal joint with joint sealant.
3. Extend jacket of outdoor insulation outside wall flashing and overlap wall flashing at least 2 inches.
4. Seal jacket to wall flashing with flashing sealant.

C. Insulation Installation at Interior Wall and Partition Penetrations (That Are Not Fire Rated): Install insulation continuously through walls and partitions.

D. Insulation Installation at Fire-Rated Wall and Partition Penetrations: Terminate insulation at fire damper sleeves for fire-rated wall and partition penetrations.

E. Externally insulate damper sleeves to match adjacent insulation and overlap duct insulation at least 2 inches.

1. Comply with requirements in Section 07 84 13 "Penetration Firestopping."

F. Insulation Installation at Floor Penetrations:

1. Duct: For penetrations through fire-rated assemblies, terminate insulation at fire damper sleeves and externally insulate damper sleeve beyond floor to match adjacent duct insulation. Overlap damper sleeve and duct insulation at least 2 inches.
2. Seal penetrations through fire-rated assemblies. Comply with requirements in Section 07 84 13 "Penetration Firestopping."

3.6 INSTALLATION OF FLEXIBLE ELASTOMERIC AND POLYOLEFIN INSULATION

A. Comply with manufacturer's written installation instructions and ASTM C1710.

B. Seal longitudinal seams and end joints with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.

C. Square and Rectangular Ducts and Plenums:

1. Provide 1/4 inch more per side for a tight, compression fit.
2. Cut sheet insulation with the following dimensions:

a. Width of duct plus 1/4 inch, one piece.
b. Height of duct plus 1/4 inch, plus thickness of insulation, two pieces.
c. Width of duct plus 1/4 inch, plus two times the thickness of insulation, one piece.

3. Insulate the bottom of the duct with the sheet from (a) above, then the sides with the two sheets from (b) above, and finally the top of the duct with the sheet from (c) above.
4. Insulation without self-adhering backing:

a. Apply 100 percent coverage of manufacturer adhesive on the metal surface, then the insulation, except for the last 1/4 inch where sheets will butt together.
b. Roll sheet down into position.
c. Press two sheets together under compression and apply adhesive at the butt joint to seal the two sheets together.

5. Insulation with self-adhering backing:

a. Peel back release paper in 6- to 8-inch increments and line up sheet.
b. Press firmly to activate adhesive.
c. Align material and continue to line up correctly, pressing firmly while slowly removing release paper.
d. Allow 1/4-inch overlap for compression at butt joints.
e. Apply adhesive at the butt joint to seal the two sheets together.

6. Insulate duct brackets following manufacturer's written installation instructions.

D. Circular Ducts:

1. Determine the circumference of the duct, using a strip of insulation the same thickness as to be used.
2. Cut the sheet to the required size.
3. Apply 100 percent coverage of manufacturer adhesive on the metal surface then the insulation.
4. Apply manufacturer adhesive to the cut surfaces along 100 percent of the longitudinal seam. Press together the seam at the ends and then the middle. Close the entire seam starting from the middle.

## 3.7 INSTALLATION OF GLASS-FIBER AND MINERAL-WOOL INSULATION

A. Comply with manufacturer's written installation instructions.

1. Apply adhesives according to manufacturer's recommended coverage rates per unit area, for 100 percent coverage of duct and plenum surfaces.
2. Apply adhesive to entire circumference of ducts and to all surfaces of fittings and transitions.
3. Install either capacitor-discharge-weld pins and speed washers or cupped-head, capacitor-discharge-weld pins on sides and bottom of horizontal ducts and sides of vertical ducts as follows:

a. On duct sides with dimensions 18 inches and smaller, place pins along longitudinal centerline of duct. Space 3 inches maximum from insulation end joints, and 16 inches o.c.
b. On duct sides with dimensions larger than 18 inches, place pins 16 inches o.c. each way, and 3 inches maximum from insulation joints. Install additional pins to hold insulation tightly against surface at cross bracing.
c. Pins may be omitted from top surface of horizontal, rectangular ducts and plenums.

d. Do not overcompress insulation during installation.
e. Impale insulation over pins and attach speed washers.
f. Cut excess portion of pins extending beyond speed washers or bend parallel with insulation surface. Cover exposed pins and washers with tape matching insulation facing.

4. For ducts and plenums with surface temperatures below ambient, install a continuous unbroken vapor barrier. Create a facing lap for longitudinal seams and end joints with insulation by removing 2 inches from one edge and one end of insulation segment. Secure laps to adjacent insulation section with 1/2-inch outward-clinching staples, 1 inch o.c. Install vapor barrier consisting of factory- or field-applied jacket, adhesive, vapor-barrier mastic, and sealant at joints, seams, and protrusions.

   a. Repair punctures, tears, and penetrations with tape or mastic to maintain vapor-barrier seal.
   b. Install vapor stops for ductwork and plenums operating below 50 deg F at 18-foot intervals. Vapor stops consist of vapor-barrier mastic applied in a Z-shaped pattern over insulation face, along butt end of insulation, and over the surface. Cover insulation face and surface to be insulated a width equal to two times the insulation thickness, but not less than 3 inches.

5. Overlap unfaced blankets a minimum of 2 inches on longitudinal seams and end joints. At end joints, secure with steel bands spaced a maximum of 18 inches o.c.
6. Install insulation on rectangular duct elbows and transitions with a full insulation section for each surface. Install insulation on round and flat-oval duct elbows with individually mitered gores cut to fit the elbow.
7. Insulate duct stiffeners, hangers, and flanges that protrude beyond insulation surface with 6-inch- wide strips of same material used to insulate duct. Secure on alternating sides of stiffener, hanger, and flange with pins spaced 6 inches o.c.

## 3.8 FIELD-APPLIED JACKET INSTALLATION

A. Where glass-cloth jackets are indicated, install directly over bare insulation or insulation with factory-applied jackets.

   1. Draw jacket smooth and tight to surface with 2-inch overlap at seams and joints.
   2. Embed glass cloth between two 0.062-inch- thick coats of lagging adhesive.
   3. Completely encapsulate insulation with coating, leaving no exposed insulation.

B. Where FSK jackets are indicated, install as follows:

   1. Draw jacket material smooth and tight.
   2. Install lap or joint strips with same material as jacket.
   3. Secure jacket to insulation with manufacturer's recommended adhesive.
   4. Install jacket with 1-1/2-inch laps at longitudinal seams and 3-inch- wide joint strips at end joints.

5. Seal openings, punctures, and breaks in vapor-retarder jackets and exposed insulation with vapor-barrier mastic.

3.9 FIRE-RATED INSULATION SYSTEM INSTALLATION

A. Comply with manufacturer's written installation instructions.

B. Where fire-rated insulation system is indicated, secure system to ducts and duct hangers and supports to maintain a continuous fire rating.

C. Insulate duct access panels and doors to achieve same fire rating as duct.

D. Install firestopping at penetrations through fire-rated assemblies. Fire-stop systems are specified in Section 07 84 13 "Penetration Firestopping."

3.10 FINISHES

A. Insulation with ASJ, Glass-Cloth, or Other Paintable Jacket Material: Paint jacket with water based acrylic paint

1. Flat Acrylic Finish: Two finish coats over a primer that is compatible with jacket material and finish coat paint. Add fungicidal agent to render fabric mildew proof.

a. Finish Coat Material: Interior, flat, latex-emulsion size.

B. Do not field paint aluminum or stainless-steel jackets.

3.11 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Tests and Inspections:

1. Inspect ductwork, randomly selected by Commissioner, by removing field-applied jacket and insulation in layers in reverse order of their installation. Extent of inspection is limited to one location(s) for each duct system defined in the "Duct Insulation Schedule, General" Article.

C. All insulation applications will be considered defective Work if sample inspection reveals noncompliance with requirements.

3.12 DUCT INSULATION SCHEDULE, GENERAL

A. Plenums and Ducts Requiring Insulation:

1. Indoor, concealed supply and outdoor air.
2. Indoor, exposed supply and outdoor air.
3. Indoor, concealed exhaust between isolation damper and penetration of building exterior.

4. Indoor, exposed exhaust between isolation damper and penetration of building exterior.
5. Outdoor, concealed supply and return.
6. Outdoor, exposed supply and return.

B. Items Not Insulated:

1. Fibrous-glass ducts.
2. Metal ducts with duct liner of sufficient thickness to comply with energy code and ASHRAE/IESNA 90.1.
3. Factory-insulated flexible ducts.
4. Factory-insulated plenums and casings.
5. Flexible connectors.
6. Vibration-control devices.
7. Factory-insulated access panels and doors.

3.13 INDOOR DUCT AND PLENUM INSULATION SCHEDULE

A. Concealed, supply-air duct insulation is one of the following:

1. Glass-Fiber Blanket: 3 inches thick and 3 lb/cu. ft. nominal density.
2. Mineral Wool Blanket: 2 inches thick and 6 lb/cu. ft. nominal density.

B. Concealed, return-air duct insulation is one of the following:

1. Glass-Fiber Blanket: 3 inches thick and 3 lb/cu. ft. nominal density.
2. Mineral Wool Blanket: 2 inches thick and 6 lb/cu. ft. nominal density.

C. Exposed, supply-air duct insulation is one of the following:

1. Glass-Fiber Board: 3 inches thick and 6 lb/cu. ft. nominal density. Not less than R-8 insulation.
2. Mineral Wool Board: 2 inches thick and 6-lb/cu. ft. nominal density. Not less than R-8 insulation.

D. Exposed, return-air duct insulation is one of the following:

1. Glass-Fiber Board: 3 inches thick and 6 lb/cu. ft. nominal density. Not less than R-8 insulation.
2. Mineral Wool Board: 2 inches thick and 6 lb/cu. ft. nominal density. Not less than R-8 insulation.

E. Exposed, Type I, Commercial, Kitchen Hood Exhaust Duct and Plenum Insulation: Fire-rated blanket or board; thickness as required to achieve 2-hour fire rating.

F. Exposed, supply-air plenum insulation is one of the following:

1. Glass-Fiber Board: 3 inches thick and 6 lb/cu. ft. nominal density. Not less than R-8 insulation.

2. Mineral Wool Board: 2 inches thick and 6 lb/cu. ft. nominal density. Not less than R-8 insulation.

G. Exposed, return-air plenum insulation is one of the following:

1. Glass-Fiber Blanket: 3 inches thick and 3 lb/cu. ft. nominal density.
2. Glass-Fiber Board: 3 inches thick and 6 lb/cu. ft. nominal density.

3.14 ABOVEGROUND, OUTDOOR DUCT AND PLENUM INSULATION SCHEDULE

A. Insulation materials and thicknesses are identified below. If more than one material is listed for a duct system, selection from materials listed is Contractor's option.

B. Concealed, supply-air duct insulation is the following:

1. Glass-Fiber Board: 3 inches thick and 6 lb/cu. ft. nominal density. Not less than R-8 insulation.

C. Concealed, return-air duct insulation is the following:

1. Glass-Fiber Board: 3 inches thick and 6 lb/cu. ft. nominal density. Not less than R-8 insulation.

D. Exposed, supply-air duct insulation is the following:

1. Glass-Fiber Board: 3 inches thick and 6 lb/cu. ft. nominal density. Not less than R-8 insulation.

E. Exposed, return-air duct insulation is the following:

1. Glass-Fiber Board: 3 inches thick and 6 lb/cu. ft. nominal density. Not less than R-8 insulation.

F. Exposed, supply-air plenum insulation is the following:

1. Glass-Fiber Board: 3 inches thick and 6 lb/cu. ft. nominal density. Not less than R-8 insulation.

G. Exposed, return-air plenum insulation is the following:

1. Glass-Fiber Board: 3 inches thick and 6 lb/cu. ft. nominal density.

3.15 INDOOR, FIELD-APPLIED JACKET SCHEDULE

A. Install jacket over insulation material. For insulation with factory-applied jacket, install the field-applied jacket over the factory-applied jacket.

B. If more than one material is listed, selection from materials listed is Contractor's option.

C. Ducts and Plenums, Exposed:

1. Aluminum, Stucco Embossed: 0.024 inch thick.

3.16 OUTDOOR, FIELD-APPLIED JACKET SCHEDULE

A. Install jacket over insulation material. For insulation with factory-applied jacket, install the field-applied jacket over the factory-applied jacket.

B. If more than one material is listed, selection from materials listed is Contractor's option.

C. Ducts and Plenums, Concealed:

1. Aluminum, Stucco Embossed: 0.040 inch thick.

D. Ducts and Plenums, Exposed, up to 48 Inches in Diameter or with Flat Surfaces up to 72 Inches:

1. Aluminum, Stucco Embossed: 0.040 inch thick.

E. Ducts and Plenums, Exposed, Larger Than 48 Inches in Diameter or with Flat Surfaces Larger Than 72 Inches:

1. Aluminum, Stucco Embossed with 1-1/4-Inch- Deep Corrugations: 0.040 inch thick.

END OF SECTION - 23 07 13

# SECTION 23 09 00 - INSTRUMENTATION AND CONTROLS FOR HVAC

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract (City of New York Standard Construction Contract).

### 1.2 SUMMARY

A. This Section includes control equipment for two replaced rooftop AC systems and components. The existing BMS to be wired to the new rooftop AC units' direct digital controller for monitoring and control of rooftop AC units.

B. The BMS equipment and programming describe herein is for coordination to integrate the two new rooftop AC units with the existing BMS and only those components required to do so.

C. Coordinate with electrical trade to install new communication trunk twisted pair wiring from each new RTU to existing Niagara BMS front end for final connection by BMS subcontractor.

D. Provide and install new communication card in existing BMS for interfacing new RTU's with BMS.

E. System must utilize BACnet communication according to ANSI/ASHRAE Standard 135 for interoperability with smart equipment, for the main IP communication trunk to the BMS Server and for peer-to-peer communication between Direct Digital Control (DDC) panels and devices. Modbus, OPC, and published Web Services API integration solutions may be acceptable if BACnet is not available.

F. All setpoints, schedules, overrides, alarms functions and any data value within the entire system architecture must provide read/write access to the BMS software based on the data exchange rule sets and the BMS functionality described in the section.

### 1.3 DEFINITIONS

A. AHU: Air Handling Unit.

B. ASHRAE: American Society of Heating Refrigerating and Air-Conditioning Engineers

C. ATC: Automatic Temperature Control.

D. BIBB: BACnet Interoperability Building Blocks

E. BMS: Building Management System.

F. CFM: Cubic Feet per Minute.

G. FAS: Fire Alarm System.

H. HVAC: Heating, Ventilating and Air Conditioning.

I. I/O: Input / Output

J. IP: Internet Protocol

K. IT: Information Technology

L. LAN: Local area network.

M. LCD: Liquid Crystal Display

N. MER: Mechanical Equipment Room.

O. NFPA: National Fire Protection Association

P. PID: Proportional Integral Derivative

Q. PID: Proportional Integral Derivative.

R. TCP: Transfer Control Protocol

S. UL: Underwriters Laboratories

T. VFD: Variable Frequency Drive.

1.4 SYSTEM DESCRIPTION

A. The Building Management System (BMS) Subcontractor must furnish and install a networked system of HVAC controls to interface new rooftop AC units, factory installed Direct Digital Control controller with existing building BMS. The Subcontractor must incorporate direct digital control (DDC) for rooftop AC unit replacements.

B. Provide networking to new Direct Digital Control (DDC) equipment using industry accepted communication standards. System must be capable of utilizing BACnet communication according to ANSI/ASHRAE Standard 135 for interoperability with smart equipment, for the main IP communication trunk to the BMS Server and for peer-to-peer communication between Direct Digital Control (DDC) panels and devices.

C. Automated graphic application software for building systems monitored and controlled digitally.

D. Graphics playback mode requiring no work to implement.

E. System database for recording controller programs and the data produced by them.

F. Built in tools for Haystack tagging and data modeling convention for ease of searching and organizing gathered data.

G. Programming tools for block and line type system programming.

H. Control logic routines when written once, can be relativized and replicated based on tagging structure.

I. Enterprise normal and event scheduling capabilities.

J. Plug-in an analytics engine that can use the native system database and conventions.

K. Built-in automated testing capabilities.

L. Enterprise integration capabilities - equipment to site and site to site.

M. Operating system agnostic software applications that will run on several operating systems.

N. Fault detection diagnostics module.

O. Secure running application software not penetrable by nefarious means.

P. Network aware and web aware programs that can run on browser applications.

Q. Operation not dependent on applets and plug-ins.

R. 64-bit software that can utilize up to 32 GB of system memory.

S. 64-bit software that can run on a virtual server with full functionality.

1.5 WORK INCLUDED

A. Furnish a complete distributed direct digital control system in accordance with this specification section for interfacing with building existing BMS with the new rooftop AC units factory installed intelligent, intuitive, integrated type Direct Digital Control controller. This includes all supervisory controllers, network controllers, logic controllers and all input/output devices. Items of work included are as follows:

1. Provide a submittal that meets the requirements below for approval.
2. Coordinate installation schedule with other trades.
3. Provide installation of all panels and devices unless otherwise stated.
4. Provide all low voltage control wiring for the Direct Digital Control system. All wiring of sensors and control devices including any power wiring of devices and necessary conduit must be provided under this section of the specifications.
5. Provide miscellaneous control wiring for HVAC and related systems regardless of voltage.
6. Provide testing, demonstration and instructions as specified below.

1.6 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures”.

1.7 SUBMITTALS

A. One (1) submittal package must be provided for the project that includes information for controls for all systems being provided as part of the project.

B. Product Information: Include manufacturer's technical literature for each control device. Indicate dimensions, capacities, performance characteristics, electrical characteristics, finishes for materials and installation and startup instructions for each type of product indicated.

1. Each control device labeled with setting or adjustable range of control.
2. Direct Digital Control System Hardware: Include technical data for operator workstation equipment, interface equipment, control units, transducers/transmitters, sensors, actuators, valves, relays/switches, control panels and operator interface equipment.
3. Control System Software: Include technical data for operating system software, operator interface, color graphics and other third-party applications.
4. Controlled Systems: Instrumentation list with element name, type of device, manufacturer, model number and product data. Include written description of sequence of operation including schematic diagram.

C. Submittal Drawings: Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components and location and size of each field connection. Submittal must include the following as a minimum:

1. Schematic flow diagrams showing fans, dampers, instrumentation and control devices.
2. Wiring Diagrams: Interior panel diagrams to include, power, signal and control wiring as well as physical dimension layout of all interior components such as terminal strips, wire raceways, transformers, relays and all transducers.
3. Architecture drawing including all communication wiring, network devices, etc. Indicate type of cabling and number of conductors.
4. Symbol and abbreviation list for control diagrams.
5. Points list including hardwired and software points.
6. Manufacturer’s technical cut sheets which include a table of contents and an associated sheet numbering system for all pages. Model number must be circled or pointed with an arrow.
7. A complete bill of materials specific to each system detailing the equipment to be used, quantity, manufacturer, specific model number and tag number.
8. List of color graphics indicating monitored systems, data (connected and calculated) point addresses, output schedule and operator notations.
9. Details of control panel faces, including controls, instruments and labeling.
10. All shop drawings used by field personnel for the installation of equipment must bear Commissioner’s approval stamp.

11. Architectural floor plans indicating proposed locations of all wall-mounted devices (i.e., Direct Digital Control units, control panels, sensors, thermostats, etc.) and mechanical drawings indicating proposed locations of all temperature, flow and pressure transmitters.
12. Qualification Data: For firms and persons specified in "Quality Assurance" Article.

D. Data Communications Protocol Certificates: Certify that each proposed Direct Digital Control system component complies with the latest version of ASHRAE 135 related to BACnet.

E. Operation and Maintenance Data: For HVAC instrumentation and control system to include in emergency, operation and maintenance manuals.

1. Maintenance instructions for each type of control device.
2. Keyboard illustrations and step-by-step procedures indexed for each operator function.
3. Inspection period, cleaning methods, cleaning materials recommended and calibration tolerances.
4. Calibration records and list of set points.

F. The BMS Subcontractor must correct any errors or omissions noted by the Commissioner during review.

1.8 SEQUENCING AND SCHEDULING

A. Sequence and coordinate the work of this Section with the scheduling requirements and the Commissioner. Review the approved schedule with the Commissioner, sub-Subcontractors, manufacturers, vendors, suppliers and all other Subcontractors. Schedule and sequence all Work with the adjoining Work, and Work of other trades such that all Work can be accomplished concurrently during the same time period.

1.9 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

B. Installer Qualifications: A qualified installer who is approved or certified by the automatic control system manufacturer for installation of units required for this Project.

C. Electrical Components, Devices and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to City of New York Electrical Code and marked for intended use.

D. Comply with NFPA 90A, "Installation of Air Conditioning and Ventilation Systems."

E. Materials and equipment must be the catalogued products of manufacturers regularly engaged in production and installation of automatic temperature control systems and must be manufacturer's latest standard design that complies with the specification requirements.

F. All portions of the system must be engineered, furnished, installed, and serviced by manufacturer-approved, factory-trained employees.

G. Single source responsibility of supplier must be the complete installation and proper operation of the BMS and control system and must include debugging and proper calibration of each component in the entire system.

H. Supplier must have an in-place support facility within proximity of the site with technical staff, spare parts inventory and all necessary test and diagnostic equipment.

I. All electronic equipment must conform to the requirements of FCC Regulation, Part 15, Section 15, Governing Radio Frequency Electromagnetic Interference and be so labeled.

J. System devices must have UL 864 (UUKL smoke control) and must be so certified, if the system is being used for smoke control or life safety.

K. All system components must be fault-tolerant. System must include:

1. Satisfactory operation without damage at 110% and 90% of rated voltage and at plus 3 Hertz variation in line frequency.
2. Static, transient and short-circuit protection on all inputs and outputs.
3. Protection for communication lines against incorrect wiring, static transients and induced magnetic interference.
4. Network-connected devices to be AC coupled or equivalent so that any single device failure will not disrupt or halt network communication.
5. All real time clocks and data file RAM to be battery-backed for a minimum 100 hours and include local and remote system low battery indication.

L. The BMS Subcontractor must be regularly engaged in the installation and maintenance of BMS systems and must have a minimum of 3 years of experience in installing and maintaining the systems similar to this project.

M. Comply with all current NYC Construction Codes, UL, NFPA, the NYC Building Code, NEC.

1.10 DELIVERY, STORAGE AND HANDLING

A. Factory-Mounted Components: Where control devices specified in this Section are indicated to be factory mounted on equipment, arrange for shipping of control devices to unit manufacturer.

B. Provide factory shipping cartons for each piece of equipment and control device. Maintain cartons while shipping, storing and handling as required to prevent equipment damage, and to eliminate dirt and moisture from equipment. Store equipment and materials inside and protect from weather. The stored products must be protected from the weather, humidity and temperature variations, dirt and dust, and other contaminants, within the storage condition limits published by the equipment manufacturer.

C. System Software: Update to latest version of software at project completion.

1.11 COORDINATION

A. Coordinate location of temperature sensors, humidity sensors and other exposed control sensors with plans and room details before installation.

B. Coordinate installation of taps, valves, airflow stations, etc. with other mechanical sections.

C. Coordinate BMS equipment with all relevant divisions including Fire Alarm to achieve compatibility with equipment that interfaces with that system.

D. Coordinate BMS equipment to achieve compatibility with motor starters and annunciation devices.

PART 2 - PRODUCTS

2.1 MANUFACTURER

A. Sole Source Manufacturer: Honeywell

1. No substitutions permitted.

2.2 CONTROL PANELS

A. Fully enclosed, steel-rack-type cabinet with locking doors or locking removable backs. Match finish of panels and provide laminated as-built wiring diagrams, flow diagrams, etc. related to the system being controlled inside the associated cabinet. Each control panel must be clearly and permanently labeled with the controller designation and indication of the mechanical equipment served.

B. Where applicable, existing primary control panel enclosures must be reused where possible.

C. Unitize cabinet with suitable brackets for wall or floor mounting, located adjacent to each system under automatic control. Provide common keying for all panels.

1. Fabricate panels of furniture-quality steel or extruded-aluminum alloy, totally enclosed, with hinged doors and keyed lock and with manufacturer's standard shop-painted finish. All panels must have common keying.
2. Primary control panel: Provide minimum NEMA 1 rating for indoor application and NEMA 4 rating for outdoor application or the appropriate NEMA rating for application. Electrical piping and wiring must be penetrated through the bottom of the panel with 4 inches nipples and 4 inches wiring trough.
3. Secondary control panel: Provide minimum NEMA 1 rating for indoor application.
4. Size control panel enclosures for twenty percent spare mounting capacity for future expansion.

5. Only one controller must be allowed in a control panel with expansion modules if extra points are needed. The BMS Subcontractor must utilize the largest controller available and if maxed out, only then can a second controller be installed within the panel.

D. Control panel shop drawings must be submitted for each system for approval prior to fabrication.

E. Coordinate installation of the control panels with the Commissioner. Coordinate power for the panels with the electrical Subcontractor.

F. Control Panel Internal Components:

1. Provide identification sleeves at each termination at the terminal strip.
2. All control panels must be provided with DIN Rail mounted screw terminal blocks. Field wiring must be connected to the screw terminal blocks. It is not acceptable to terminate any field wiring directly to the direct digital control controller or any panel devices such as relay and transducers. The screw terminal blocks located/attached to the direct digital control controller alone does not comply with this requirement. Terminal blocks must be rated for 300 volts, medium duty. Provide compatible feed-through terminal block.
3. All control devices such as relays, transformers, transducers, power supplies, associated I/O devices, etc. must be installed inside the panel, not at the starter or electrical junction box.
4. All panel wirings must in be installed in conduit and wiring duct. This must include wiring from the direct digital control controller to the terminal block, between direct digital control controller and relay (and other panel mounted control devices), power wiring for the controller, communication, etc.
5. Mounting any control devices on the back of the control panel enclosure door is not acceptable.
6. The use of wire nuts in the control panel enclosures is also prohibited.

G. Power wiring and communication wiring must be provided in separate conduits with separate hot, neutral, and ground wire runs and separate breakers.

H. Coordinate installation of the control panels with the Commissioner. Coordinate power for the panels with the electrical Subcontractor and Commissioner.

## 2.3 BMS SYSTEM ARCHITECTURE

A. General

1. The system architecture must consist of a network of independent, stand-alone direct BACnet I/P-based digital control units and BACnet MSTP unitary controllers communicating over a two-tier local area network. Each control unit must perform all specified control functions independently, including scheduling, alarming and storage of trend data. Failure of one (1) control unit must have no effect upon any other unit in the network.

2. The system must allow the distribution of system functions such as monitoring and control and graphical user interface etc. across the network to achieve maximum flexibility and performance.
3. Data communications protocol must be BACnet and must comply with the latest version of ASHRAE 135.
4. The BMS must communicate over the primary network via TCP/IP over Ethernet. Secondary controllers must communicate via BACnet MSTP.
5. Refer to system architecture drawing for additional information.

B. Graphics Generation Requirements

1. Construction: Permit the easy construction of infinitely variable shapes and sizes through the use of the mouse pointing device. A selection of 256 colors and various fill textures, line types and text styles must all be accessible through the use of the mouse interface. The software must resemble many of the computer aided design programs currently available and allow graphics to be easily moved, edited, added or deleted. Graphics software must be fully implemented and operational to accomplish the following:

    a. Create a new graphic picture
    b. Modify a portion of a graphic picture
    c. Delete a graphic picture, or any portion thereof
    d. Call up a graphic picture
    e. Cancel the display of a graphic picture
    f. Assign conditions which automatically initiate the display
    g. Overlay alphanumeric and graphics
    h. Save the graphic picture
    i. Display latest process data fully integrated with the graphic display
    j. Display Live Graphical Software Programs
    k. The central station must be able to generate standard ASCII file formats to allow use with third-party software to generate and store reports.

C. Graphics Application Requirements

1. All graphics must be available with the same look and functionality whether they are displayed at an installed client console or in a browser.
2. User must be able to add/delete/modify system graphics for floor plan displays and system schematics for each piece of mechanical equipment (including, air handling units, chilled water systems, hot water boiler systems, and room level terminal units) from standard user interface without the need of any external or specialized tools.
3. The software must include all necessary tools and procedures for the user to create their own graphics.
4. The software must provide the user the ability to display real-time point values by animated motion or custom picture control visual representation.
5. The software must provide animation that depicts movement of mechanical equipment, or air or fluid flow.

6. The software must provide users the ability to depict various positions in relation to assigned point values or ranges.
7. The software must provide the ability to add custom gauges and charts to graphic pages.
8. The software must include a library of at least 400 standard control application graphics and symbols for visualizing common mechanical systems, including fans, valves, motors, chillers, AHU air handling systems, standard ductwork diagrams, piping, and laboratory symbols.
9. The Graphics application must include a set of standard Terminal Equipment controller application-specific background graphic templates. Templates must provide the automatic display of a selected Terminal Equipment controller's control values and parameters, without the need to create separate and individual graphic files for each controller.
10. The Graphics application must be capable of automatically assigning the appropriate symbol for an object (point) selected to be displayed on the graphic Based on what the object represents (fan, duct sensor, damper, etc.) when the object is placed on a graphic.
11. The Graphics application must allow a user to manually override the automatically assigned symbol for an object when a different symbol is desired.
12. The user must have the ability to add custom symbols to the symbol library.
13. The software must permit the importing of scanned pictures and images for use in graphics with support of JPG, PNG, and SVG files.
14. Graphics must be automatically associated to any points or system objects that are rendered on the graphic, so that selection of a system object will allow a user to simply navigate to any associated graphic, without the need for manual association.
15. The software must allow users to command points directly off graphics application.
16. Graphic display must include the ability to depict real-time point values dynamically with text or animation.
17. Graphics viewing must include the ability to switch between multiple layers with different information on each layer.
18. Graphics must include a decluttering capability that allows layers to be programmatically hidden and displayed Based on zoom level.
19. Graphics must be capable of displaying the status of points that have been overridden by a field hand switch, for points that have been designed to provide a field hand override capability.
20. The software must provide the ability to create dashboard views consisting of gauges and charts that graphically display system and/ or energy performance.

## 2.4 EMBEDDED CONTROLLER FIELD SERVER PANEL

A. Provide all necessary hardware for a complete operating system as required. The Building Embedded Controller must be able to operate as a standalone panel and must not be dependent upon any higher level computer or another controller for operation.

B. The controller must support and utilize semantic tagging, designed to utilize latest Project Haystack standards supporting full integration of points, graphic creation, summaries and programming.

C. This level of controller must be used to interface to other controllers of equipment, BMS controllers via BACnet IP and BACNet MS/TP. This embedded controller must operate as a webserver to provide information of the system to operators and other facility management.

D. Environment.

1. Controller hardware must be suitable for the anticipated ambient conditions.
2. Controllers used in conditioned space must be mounted in dust-proof enclosures and must be rated for operation at -5°C to 45°C (23°F to 113°F).

E. Immunity to power and noise.

1. Controller must be able to operate at 90% to 110% of nominal voltage rating and must perform an orderly shutdown below 80% nominal voltage.
2. Controller must meet or exceed the following standards, directives and approvals:

    a. EN 60730-1
    b. EN 50491-x
    c. EMC for residential, commercial and industrial environments
    d. UL916
    e. FCC – CFR 47 part 15 Class B
    f. BACnet – B-BC
    g. IEC62443 security standard

F. Programmability: Embedded Controllers must be programmable. Program language must be graphical.

G. The Embedded Controller must have support the following BACnet BIBBs:

1. Data Sharing
2. Alarm and Event
3. Trending
4. Device Management

H. The Embedded Controller must support the following Data Link Layers:

1. BACnet MS/TP Master (Clause 9)
2. BACnet IP, Foreign Device

I. Each Embedded Controller must, at a minimum, be provided with:

1. Appropriate NEMA rated enclosure
2. Power supplies as required for all associated modules, sensors, actuators, etc.

J. Each Embedded Controller must continuously perform self-diagnostics on all hardware and secondary network communications. The Embedded Controller must provide both local and remote annunciation of any detected component failures or repeated failure to establish communication to the system.

K. All controller configuration settings and programs must be stored in flash memory. The controllers must be able to return to full normal operation without user intervention after a power failure of unlimited duration.

2.5 PRIMARY CONTROL PANEL HARDWARE

A. This controller must have the BTL listing and meet the BACnet device profile of a Building Controller (B-BC).

2.6 SENSORS

A. Electronic Sensors: Vibration and corrosion resistant; for wall, immersion or duct mounting as required.

B. Instruments and control devices must be provided for all required points detailed herein. Instruments must have accuracies as stated herein. Instrument characteristics such as hysteresis, relaxation time, span, and maximum and minimum limits, must be accounted for in applications of instruments and controls.

C. Field wiring for each digital device must be as per the manufacturer's standard. The details of the wiring must be included in the submittal.

D. Sensors for duct locations must not be affected by vibrations encountered in normal duct systems.

E. Temperature Sensors

1. Temperature sensors used in water sensing applications must be 1k ohm platinum resistance temperature detectors. Platinum RTDs must be installed with a transmitter if the controller cannot accept a direct platinum RTD input. Temperature sensors used in duct or space sensing applications must be thermistors. Temperature sensors must have the following characteristics.

   a. Accuracy: $\pm$0.5ºF.
   b. Wire: Twisted, shielded-pair cable.

2. Space sensors:

   a. Set-Point Adjustment and Indication, unless otherwise noted.
   b. LCD display for temperature reading.
   c. Color: White.
   d. Orientation: Vertical.
   e. Occupancy override with an adjustable time period from 1/2 to 3 hours.

f. Provide a communication port for connection of a laptop or other portable interface device.
g. Space sensor requirements must be coordinated with Commissioner.

3. Transmitter:

a. The sensors must be connected to a transmitter. Transmitter must be capable of outputting carbon monoxide and chlorine levels via 4-20mA outputs.
b. Transmitter Display:

1) A large OLED readout that must display the active channel number and the corresponding sensor gas level. The display must scan through all of the active channels at 2-second intervals.

c. Outputs:

1) Each transmitter must include two (2) 4-20mA output signals representing the gas concentration levels at each location.
2) Each transmitter must include relay outputs for Fault, Warn, and Alarm.
3) This controller must include both audible and visual LED alarm status indications. The audible alarm must be activated every time a new alarm occurs, and must be provide with a Reset button to silence the alarm.

d. Status Display: Common LED for warning, alarm, and sensor status
e. Enclosure: NEMA 4X

F. Damper End Switches

1. Provide a compact, SPDT switch for sensing of damper position. Must be rated to operate from -13°F – 158°F. Must have a side rotary switch for use with interchangeable levers.

G. Current Sensor

1. Provide and install current sensors for all motor status points. Current sensor must be split core, 2-wire, loop powered and sized for expected amperage. Unit must be UL listed. Provide status LEDs for current sensed below setpoint, current sensed above setpoint and loop power failure. The current sensor output must be N.O., solid state and rated for 0.1A at 30 VAC/DC.

H. Control Relays

1. Mechanical relay: The control relay must be rated for 24 Vac or 24vdc; maximum contact rating of 10 amp at 30 Vdc or 250 Vac. Outputs must be true Form C type contacts; solid state relays are not acceptable.

PART 3 - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 INSTALLATION

A. Install software in control units and operator workstation(s). Implement all features of programs to specified requirements and as appropriate to sequence of operation.

B. Connect and configure equipment and software to achieve sequence of operation specified.

C. All control components including automatic control dampers, instruments, sensors, etc. must be tagged for identification. Acceptable methods of tagging are: laminated plastic, stamped metal and engraved plastic.

D. New RTU-1 and RTU-2 to have the following controls:

1. Contractor to provide, install and wire new automatic temperature control to each new RTU Direct Digital Control controller factory installed in unit.
2. All control points available at unit Direct Digital Control controller to be interfaced with existing BMS and controllable at existing BMS.

3.3 ELECTRICAL WIRING AND CONNECTION INSTALLATION

A. Install, connect and wire the items included under this Section. This work includes providing required conduit, wire, fittings and related wiring accessories.

B. All exposed wiring and wiring in mechanical equipment rooms must be installed in conduit.

C. Plenum rated cable must be acceptable in hung ceilings, walls and raised floors.

D. All wiring located outside must be installed in rigid conduit.

E. Conceal cable, except in mechanical rooms and areas where other conduit and piping are exposed.

F. Install cable in raceway.

G. Bundle and harness multiconductor instrument cable in place of single cables where several cables follow a common path.

H. Fasten flexible conductors, bridging cabinets and doors, along hinge side; protect against abrasion. Tie and support conductors.

I. Number-code or color-code conductors for future identification and service of control system, except local individual room control cables.

J. Wires and cables must be as follows:

1. Single Conductor (120 VAC): Type THWN 12AWG stranded copper with 600V insulation.

K. Room Sensor Cabling

1. Cable must consist of copper conductors not less than No. 24 AWG.

L. Cables for 120 VAC wiring and low-level signal wiring (i.e., 4 – 20 mA analog) must always be run in separate raceways.

3.4 CONNECTIONS

A. Connect manual-reset limit controls independent of manual-control switch positions. Automatic duct heater resets may be connected in interlock circuit of power controllers.

B. Connect HOA selector switches to override automatic interlock controls when switch is in hand position.

C. Ground equipment.

3.5 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including piping and electrical connections. Report results in writing.

1. Operational Test: After electrical circuitry has been energized, start units to confirm proper unit operation. Remove malfunctioning units, replace with new units and retest.
2. Test and adjust controls and safeties.

B. Factory-authorized service representative must perform startup service.

C. Replace damaged or malfunctioning controls and equipment.

1. Start, test and adjust control systems.
2. Demonstrate compliance with requirements, including calibration and testing and control sequences.
3. Adjust, calibrate and fine tune circuits and equipment to achieve sequence of operation specified.

D. Verification

1. Verify that instruments are installed before calibration, testing and loop or leak checks.
2. Check end devices for location and accessibility.

3. Check end device installation for flow direction, and other considerations associated with the specific end device installation.
4. Check flow instruments. Inspect tag number and line and bore size and verify that inlet side is identified and that meters are installed correctly.
5. Check temperature instruments and material and length of sensing elements.
6. Check control valves. Verify that they are in correct direction.
7. Check air-operated dampers. Verify that pressure gages are provided and that proper blade alignment, either parallel or opposed, has been provided.
8. Check direct digital control system as follows:

    a. Verify that direct digital control controller power supply is from emergency power supply, if applicable.
    b. Verify that wires at control panels are tagged with their service designation and approved tagging system.
    c. Verify that spare I/O capacity has been provided.
    d. Verify that direct digital control controllers are protected from power supply surges.

3.6 DEMONSTRATION

A. Engage a factory representative to instruct City of New York's personnel to operate and maintain HVAC instrumentation and controls.

3.7 INSTRUCTIONS

A. The BMS Subcontractor must provide competent instructors to give full instruction to designated personnel in the adjustment, operation and maintenance of the system installed rather than a general instruction course. Instructors must be thoroughly familiar with all aspects of the subject matter they are to teach. All instructions must be held during normal work hours of 8:00 a.m. to 4:30 p.m. weekdays.

3.8 ON-SITE ASSISTANCE

A. Within 1 year of date of Substantial Completion, provide up to three (3) Project-site visits, when requested by Commissioner, to adjust and calibrate components and to assist City of New York's personnel in making program changes and in adjusting sensors and controls to suit actual conditions.

3.9 RECORD DOCUMENTATION

A. Operation and Maintenance Manuals

1. Three (3) copies of the Operation and Maintenance Manuals must be provided to the Commissioner upon completion of the project. The entire Operation and Maintenance Manual must be furnished on flash drive media and include the following for the BMS provided:

    a. Table of contents.

b. As-built system record drawings. Record drawings must represent the as-built condition of the system and incorporate all information supplied with the approved submittal.

1) BMS network riser diagram
2) Wiring diagrams
3) Electrical drawings
4) Flow diagrams and device locations
5) Hardware and software points list
6) Bill of materials
7) Sequence of operations.
8) I/O point lists
9) Cut sheets of all equipment installed

c. Manufacturer's product data sheets or catalog pages for all products including software.
d. System Operator's manuals.
e. Archive copy of all site-specific databases and sequences.
f. BMS network diagrams.
g. Interfaces to all third-party products and work by other trades.
h. Instruction course list.

B. The Operation and Maintenance Manual flash drive must be self-contained and include all necessary software required to access the product data sheets. A logically organized table of contents must provide dynamic links to view and print all product data sheets. Viewer software must provide the ability to display, zoom and search all documents.

END OF SECTION - 23 09 00

# SECTION 23 09 93.11 - SEQUENCE OF OPERATIONS FOR HVAC DIRECT DIGITAL CONTROL

## 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 control sequences for Direct Digital Control for HVAC systems, subsystems, and equipment.

### 1.3 DEFINITIONS

A. Analog Output: Proportional output signal (zero- to 10-V dc, 4 to 20 mA).

B. Binary Output: On/off output signal or contact closure.

C. Digital Output: Data output that must be interpreted digitally.

### 1.4 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 "Submittal Procedures."

### 1.5 SUBMITTALS

A. Product Data:

1. An instrumentation list for each controlled system. Label each element of the controlled system in table format. Show, in the table element name, type of device, manufacturer, model number, and control device product data sheet number.
2. A complete description of the operation of the control system, including sequences of operation. Include and reference a schematic diagram of the controlled system.

B. Shop Drawings:

1. Riser diagrams showing control network layout, communication protocol, and wire types.
2. Schematic diagram of each controlled system. Include all control points labeled with point names shown or listed. Show the location of control elements in the system.

3. Wiring diagram for each controlled system. Show all control elements labels. Where a control element is the same as that shown on the control system schematic, label with the same name. Label all terminals.

1.6 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 "Quality Requirements."

1.7 ROOFTOP AIR CONDITIONING UNITS

A. The Rooftop Air Conditioning Units must be controlled by a new Wall Mounted Programable Thermostat.

B. The Wall Mounted Programable Thermostat to be wired to and communicate with the AC unit factory installed intelligent, intuitive, integrated type Direct Digital Control controller.

C. Thermostat to be set with fan on.

D. When space temperature rises above cooling set point, thermostat to stage on unit cooling.

E. When free cooling is not available, the compressors will be controlled by the thermostat. When free cooling is available, the outdoor-air damper is modulated by the Economizer control to provide a 50°F to 55°F mixed-air temperature into the zone.

F. As the mixed temperature fluctuates above 55°F or below mixed-air temperature within control, mechanical cooling is utilized with free cooling, then the outdoor-air damper will maintain its current position at the time the compressor is started.

G. If the increase in cooling capacity causes the mixed-air temperature to drop below 45°F, then the outdoor-air damper position will be decreased to the minimum position.

H. If the mixed-air temperature continues to fall, the outdoor-air damper will close and unit to stop.

I. Control returns to normal once the mixed-air temperature rises above 48°F.

J. Factory installed CO2 sensors connected to the economizer control, enable a demand controlled ventilation strategy to operate.

K. As the CO2 level in the zone increases above the CO2 set-point, the minimum position of the damper will be increased proportionally until the Maximum Ventilation setting is reached (20% outside air).

L. As the CO2 level decreases because of the increase in fresh air, the outdoor-air damper will follow the higher demand condition from either the DCV mode or from the free cooling mode.

M. If the unit is occupied and the fan is on, then the damper will operate at minimum position. Otherwise, the damper will be closed.

N. The unit Direct Digital Control controller to be wired to and communicate with the existing building BMS. Existing building BMS to be wired to BMS communications terminals on Direct Digital Control controller.

O. Smoke detectors in duct distribution system to shut down unit if smoke detectors are activated. Smoke shut down signal from fire alarm system to be wired to remote smoke shut down terminals on Direct Digital Control controller.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION - 23 09 93.11

SECTION 23 31 13 - METAL DUCTS

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. Single-wall rectangular ducts and fittings.
2. Sheet metal materials.
3. Sealants and gaskets.
4. Hangers and supports.

B. Related Sections:

1. Section 23 05 93 "Testing, Adjusting, and Balancing for HVAC" for testing, adjusting, and balancing requirements for metal ducts.

1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures”.

1.4 SUBMITTALS

A. Product Data: For each type of the following products:

1. Liners and adhesives.
2. Sealants and gaskets.
3. Seismic-restraint devices.

B. Shop Drawings:

1. Fabrication, assembly, and installation, including plans, elevations, sections, components, and attachments to other work.
2. Factory- and shop-fabricated ducts and fittings.
3. Duct layout indicating sizes, configuration, liner material, and static-pressure classes.
4. Elevation of top of ducts.
5. Dimensions of main duct runs from building grid lines.
6. Fittings.
7. Reinforcement and spacing.
8. Seam and joint construction.
9. Penetrations through fire-rated and other partitions.

10. Equipment installation based on equipment being used on Project.
11. Locations for duct accessories, including dampers, turning vanes, and access doors and panels.
12. Hangers and supports, including methods for duct and building attachment, seismic restraints, and vibration isolation.

C. Engineering Services Submittal:

1. Sheet metal thicknesses.
2. Joint and seam construction and sealing.
3. Reinforcement details and spacing.
4. Materials, fabrication, assembly, and spacing of hangers and supports.
5. Design Calculations: Calculations, including analysis data signed and sealed by the Commissioner responsible for their preparation for selecting hangers and supports and seismic restraints.
6. Coordination Drawings: Plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved: Duct installation in congested spaces, indicating coordination with construction, building components, and other building services. proposed changes to duct layout.
7. Suspended ceiling components.
8. Suspended ceiling components.
9. Structural members to which duct will be attached.
10. Size and location of initial access modules for acoustical tile.
11. Penetrations of fire-rated construction.
12. Items penetrating finished ceiling including the following:

    a. Lighting fixtures.
    b. Air outlets and inlets.
    c. Speakers.
    d. Sprinklers.
    e. Access panels.

D. Welding certificates.

E. Field quality-control reports.

1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

1.6 PRODUCT HANDLING

A. Protect shop-fabricated ductwork, accessories and purchased products from damage during shipping, storage and handling. Protect ends of ductwork and prevent dirt and moisture from entering ducts and fittings.

B. Where possible, store ductwork inside and protect from the weather. Where necessary to store outside, store above grade and enclosed with waterproof wrapping.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Engineering Services Duct Design: Duct construction, including sheet metal thicknesses, seam and joint construction, reinforcements, and hangers and supports, must comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" and performance requirements and design criteria indicated in "Duct Schedule" Article.

B. Structural Performance: Duct hangers and supports and seismic restraints must withstand the effects of gravity and seismic loads and stresses within limits and under conditions described in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" and SMACNA's "Seismic Restraint Manual: Guidelines for Mechanical Systems."

1. Seismic Hazard Level B: Seismic force to weight ratio, 0.30.

C. Airstream Surfaces: Surfaces in contact with the airstream must comply with requirements in ASHRAE 62.1.

2.2 GENERAL REQUIREMENTS FOR DUCTWORK

A. Furnish and install the size, connections and run of ducts as indicated on the drawings.

1. All exposed ducts in spaces must be field painted throughout of color, paint selected by the Commissioner. Ducts must be paintable surfaces.
2. For each terminal box, provide rectangle to round transitions, duct transitions at inlet and discharge whether specifically shown or not.

B. While the Drawings must be adhered to as closely as possible, the Commissioner's right is reserved to vary the run and size of ducts during the progress of the work if required to meet structural conditions.

C. Install all ductwork in strict adherence to the ceiling height schedule indicated on the Contract Drawings. Consult with the subcontractors, establish the necessary space requirements for each trade.

D. The sheet metal ductwork must, whether indicated or not, rise and/or drop and/or change in shape to clear any and all conduits, lighting fixtures, plumbing and heating mains to maintain the desired ceiling heights. And to provide adequate maintenance room and headroom in mechanical equipment rooms.

E. The ductwork must be continuous, with airtight joints and seams presenting a smooth surface on the inside and neatly finished on the outside. Ducts must be constructed with curves and bends so as to effect an easy flow of air. Unless otherwise shown on the Drawings, the inside radius of all curves and bends must be not less than width of ducts in plane of bend.

F. All rectangular ductwork, unless otherwise noted, must be built from galvanized sheet steel (G90) and thoroughly braced and stiffened. Finishes of surfaces exposed to view: Mill phosphatized.

G. Provide 12" x 12" access doors for every 50'-0" run of supply and exhaust air duct for cleaning purpose.

H. All air ducts exposed to the weather and not insulated must be constructed of aluminum and must be properly braced and supported and secured to the building construction. All seams must be sealed in accordance with SMACNA Standards.

1. The construction of ductwork must be same as conventional ductwork except where transverse reinforcing angles not required, provide 1" x 1" x 1/8" black iron bracing angles matched angles at joint and 1" x 1" x 1/8" black iron between joints 4'-0" from joints.
2. Provide 1/8" thick gasket for all matched angles.
3. Edge of ducts must be bent ½" over matched angles to obtain watertight seal.
4. (Aluminum) Rivet angles to duct and seal with.
5. Paint black iron angles after installation.

2.3 INSTALLATION OF HVAC DEVICES

A. Installation of Smoke Detectors: Smoke detectors must be installed in ductwork. Provide access door to each smoke detector. For additional information regarding smoke detectors, refer to Division 28 Specifications.

B. Installation of Dampers: Refer to Drawings and temperature control specification for smoke dampers and other automatic dampers and install them in ductwork.

C. Installation of variable air volume system control devices: Install in sheet metal ductwork all control devices furnished by the manufacturer of the variable air volume system controls. Provide an access door at each such location.

2.4 DUCT FABRICATION

A. Duct construction and support design must be per SMACNA. Minimum duct design is Pressure Class 2” w.g. for connection from VAV box to terminal unit. All ductwork from the air handling unit fan and/or stand-alone fan (supply return and exhaust) to a main duct damper (control/mixing, smoke and fire) must be designed for the maximum total fan output pressure. This is to prevent duct failure in the case where main duct damper closes by design or malfunction. All other ductwork must be designed for the maximum system external fan output pressure.

B. All joints and seams for supply and return/exhaust air ductwork should be sealed airtight with a New York State approved non-hardening resilient caulking compound. Duct leakage should be in accordance with the latest edition of SMACNA’s HVAC Air Duct Test. If duct leakage exceeds this limit test specified, the Contractor must repair any leaks and retest the duct system for leakage and rebalance the systems at no cost to the Fund. All ductwork should be sealed with a high-pressure duct sealant.

C. Ducts must be neatly finished on the outside with all sharp edges removed.

D. Inside surfaces must be smooth with no projections into the air stream except where otherwise indicated.

E. Longitudinal joints must be Pittsburgh lock (Type L-1) `at corners or Acme lock on flat surfaces double seams hammered tight and must be located above the horizontal axis of the duct. A snap lock seam will not be permitted as a substitute for the Pittsburgh lock at corners of ducts.

F. Transverse joints must be made with a SMACNA permissible ductwork joints to prohibit T-1 through T-17 for ductwork less than 3" w.g. For ductwork rated at 3" w.g. and above, the transverse joints must be made with self-sealing, airtight, rigid ductwork connection system. No slip and drive joints must be permitted for any ductwork on this project.

G. Transverse and longitudinal joints must be made airtight with all laps in the direction of air flow. All joints must be in accordance with duct sealing requirements of SMACNA. Seal class A must be provided on all ductwork. Leakage class must be class 6 for static pressure construction class of up to and including 6” wg. and class 3 for construction class greater than 6" as defined by SMACNA.

H. All fasteners and attachments must be made of the same material as the ducts.

I. Furnish test wells 12" on the center horizontally and vertically in the suction and discharge duct of each fan. Test wells must consist of a 1" x ¾", 125 lb., bronze, screwed hex bushing, secured to the duct with a bronze hex locknut on the inside of the duct. A ¾" x 2" long standard weight bronze, screwed nipple and cap must be fitted to the housing on the outside of the duct.

J. All radius elbows must have a minimum centerline radius of 1½ times the width of the duct.

K. All square elbows must have factory-designed and built single thick turning vanes. Shop fabrication vanes will not be approved. Where turning vanes are in conflict with the access doors to fire dampers. They must be made movable, so that fire dampers, must be accessible.

L. Dissimilar metals must be connected with flanged joints made up with fiber or neoprene gaskets to prevent contact between dissimilar metals. Flanges must be fastened with bolts protected by ferrules and washers made of the same materials as the gaskets. Where an aluminum duct is to be connected to a galvanized steel duct, the end of the galvanized steel duct must be coated with heavy black asphaltic paint before connecting it to the aluminum duct.

M. Changes in shape and dimension must conform to the following: Except where otherwise noted, for increases in cross-sectional area, the shape of the transformation must not exceed 1" in 7". Except where otherwise noted, for reductions in area, the slope must not be less than 1" in 4" but 1" in 7" preferred.

N. Wherever it may be necessary to make provisions for vertical hangers of the ceiling construction passing through ducts, provide streamlined shaped sleeves around such ceiling construction hangers as to fully protect the duct from being punched with holes for the passage of such hangers. Any such streamlined sleeves must be made air tight at top and bottom of ducts. In no case can there be more than two rods in any 9 sq. ft. area. No rods must pierce ducts smaller than 12" in horizontal area.

O. The construction for low pressure rectangular sheet metal ducts must be made in accordance with recommendations of ASHRAE Guide, Latest Edition, or as per SMACNA Manual but not less than the following weights and construction:

1. All ducts, joints, seams must be sealed airtight with approved duct sealant regardless of pressure, classification.
2. Minimum duct gauge must be 24. No 26-gauge ducts.
3. Minimum duct design is pressure Class 2 w.g. for connections from VAV/CAV box to terminal unit.

LOW PRESSURE - RECTANGULAR DUCTWORK (UP TO 2" S.P.)

| Dimension Longest Side, Inches | Sheet Metal Gauge (All Four Sides) Galv. Steel Gauge | Aluminum Thickness In. | Copper Oz. Per Sq. Ft. | Transverse Reinforcing At Joints and Between Joints |
|---|---|---|---|---|
| Up thru 12 | 24 | 0.025 | 16 | 1" pocket lock 22 gauge, standing seam joint 24 gauge. Joint max. on 8 ft. centers. |
| 13 thru 18 | 22 | 0.032 | 24 | Same as for up thru 12. |
| 19 thru 30 | 22 | 0.032 | 24 | 1" pocket lock 20 gauge. Joints max, on 8 ft. centers with 1 x 1 x $^1/_8$ in. angles 4 feet from joint. |
| 31 thru 42 | 22 | 0.032 | 32 | Same as for 19 thru 30. |
| 43 thru 54 | 22 | 0.032 | 32 | 1½" standing seam joint, 1½" pocket lock 22 gauge. Joints on 8 ft. centers with 1½ x 1½ x $^1/_8$ in. angles max. 4 feet from joint. |
| 55 thru 60 | 20 | 0.040 | 36 | Same as for 43 thru 54. |
| 61 thru 84 | 20 | 0.040 | 36 | 1½ standing seam joint, with 1½ x 1½ x $^1/_8$ in. angels, 1½ in. pocket lock 22 gauge with 1½ x 1½ x $^1/_8$ in. angels. Joints max. on 8 ft. centers with 1½ x 1½ x $^1/_8$ in. angels max on 2 ft. centers. |
| 85 thru 96 | 18 | 0.050 | 48 | Same as for 61 thru 84 except all angles |

| Dimension Longest Side, Inches | Sheet Metal Gauge (All Four Sides) Galv. Steel Gauge | Aluminum Thickness In. | Copper Oz. Per Sq. Ft. | Transverse Reinforcing At Joints and Between Joints |
|---|---|---|---|---|
| | | | | shall be 1½ x 1½ x $^{3}/_{16}$ in. |
| over 96 | 18 | 0.050 | 48 | Same as for 61 thru 84 except all angles shall be 2 x 2 x ¼ in. |

4. Flat areas of duct over 18 in. wide must be stiffened by cross breaking of beading.
5. All joints to have corner closures.
6. All joints must be sealed with water-based mastic sealant for indoor and outdoor use.

P. The construction for low pressure round sheet metal ducts and fittings must be as follows (up to 2" S.P.):

| Duct Diameter Inches | Steel-Galv. Sheet Gage | Girth Reinforcing Minimum Reinforcing Angle Size and Maximum Longitudinal Spacing | Girth Joints (Continuously Welded or as Below) |
|---|---|---|---|
| Up thru 8 | 24 | None required | Crimped and beaded joint |
| 9 thru 13 | 22 | None required | Crimped and beaded joint |
| 14 thru 22 | 22 | None required | Crimped and beaded joint |
| 23 thru 36 | 22 | None required | -- |
| 37 thru 50 | 20 | 1¼ x 1¼ x $^{1}/_{8}$ @ 72 in. | -- |
| 51 thru 60 | 18 | 1¼ x 1¼ x $^{1}/_{8}$ @ 72 in. | -- |
| 61 thru 84 | 20 | 1½ x 1½ x $^{1}/_{8}$ @ 72 in. | -- |

NOTE: Flanged joints may be considered as girth reinforcing.

1. Ductwork up to 36 in. diameter must be spiral lock seam construction and it must be assembled with prefabricated fittings made up of 20-gauge galvanized iron.
2. All joints must be sealed tight with silicone sealant. Joints must, in addition, be fastened with self-tapping screws.
3. All exposed round ducts on discharge of terminal boxes must be with spiral lock seam with standing rib, supported with rod with top attachment and must be field painted throughout.

2.5 FLEXIBLE CONNECTIONS

A. All fan and air supply unit connections, both at inlet and discharge must be made with material as hereinafter specified, to prohibit the transfer of vibration from fans to ductwork connecting thereto.

B. The flexible connections must be a minimum of 8" long including bands using extra wide fabric as specified and held in place with heavy metal bands, securely attached, to prevent any leakage at the connection points.

C. Flexible connections must be fabricated from the following materials unless otherwise required by the NYC Building Code.

1. Low Pressure Systems - neoprene coated glass fabric

   - 30 ounce/sq. yd.

2.6 SEALANT AND GASKETS

A. General Sealant and Gasket Requirements: Surface-burning characteristics for sealants and gaskets must be a maximum flame-spread index of 25 and a maximum smoke-developed index of 50 when tested according to UL 723; certified by an NRTL.

B. Two-Part Tape Sealing System:

1. Tape: Woven cotton fiber impregnated with mineral gypsum and modified acrylic/silicone activator to react exothermically with tape to form hard, durable, airtight seal.
2. Tape Width: 4 inches.
3. Sealant: Modified styrene acrylic.
4. Water resistant.
5. Mold and mildew resistant.
6. Maximum Static-Pressure Class: 10-inch wg, positive and negative.
7. Service: Indoor and outdoor.
8. Service Temperature: Minus 40 to plus 200 deg F.
9. Substrate: Compatible with galvanized sheet steel.
10. For indoor applications, sealant must have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
11. Sealant must comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

C. Water-Based Joint and Seam Sealant:

1. Application Method: Brush on.
2. Solids Content: Minimum 65 percent.
3. Shore A Hardness: Minimum 20.
4. Water resistant.

5. Mold and mildew resistant.
6. VOC: Maximum 75 g/L (less water).
7. Maximum Static-Pressure Class: 10-inch wg, positive and negative.
8. Service: Indoor or outdoor.
9. Substrate: Compatible with galvanized sheet steel (both PVC coated and bare), stainless steel, or aluminum sheets.

D. Flanged Joint Sealant: Comply with ASTM C 920.

1. General: Single-component, acid-curing, silicone, elastomeric.
2. Type: S.
3. Grade: NS.
4. Class: 25.
5. Use: O.
6. For indoor applications, sealant must have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
7. Sealant must comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

E. Flange Gaskets: Butyl rubber, neoprene, or EPDM polymer with polyisobutylene plasticizer.

2.7 HANGERS AND SUPPORTS

A. Hanger Rods for Noncorrosive Environments: Cadmium-plated steel rods and nuts.

B. Hanger Rods for Corrosive Environments: Electrogalvanized, all-thread rods or galvanized rods with threads painted with zinc-chromate primer after installation.

C. Strap and Rod Sizes: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Table 5-1, "Rectangular Duct Hangers Minimum Size," and Table 5-2, "Minimum Hanger Sizes for Round Duct."

D. Steel Cables for Galvanized-Steel Ducts: Galvanized steel complying with ASTM A 603.

E. Steel Cable End Connections: Cadmium-plated steel assemblies with brackets, swivel, and bolts designed for duct hanger service; with an automatic-locking and clamping device.

F. Duct Attachments: Sheet metal screws, blind rivets, or self-tapping metal screws; compatible with duct materials.

G. Trapeze and Riser Supports:

1. Supports for Galvanized-Steel Ducts: Galvanized-steel shapes and plates.

PART 3 - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 DUCT INSTALLATION

A. Drawing plans, schematics, and diagrams indicate general location and arrangement of duct system. Indicated duct locations, configurations, and arrangements were used to size ducts and calculate friction loss for air-handling equipment sizing and for other design considerations. Install duct systems as indicated unless deviations to layout are approved on Shop Drawings and Coordination Drawings.

B. Install ducts according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" unless otherwise indicated.

C. Install ducts with fewest possible joints.

D. Install factory- or shop-fabricated fittings for changes in direction, size, and shape and for branch connections.

E. Unless otherwise indicated, install ducts vertically and horizontally, and parallel and perpendicular to building lines.

F. Install ducts close to walls, overhead construction, columns, and other structural and permanent enclosure elements of building.

G. Install ducts with a clearance of 1 inch, plus allowance for insulation thickness.

H. Route ducts to avoid passing through transformer vaults and electrical equipment rooms and enclosures.

I. Where ducts pass through non-fire-rated interior partitions and exterior walls and are exposed to view, cover the opening between the partition and duct or duct insulation with sheet metal flanges of same metal thickness as the duct. Overlap openings on four sides by at least 1-1/2 inches.

J. Where ducts pass through fire-rated interior partitions, install fire dampers.

K. Protect duct interiors from moisture, construction debris and dust, and other foreign materials.

3.3 INSTALLATION OF EXPOSED DUCTWORK

A. Protect ducts exposed in finished spaces from being dented, scratched, or damaged.

B. Trim duct sealants flush with metal. Create a smooth and uniform exposed bead. Do not use two-part tape sealing system.

C. Grind welds to provide smooth surface free of burrs, sharp edges, and weld splatter. When welding stainless steel with a No. 3 or 4 finish, grind the welds flush, polish the exposed welds, and treat the welds to remove discoloration caused by welding.

D. Maintain consistency, symmetry, and uniformity in the arrangement and fabrication of fittings, hangers and supports, duct accessories, and air outlets.

E. Repair or replace damaged sections and finished work that does not comply with these requirements.

3.4 DUCT SEALING

A. Seal ducts for duct static-pressure, seal classes, and leakage classes specified in "Duct Schedule" Article according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

B. Seal ducts to the following seal classes according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible":

1. Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."
2. Unconditioned Space, Supply-Air Ducts in Pressure Classes 2-Inch wg and Lower: Seal Class B.
3. Unconditioned Space, Exhaust Ducts: Seal Class C.
4. Unconditioned Space, Return-Air Ducts: Seal Class B.
5. Conditioned Space, Supply-Air Ducts in Pressure Classes 2-Inch wg and Lower: Seal Class C.
6. Conditioned Space, Exhaust Ducts: Seal Class B.
7. Conditioned Space, Return-Air Ducts: Seal Class C.

3.5 HANGER AND SUPPORT INSTALLATION

A. Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Chapter 5, "Hangers and Supports."

B. Building Attachments: Concrete inserts, powder-actuated fasteners, or structural-steel fasteners appropriate for construction materials to which hangers are being attached.

1. Where practical, install concrete inserts before placing concrete.
2. Install powder-actuated concrete fasteners after concrete is placed and completely cured.
3. Use powder-actuated concrete fasteners for standard-weight aggregate concretes or for slabs more than 4 inches thick.
4. Do not use powder-actuated concrete fasteners for lightweight-aggregate concretes or for slabs less than 4 inches thick.
5. Do not use powder-actuated concrete fasteners for seismic restraints.

C. Hanger Spacing: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Table 5-1, "Rectangular Duct Hangers Minimum Size" for maximum hanger spacing; install hangers and supports within 24 inches of each elbow and within 48 inches of each branch intersection.

D. Hangers Exposed to View: Threaded rod and angle or channel supports.

E. Support vertical ducts with steel angles or channel secured to the sides of the duct with welds, bolts, sheet metal screws, or blind rivets; support at each floor and at maximum intervals of 16 feet.

F. Install upper attachments to structures. Select and size upper attachments with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.

3.6 CONNECTIONS

A. Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" for branch, outlet and inlet, and terminal unit connections.

3.7 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Duct System Cleanliness Tests:

1. Visually inspect duct system to ensure that no visible contaminants are present.
2. Test sections of metal duct system, chosen randomly by the Commissioner, for cleanliness according to "Vacuum Test" in NADCA ACR, "Assessment, Cleaning and Restoration of HVAC Systems."

    a. Acceptable Cleanliness Level: Net weight of debris collected on the filter media must not exceed 0.75 mg/100 sq. cm.

C. At end of ducts which are not connected to equipment or air distribution devices at the time of ductwork installation, provide temporary closure of polyethylene film or other covering.

D. Clean all new ductwork and re-used existing ductwork with high pressure vacuum.

E. After completion of ductwork installation clean ductwork as follows:

1. Cover all supply registers and diffusers with oil cheese cloth.
2. Use supply fan or install temporary fan to provide air to the system for four (4) hours.
3. Remove oil cheese cloth.

F. Duct system will be considered defective if it does not pass tests and inspections.

G. Prepare test and inspection reports.

3.8 START UP

A. Air Balance: Comply with requirements in Section 23 05 93 "Testing, Adjusting, and Balancing for HVAC."

3.9 DUCT SCHEDULE

A. Fabricate ducts with galvanized sheet steel.

B. Supply Ducts:

1. Ducts Connected to Air-Handling Units:

a. Pressure Class: Positive 2-inch wg.

2. Ducts Connected to Equipment Not Listed Above:

a. Pressure Class: Positive 2-inch wg.

C. Return Ducts:

1. Ducts Connected to Air-Handling Units:

a. Pressure Class: Positive or negative 2-inch wg.

D. Intermediate Reinforcement:

1. Galvanized-Steel Ducts: Galvanized steel.

E. Elbow Configuration:

1. Rectangular Duct: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 4-2, "Rectangular Elbows."

a. Radius Type RE 1 with minimum 1.5 radius-to-diameter ratio.
b. Radius Type RE 3 with minimum 1.0 radius-to-diameter ratio and two vanes.
c. Mitered Type RE 2 with vanes complying with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 4-3, "Vanes and Vane Runners," and Figure 4-4, "Vane Support in Elbows."

F. Branch Configuration:

1. Rectangular Duct: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 4-6, "Branch Connection."

a. Rectangular Main to Rectangular Branch: 45-degree entry.
b. Rectangular Main to Round Branch: Spin in.

END OF SECTION - 23 31 13

# SECTION 23 74 00 - PACKAGED OUTDOOR HVAC EQUIPMENT

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract (City of New York Standard Construction Contract).

### 1.2 SUMMARY

A. Section includes:

1. Replacing in kind two existing roof top units as per locations indicated on drawings.
2. The design, controls and installation requirements for packaged rooftop air conditioning units.

B. Related Sections:

1. Section 02 41 19 - Selective Removals and Demolition
2. Section 07 56 00 - Fluid-Applied Roofing
3. Section 07 62 00 - Sheet Metal Flashing and Trim

C. Quality Requirements:

1. Packaged air-cooled condenser units must be certified in accordance with ANSI/AHRI Standard 340/360 performance rating of commercial and industrial unitary air-conditioning and heat pump equipment.
2. Unit must be certified in accordance with UL Standard 1995/CSA C22.2 No. 236, Safety Standard for Heating and Cooling Equipment.
3. Unit and refrigeration system must comply with ASHRAE 15, Safety Standard for Mechanical Refrigeration.
4. Unit must be certified in accordance with ANSI Z21.47b/CSA 2.3b and ANSI Z83.8/CSA 2.6, Safety Standard Gas-Fired Furnaces.
5. Unit Energy Efficiency Ratio (EER) must be equal to or greater that prescribed by ASHRAE 90.1, Energy Efficient Design of New Buildings except Low-Rise Residential Buildings.
6. Unit must be safety certified by ETL and ETL US listed. Unit nameplate must include the ETL/ETL Canada label.

### 1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures”.

1.4 SUBMITTALS

A. Product Data: Literature must be provided that indicates dimensions, operating and shipping weights, capacities, ratings, fan performance, filter information, factory supplied accessories, electrical characteristics and connection requirements. Installation, Operation, and Maintenance manual with startup requirements must be provided.

B. Shop Drawings: Unit drawings must be provided that indicate assembly, unit dimensions, construction details, clearances and connection details. Computer generated fan curves for each fan must be submitted with specific design operation point noted. Wiring diagram must be provided with details for both power and control systems and differentiate between factory installed and field installed wiring.

1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

B. Installer Qualifications: An entity meeting the requirements of DDC General Conditions Section 014000 1.7/C/1 and that employs installers and supervisors who are trained and approved by manufacturer.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Unit must be shipped with doors screwed shut and outside air hood closed to prevent damage during transport and thereafter while in storage awaiting installation.

B. Follow Installation, Operation, and Maintenance manual instructions for rigging, moving, and unloading the unit at its final location.

C. Unit must be stored in a clean, dry place protected from construction traffic in accordance with the Installation, Operation, and Maintenance manual.

1.7 COORDINATION

A. Coordinate sizes and locations of supports, hangers, and insulation shields specified in Section 23 05 29 "Hangers and Supports for HVAC Piping and Equipment."

B. Coordinate clearance requirements with duct Installer for duct insulation application. Before preparing ductwork Shop Drawings, establish and maintain clearance requirements for installation of insulation and field-applied jackets and finishes and for space required for maintenance.

1.8 WARRANTY

A. Compressors must be scroll-type with thermal overload protection and carry a 5-year non-prorated warranty, from the date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURER

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Trane
2. Johnson Controls
3. Carrier
4. Or approved

2.2 ROOFTOP UNITS

A. General Description

1. Packaged rooftop unit must include compressors, evaporator coils, filters, supply fans, dampers, air-cooled condenser coils, condenser fans and unit controls.
2. Unit must be factory assembled and tested including leak testing of the DX coils, pressure testing of the refrigeration circuit, and run testing of the completed unit. Run test report must be supplied with the unit in the service compartment's literature pocket.
3. Unit must have decals and tags to indicate lifting and rigging, service areas and caution areas for safety and to assist service personnel.
4. Unit components must be labeled, including refrigeration system components, and electrical and controls components.
5. Estimated sound power levels (dB) must be shown on the unit ratings sheet.
6. Installation, Operation, and Maintenance manual must be supplied within the unit.
7. Laminated color-coded wiring diagram must match factory installed wiring and must be affixed to the interior of the control compartment's hinged access door.
8. Unit nameplate must be provided in two locations on the unit, affixed to the exterior of the unit and affixed to the interior of the control compartment's hinged access door.

B. Construction

1. All cabinet walls, access doors, and roof must be fabricated of single wall, impact resistant and insulated with a minimum 1/2 in. thick, minimum 1 1/2 lb density, flexible fiberglass insulation bonded with a phenolic binder, neoprene coated on the air side.
2. Unit insulation must have a minimum thermal resistance R-value of 13. Insulation must have a minimum density of 1.5 pounds/cubic foot and must be tested in accordance with ASTM D1929-11 for a minimum flash ignition temperature of 610°F.
3. Unit construction must be single wall with G90 galvanized steel.
4. Unit must be designed to reduce air leakage and infiltration through the cabinet. Cabinet leakage must not exceed 1% of total airflow when tested at 3 times the minimum external static pressure provided in AHRI Standard 340/360. Panel deflection must not exceed L/240 ratio at 125% of design static pressure, at a

maximum 8 inches of positive or negative static pressure, to reduce air leakage. Deflection must be measured at the midpoint of the panel height and width. Continuous sealing must be included between panels and between access doors and openings to reduce air leakage. Piping and electrical conduit through cabinet panels must include sealing to reduce air leakage.

5. Roof of the air tunnel must be sloped to provide complete drainage. Cabinet must have rain break overhangs above access doors.
6. Access to filters, dampers, cooling coils, reheat coil, heaters, compressors, and electrical and controls components must be through hinged access doors with quarter turn, zinc cast, lockable handles. Full length stainless steel piano hinges must be included on the doors.
7. Exterior paint finish must be capable of withstanding at least 2,500 hours, with no visible corrosive effects, when tested in a salt spray and fog atmosphere in accordance with ASTM B 117-95 test procedure.
8. Units with cooling coils must include double sloped 304 stainless steel drain pans.
9. Unit must be provided with base discharge and return air openings. All openings through the base pan of the unit must have upturned flanges of at least 1/2 inch in height around the opening.
10. Unit must include lifting lugs on the top of the unit.
11. Unit base pan must be provided with 1/2-inch-thick foam insulation.

C. Electrical

1. Unit must be provided with factory installed and factory wired, non-fused disconnect switch.
2. Unit must be provided with a factory installed and factory wired 115V, 12-amp GFI outlet disconnect switch in the unit control panel.
3. Unit must be provided with phase and brown out protection which shuts down all motors in the unit if the electrical phases are more than 10% out of balance on voltage, the voltage is more than 10% under design voltage or on phase reversal.
4. Unit must be provided with remote stop/start terminals which require contact closure for unit operation. When these contacts are open the low voltage circuit is broken and the unit will not operate.

D. Supply Fans

1. Unit must include direct drive, Vane Axial supply fans.
2. Blowers and motors must be dynamically balance and mounted on rubber isolators.
3. Motors must be premium efficiency ODP with ball bearings rated for 200,000 hours service with external lubrication points.

E. Cooling Coils

1. Evaporator Coils

a. Coils must be designed for use with R-454B refrigerant and constructed of copper tubes with aluminum fins mechanically bonded to the tubes and galvanized steel end casings. Fin design must be sine wave rippled.
b. Coils must be hydrogen or helium leak tested.
c. Coils must be furnished with factory installed expansion valves.

F. Refrigeration System

1. Unit must be factory charged with R-454B refrigerant.
2. Compressors must be mounted in an isolated service compartment which can be accessed without affecting unit operation. Lockable hinged compressor access doors must be fabricated of double wall, rigid polyurethane foam injected panels to prevent the transmission of noise outside the cabinet.
3. Compressors must be isolated from the base pan with the compressor manufacturer's recommended rubber vibration isolators, to reduce any transmission of noise from the compressors into the building area.
4. Each refrigeration circuit must be equipped with expansion valve type refrigerant flow control.
5. Each refrigeration circuit must be equipped with automatic reset low pressure and manual reset high pressure refrigerant safety controls, Schrader type service fittings on both the high pressure and low-pressure sides and a factory installed liquid line filter driers.
6. Refrigeration circuit must be provided with hot gas reheat coil, modulating valves, electronic controller, supply air temperature sensor and a control signal terminal which allow the unit to have a dehumidification mode of operation, which includes supply air temperature control to prevent supply air temperature swings and overcooling of the space.
7. The factory installed controls must include a 3 minute off delay timer to prevent compressor short cycling. The controls must also include an adjustable, 20 second delay timer for each additional capacity stage to prevent multiple capacity stages from starting simultaneously and adjustable compressor lock out.
8. Lag refrigeration circuit must be provided with factory installed hot gas bypass to protect against evaporator frosting and to prevent excessive compressor cycling.

G. Condensers

1. Air-Cooled Condenser

a. Condenser fans must be a vertical discharge, axial flow, direct drive fans.
b. Coils must be designed for use with R-454B refrigerant. Coils must be multi-pass and fabricated from aluminum microchannel tubes.
c. Coils must be designed for a minimum of 10°F of refrigerant sub-cooling.
d. Coils must be hydrogen or helium leak tested.
e. Condenser fans must be high efficiency electrically commutated motor driven with factory installed head pressure control module. Condenser airflow must continuously modulate based on head pressure and cooling operation must be allowed down to 35°F with adjustable compressor lockout.

H. Refrigerant Leak Detection

1. Leak dissipation system must consist of control board and A2L sensor certified to UL 60335-2-40.
2. System must be designed for the life of the unit.
3. Dissipation system must be automatic, ship prewired and require no additional field connections to thermostat to function.
4. Function; Refrigerant leak sensor must be installed in UL certified location and orientation. Sensor must be self-correcting and resettable. Single use refrigerant leak sensor must not be permitted. Factory installed dissipation controller must use onboard microprocessor and include:

    a. Automatic reset after a dissipation event has occurred.
    b. Onboard LED with flash code to indicate current unit status and hardware failures.
    c. Depressible “Test” button to allow for a system test and recall/reset of leak detection history.
    d. 24V dry contact alarm terminal to allow for external notification of leak detection.
    e. Dissipation control board must be accessible via normal maintenance locations and LED must be visible. Dissipation system must include “Fail Safe” per UL requirements.

I. Filters

1. Unit must include 2-inch thick, pleated panel filters with an ASHRAE MERV rating of 8, upstream of the cooling coil.
2. Unit must include a clogged filter switch.

J. Outside Air/Economizer

1. Unit must include 0-100% economizer consisting of a motor operated outside air damper and return air damper assembly constructed of extruded aluminum, hollow core, airfoil blades with rubber edge seals and aluminum end seals. Damper blades must be gear driven and designed to have no more than 20 cfm of leakage per sq ft. at 4 in. w.g. air pressure differential across the damper. Low leakage dampers must be Class 2 AMCA certified, in accordance with AMCA Standard 511. Damper assembly must be controlled by spring return enthalpy activated fully modulating actuator. Unit must include outside air opening bird screen, outside air hood, and relief dampers.

K. Controls

1. Factory Installed and Factory Provided Controller

    a. Unit controller must be Direct Digital Control controller factory installed with BACnet compatible and capable of controlling all features and options of the unit. Controller must be factory installed in the unit controls

compartment and factory tested. Controller must be capable of standalone operation with unit configuration, setpoint adjustment, sensor status viewing, unit alarm viewing, and occupancy scheduling available without dependence on a building management system.

b. Controller must have an onboard clock and calendar functions that allow for occupancy scheduling.

c. Controller must include non-volatile memory to retain all programmed values without the use of a battery, in the event of a power failure.

d. Unit configuration, setpoint adjustment, sensor status viewing, unit alarm viewing, and occupancy scheduling must be accomplished with connection to interface module with LCD screen and input keypad, interface module with touch screen, or with connection to PC with free configuration software. Controller must be capable of connection with other factory installed and factory provided unit controllers with individual unit configuration, setpoint adjustment, sensor status viewing, and occupancy scheduling available from a single unit. Connection between unit controllers must be with a modular cable. Controller must be capable of communicating and integrating with a BACnet network field installed controller enabling full unit control through remote network.

L. Accessories

1. Unit must be provided with a safety shutdown terminal block for smoke detector shut down.

2.3 CURBS

A. Provide 14” high roof curbs for each rooftop ac unit to allow new units to be mounted on existing roof.

PART 3 - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 INSTALLATION, OPERATION, AND MAINTENANCE

A. Installation, Operation, and Maintenance manual must be supplied with the unit.

B. Install unit, including field installed components, in accordance with Installation, Operation, and Maintenance manual instructions.

C. Start up and maintenance requirements must be complied with to ensure safe and correct operation of the unit.

END OF SECTION - 23 74 00

# SECTION 26 05 19 - LOW VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract (City of New York Standard Construction Contract).

### 1.2 SUMMARY

A. Section includes:

1. The requirements of this Section apply to wire and cable work specified elsewhere in these Specifications.
2. The work includes providing wire and cable complete with all accessories in accordance with Drawings and Specifications and as required for a complete system. Wiring size referenced in this Section must be AWG, except as noted. For special wiring for individual systems refer to respective Sections of these Specifications.

### 1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures”.

### 1.4 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

A. Manufacturer for wire and cable under 600 volts: Subject to compliance with requirements, provide products by one of the following:

1. Pirelli Cable Corp.
2. Basic Wire & Cable Corp.
3. Triangle
4. Or approved equal.

B. Manufacturer for Wire and Cable Termination and Connections: Subject to compliance with requirements, provide products by one of the following:

1. Thomas and Betts Corp.
2. Burndy Corp.

3. G&W Electric Co.
4. Or approved equal.

2.2 600 VOLT WIRE AND CABLE

A. Conductors:

1. All conductors must be copper.
2. No. 10 and smaller conductors must be ASTM Standard, solid, copper. No. 8 and larger conductors must be ASTM standard, stranded copper.
3. Communications and signal wiring must conform to the recommendations of the system manufacturers and will be as specified in respective Sections of these Specifications.

B. Insulation:

1. Rubber and thermoplastic insulation must comply with ASTM and IPCEA standards.
2. Minimum insulation must be UL rated for 75°C. Types THHN and USE.
3. Conductor ampacity rating is to be based on 75°C insulation.
4. Types and application:

a) THHN must be used for interior branch circuit and feeder wiring.
b) Conductors with insulation rated 90°C must be provided in high ambient temperature areas and for branch circuit wiring connecting the fluorescent fixtures.
c) Bare conductors must be permitted for grounding where so indicated in Section 26 05 26 “Grounding and Bonding for Electrical Systems”.
d) Type SFF-2 conductors must be provided in wiring channels at continuous fluorescent fixtures and in ambient temperatures over 90°C.
e) For low voltage system wiring (Communications, signaling alarm, remote controls, etc.) installed above suspended ceilings, approved signaling cable without conduit must be permitted. When installed in air handling plenums signaling cable must have flame retardant insulation UL classified as low smoke/low flame, with fluoropolymer resin jacket approved for installation in air handling plenums without conduit. Signaling cable installed without conduit must be adequately harnessed, bundled and tied at 4-foot intervals by individual system and marked with identification tags.

C. Wire Sizes

1. For General Use:

a) No. 10 minimum copper wire will be used for lighting and power.
b) No. 10 minimum grounding conductor.

2. For Control and Alarm Wiring, unless otherwise noted:

a) No. 14 minimum copper wire.

b) No. 12 minimum copper wire for 120 Volt circuits over 60 ft. in length.

3. For Other Voltages and Phases and for Longer Circuit Lengths:

a) Size wire as required to maintain NEC (NYCEC) permissible voltage drop.

4. Raceways:

a) Increase raceway sizes for larger wire sizes in conformance with NEC requirements.

D. Color Coding

1. Phase wires will be color-coded as follows:

| | | | |
|---|---|---|---|
| a) | 120/208 Volt system: | Black - | A phase |
| | | Red - | B phase |
| | | Blue - | C phase |
| b) | 277/480 Volt system: | Brown - | A phase |
| | | Yellow - | B phase |
| | | Orange- | C phase |

2. Neutral conductors must be white for 120/208 Volts.
3. Equipment ground wire must have a green outer covering throughout.
4. Where color-coded cable is not available, certify in writing and request permission for overlap color taping conductors (minimum length 6 in.) in accessible locations.
5. Conductors for control circuits and signal systems must also be consistently color coded to avoid confusion and permit easy identification of conductors. The IPCEA color code must be used wherever possible. No two wires in the same raceway will be the same color, unless provided with flameproof linen identification tags on each end.

## PART 3 - EXECUTION

### 3.1 EXECUTION REQUIREMENTS

A. Refer to DDC General Conditions for execution requirements.

### 3.2 GENERAL

A. Install wire and cable in accordance with the NEC, The National Electrical Contractors Association's "Standard of Installation", and in accordance with recognized industry practices to ensure that products serve the intended functions.

B. 600-Volt Wire and Cable:

1. Wire and cable must not be drawn into conduit and raceways until all conduit work is complete, joints made up tightly and the entire run secured in place.
2. The inside of conduits and raceways must be dry and clean before conductors are pulled.
3. Care must be exercised in pulling to avoid damage to the wire or cable. Lubricants must be used for pulling wire or cable if the character of the pull might otherwise damage the conductors, insulation or jacket. No thermoplastic wires will be pulled at temperatures lower than 0°C.
4. Cables must be supported at the upper end of all risers and at intermediate points as required by the NEC.
5. Seal conduit with a non-hardening compound approved for the purpose, where cable or wire enter building from underground.
6. Cable spacers must be installed where required. Spacers will consist of galvanized or cadmium plates, steel or malleable iron threaded conduit and fittings and inserts of non-metallic insulating material with openings adequate to accommodate cables being spaced.
7. Not more than 3 lighting or convenience receptacle circuits will be installed in one (1) conduit, unless otherwise indicated on Drawings.
8. Provide individual raceways for two pole ungrounded circuits.
9. In certain systems, equipment furnished by manufacturer may require a different number and arrangement of conductors from those indicated on the Drawings. In such cases, the Contractor must comply with such requirements at no additional cost to the City of New York.
10. In the event the Contractor chooses to furnish and install a system or item of equipment of different arrangement from that shown or specified, Contractor must furnish and install any additional wiring and conduit required by the system at no additional cost to the City of New York.
11. In wireways and large pull boxes, lace and tie off conductors in groups of 3 phases and neutral (if used) to limit conductor unbalanced loading. Conductor group will be as installed in conduit.
12. Tag all feeders and risers in all pull boxes and in all gutter spaces through which they pass. Tags must be engraved white core nameplates identifying feeders as shown on the Drawings or the circuit protective device from which they originate.
13. Leave all wires with sufficient slack at terminals ends for convenient connections and fixtures and for convenient servicing. Stow loose ends neatly in outlet box.

C. Terminations, Splices and Connections:

1. Splices and taps must be made in accessible boxes, panelboard fittings, gutters, terminal panels, etc. only. Materials will be compatible with the conductors, insulations and protective jackets on the cables and wires.
2. All copper conductors No. 8 & larger will be terminated, spliced, and tapped with color-keyed compression connectors. The manufacturers recommended tooling will be used. Mechanical type connectors will not be used.

3. All copper conductors No. 10 AWG & smaller will be terminated and spliced with Ideal Industries wing-nut wire connectors, or approved equal compression connectors. The flame-retardant, thermoplastic insulated type must be used to isolate the terminal from other metal parts and equipment.
4. Splices and joints will be insulated with materials approved for the particular use, location, voltage, and temperature. Insulation must be not less than that of the conductors being joined.
5. Plastic electrical insulating tape must be flame retardant, cold and weather resistant.

D. Cable Tying:

1. All circuit and control wiring in cabinets, panels, pull boxes, wireways, and junction boxes will be tied and held with nylon cable ties.
2. Wire identification ties fastened to conductors at the point of attachment to terminal blocks and equipment components must be nylon, self-locking cable ties.

E. Tags:

1. Cables will be tagged in all pull boxes, wireways and wiring gutters of panels. Where two or more circuits run to or through a control device, outlet box or junction box, each circuit will be tagged as a guide in making connections.
2. Tags for feeders must indicate feeder number, size, phase, voltage, origin and termination. Feeder tags will identify all phases individually.
3. Tags for control and alarm wiring must indicate type of control or alarm, size of wire and origin and termination.
4. Tags must be wire-marker dispenser type, self-laminated wire markers.

F. Lubrication:

1. Wire lubricating compound must be suitable for the wire insulation and conduit with which it is used, and must not harden or become adhesive. Lubricating compound must be non-toxic, non-flammable and safe for wire types. Lubricating compound must not be used on wire for isolated type electrical power systems.

G. Inspection:

1. Contractor must examine the areas and conditions under which wire and cable are to be installed, and notify the Commissioner in writing of conditions detrimental to proper and timely completion of the work.
2. Do not proceed with the work until unsatisfactory conditions have been corrected.

H. Installation:

1. Coordinate cable and wire installation work with electrical raceway and equipment installation work, as necessary for proper interface.

3.3 FIELD QUALITY CONTROL

A. Visual and Mechanical Inspection:

1. Inspect for physical damage and proper connection in accordance with single line diagram.
2. Cable connections must be tightened using a calibrated torque wrench.

B. Electrical Test:

1. Megger conductors phase-to-phase and phase-to-ground for continuity and insulation tests before connection to utilization devices for the following:

a) 100 percent of feeders.
b) 10 percent of branch circuits.
c) 100 percent of 3-phase motor branch circuits.

2. Verify phase rotation for all 3-phase motor circuits.

C. Perform tests prior to connecting equipment and in presence of Commissioner.

D. Exercise suitable and adequate safety measures prior to, during, and after the high potential tests, including placing warning signals and preventing people and equipment from being exposed to the test voltages.

E. Submit certified written report of test results to Commissioner.

F. Correct installation of or replace cable testing below manufacturer's standards.

G. Subsequent to wire hook-ups, energize circuit and demonstrate functioning in accordance with requirements.

END OF SECTION - 26 05 19

# SECTION 26 05 26 - GROUNDING AND BONDING 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 SUMMARY

A. Section includes:

1. The work includes the providing of all labor, materials, equipment, accessories, services and tests necessary to complete and make ready for operation by the DDC, all grounding in accordance with Drawings and Specifications and as required for a complete system.

### 1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures”.

### 1.4 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

## PART 2 - PRODUCTS

### 2.1 GROUNDING

A. Grounding conductors must be UL and NEC approved types, copper, with insulation color identified green, except where otherwise shown on the Drawings, or specified.

B. Grounding conductors must be irreversible compression or exothermic welded type.

C. Grounding conductors (system neutral) must be copper with white or gray insulation.

## PART 3 - EXECUTION

### 3.1 EXECUTION REQUIREMENTS

A. Refer to DDC General Conditions for execution requirements.

### 3.2 INSPECTION

A. Contractor must examine locations where grounding is to be installed and notify Commissioner in writing of conditions detrimental to proper and timely completion of work.

B. Do not proceed with work until unsatisfactory conditions have been corrected.

3.3 INSTALLATION

A. The complete electrical installation will be permanently and effectively grounded ahead (street side) of the cold-water meter in accordance with all code requirements, whether or not such connections are specifically shown or specified. Measured resistance to ground must be 5 ohms, maximum.

B. Parts of the electrical installation to be grounded may include, but not be limited to, the following: raceway system for normal and emergency light and power distribution systems, cabinets, housings, motor frames, housings of ALL communications, alarm, and control panels and associated devices and conduits, lighting fixtures, busway enclosures, individual starters and other non-current carrying metal parts of electrical equipment.

C. All copper bars for grounding must be medium hard drawn. After installation, the copper bar must be painted with one coat of an approved lacquer.

D. Ground conductors will be of sizes and material in accordance with the requirements of the National Electrical Code. Cable for grounding connections must be bare in accordance with the latest revisions of ASTM Designations B3 and B8. All open bare grounding cable must be secured in place with cast one-hole malleable clamps and clamp backs, and 1/4-inch bolts.

E. Ground wires must be continuous without splices. There must be no soldered joints in any ground connection. Connectors, clamps, etc. will be solderless type.

F. Unless otherwise shown or required, conduit will provide grounding for motors and electrical equipment.

G. Ground interrupted metallic raceways with ground conductors connected to metallic raceway at each end.

H. Where ground connections will be permanently concealed, make the connections by the exothermic process to form solid metal joints. Make accessible ground connections with mechanical pressure type ground connections.

3.4 FIELD QUALITY CONTROL

A. Upon completion of grounding system, test system for continuity and resistance to demonstrate compliance with requirements and submit certification to Commissioner that material and installation has been properly installed.

B. Inspect all connections prior to concealing same.

END OF SECTION - 26 05 26

# SECTION 26 05 33 - RACEWAYS AND BOXES 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 SUMMARY

A. Section includes:

1. The requirements of this section apply to raceway work required for the protection of electrical conductors. Raceways are required for all wiring unless otherwise specified.
2. The work includes the furnishing and installation of completely coordinated, effectively grounded raceway systems complete with boxes, fittings, flexible connections to vibrating equipment and other accessories, as required. Conduit or tubing sizes referred to in the Specifications and on the Drawings are nominal trade sizes.

### 1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures”.

### 1.4 SUBMITTALS

A. Submit a list of proposed manufacturers for all raceways and components.

### 1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

A. Raceways Metallic: Subject to compliance with requirements, provide products by one of the following:

1. Allied Tube & Conduit Corp.
2. Triangle PWC, Inc.
3. Western Tube & Conduit Corp.
4. Or approved equal.

B. Wireways: Subject to compliance with requirements, provide products by one of the following:

1. Panduit Corp.
2. Square "D" Company
3. Hoffman Engineering Co.
4. Or approved equal.

C. Raceway Fittings: Subject to compliance with requirements, provide products by one of the following:

1. Appleton Electric Co.
2. Crouse-Hinds Co.
3. Thomas and Betts Co.
4. Or approved equal.

D. Boxes: Subject to compliance with requirements, provide products by one of the following:

1. Crouse-Hinds Co.
2. Raco Inc.
3. Thomas & Betts Co.
4. Or approved equal.

2.2 RACEWAYS AND FITTINGS

A. Raceways:

1. All conduit must be ¾-inch minimum.
2. Rigid steel conduit: Must be full weight steel pipe, hot dipped galvanized inside and outside, threaded.
3. Flexible steel conduit (Greenfield): Must be continuous single strip, galvanized.
4. Liquid-tight, flexible steel conduit: Must be zinc coated and consist of flexible galvanized steel tubing over which is extruded a liquid-tight jacket of polyvinyl chloride (PVC).

B. Conduit Fittings

1. Thread compounds must be UL approved conductive type to ensure low resistance ground continuity through conduit.
2. Metallic conduit fittings must be corrosion resistant.
3. Bushings must be of the metallic insulated type.
4. For weatherproof and dust-tight installations provide liquid-tight fittings with sealing rings and insulated throat.
5. Rigid steel conduit fittings:

a) Fittings must be standard threaded couplings, locknuts, bushings, and elbows.

b) Sealing fittings must be of the threaded cast iron type. Sealing fittings used to prevent passage of water vapor must be of the continuous drain type. In concealed work, each fitting must be installed in a flush steel box with blank cover plate having the same finish as that of other electrical plates in the room.

6. Flexible steel conduit (Greenfield) fittings:

a) Is to be pressure clamp type with insulated throat and UL approved for ground continuity.

7. Liquid-tight flexible metal conduit fittings:

a) Is to be of a type incorporating a threaded grounding cone, a steel or plastic compression ring, and a gland for tightening. Connectors must have insulated throats. Must be UL approved for ground continuity.

8. Expansion and deflection couplings:

a) Is to accommodate 0.75-inch deflection, expansion, or contraction in any direction and allow 30-degree angular deflections. Couplings must comply with UL 467 and 514 and must qualify seismically.
b) Is to include internal flexible metal braid sized to guarantee conduit ground continuity and fault currents in accordance with UL 467, and the NEC tables for ground conductors.

2.3 INSTALLATION COMPONENTS

A. Sleeves:

1. Provide and assume responsibility for locating and maintaining in proper position all sleeves required for the work.
2. For raceways through sleeves, provide seals of oakum packing and lead or compound on both sides.
3. For cables in raceways through sleeves, provide seals similar to WSC compound or Type C terminators.
4. Through floors, exterior masonry walls, roof, and underground, sleeves must be schedule 40 galvanized steel pipe. For other areas, sleeves must be 18-gauge galvanized sheet steel.

B. Fire sealants:

1. Openings through floors and walls in which cables, conduits, or pipe pass must be sealed by U.L. classified smoke and fire stop fittings, and have an hourly rating equal to the fire rating of the floor or wall.
2. Penetrations through fire-rated floors in which wiring for floor service outlets in routed must be sealed by U.L. classified smoke and fire-stop fittings, and must have an hourly rating equal to the floor rating.

2.4 SUPPORTS

A. Conduit Supports:

1. All parts and hardware must be zinc-coated or have equivalent corrosion protection.
2. Individual conduit hangers, must be designed for the purpose, have pre-assembled closure bolt and nut, and provisions for receiving hanger rod.
3. Multiple conduit (trapeze) hangers must be not less than 1½ by 1½ inch, 12-gauge steel, cold formed, lipped channels. Hanger rods must be not less than 3/8-inch diameter steel.
4. Solid masonry and concrete anchors must be a type approved for the purpose.

B. Fasteners

1. Furnish all fasteners and hardware compatible with the materials and methods required for attachment of supporting devices.

a) Slotted-Type Concrete Inserts: Galvanized pressured steel plate complying with ASTM A 283; box-typed welded construction with slot designed to receive steel nut and with knockout cover; hot-dipped galvanized in compliance with ASTM A 386.
b) Masonry Anchorage Devices: Expansion shields complying with Federal Specification FF-S-325, as follows:

1) Furnish lead expansion shields for machine screws and bolts ¼" and smaller; head-out embedded nut type, single unit class, Group I, Type 1, Class 1.
2) Furnish lead expansion shields for machine screws and bolts larger than ¼" in size; head-out embedded nut type, multiple unit class, Group I, Type 1, Class 2.
3) Furnish bolt anchor expansion shields for lag bolts, zinc alloy, long-shield anchors class, Group II, Type 1, Class 1.
4) Furnish bolt anchor expansion shields for bolts, closed-end bottom bearing class, Group II, Type 2, Class 1.

c) Toggle Bolts:

1) Tumble-wing type, complying with Federal Specification FF-B-588, type, class and style as required.

d) Nuts, Bolts, Screws, Washers:

1) General: Furnish zinc-coated fasteners, with galvanized complying with ASTM A 153 for exterior use or where built into exterior walls. Furnish fasteners for the type, grade and class required for the particular installation.

2) Standard Nuts and Bolts: Regular hexagon head type, complying with ASTM A 307, Grade A.
3) Lag Bolts: Square head type, complying with Federal Specification FF-B-561.
4) Machine Screws: Cadmium plated steel, complying with Federal Specification FF-S-92.
5) Wood Screws: Flat head carbon steel, complying with Federal Specification FF-W-92.
6) Plain Washers: Round, general assembly grade carbon steel, complying with Federal Specification FF-W-92.
7) Lock Washers: Helical spring type carbon steel, complying with Federal Specification FF-W-84.

C. "C" Beam Clamps:

1. Provide C-clamps for attaching hanger rod to the bottom of beam. The hanger rod must make contact with beam flange to ensure full engagement. C-clamp to comply with UL listed and FM Approval and NEC Guidelines.

2.5 BOXES

A. Outlet boxes:

1. Outlet boxes for concealed work must be galvanized steel, 4 in. square or octagonal, or as required by construction, devices or wiring, and must conform to UL's "Standard for Outlet Boxes and Fittings." Outlet boxes must be provided with a galvanized steel cover or extension ring depth as required. As a minimum, boxes must be of the following depths and as described for specific applications hereinafter:

a) Above ceiling, 1½ in. deep.
b) In ceiling or slab, 3 in. deep.
c) In wall for fixture, 2¾ in. deep.
d) In wall for receptacles and switches, 1½ in. deep.
e) With raised covers and fixtures studs where required.
f) Through-the-wall type are not permitted.
g) Receiving 1¼" conduit, 2½" deep min.

2. Ceiling fixture outlet boxes, except as noted, must be 4" octagonal and 1 5/8" deep and with 3/8" fixture stud. Where cast in slab, boxes must be open back concrete type.
3. Wall bracket outlets must be 4" square and 1 5/8" deep with cover having 2 7/8" round openings and except for lamp holders must be furnished with fixture stud.
4. All outlet boxes for concealed convenience receptacles or local switches must be 4" square and 1 5/8" deep with regular deep switch extension cover, except where installed on columns they must be of sufficient depth so that conduits may be installed into these boxes in back of fireproofing. Outlet boxes for gang receptacles and switches must suit space conditions.

5. Outlet boxes for exposed work must be galvanized cast iron or aluminum with threaded hubs. Except as otherwise required by construction, devices or wiring, the outlet boxes must be 4 in. round x 2 in. deep for mounting on ceilings and 4 in. square x 2 in. deep for mounting on walls.
6. Boxes must be of the cast type for switches and receptacles when installed on the exterior of the project. Such boxes must be aluminum or malleable iron of the threaded hub type, with covers without projecting edges or corners and with openings suitable for the devices to be contained therein. Outlet boxes and covers must be galvanized or anodized and must be gasketed.
7. Outlet boxes located outdoors and damp locations must be weatherproof.
8. Outlet boxes without fixture or device, must have blank cover.
9. Offset back-to-back outlets, must have minimum 6 in. separation between them.
10. Extension rings must be provided as required to suit various conditions.
11. Grounding screw and cable wiring connector must be provided as required by wiring method.
12. Boxes for use with surface mounted raceways must be of the same construction and manufacture as the raceway.
13. Except where special outlets are required, wall outlets for signaling systems must be 4" square with single gang raised cover and bushed plate.
14. Junction outlets must be the same as bracket outlets but without stud, furnished with covers to suit each condition and as directed. Where number of conductors exceed capacity of standard box, provide special size box.

B. Junction and Pull Boxes:

1. Junction and pull boxes must be made of galvanized sheet steel and with screw-on covers, except as noted, and will include insulated supports for cables.
2. Provide junction and/or pull boxes as noted or as required. All junction and pull boxes must be accessible.
3. Junction and pull boxes located outdoors and in damp locations must be galvanized cast iron with threaded hubs and gaskets.

    a) Provide barriers in junction boxes or pull boxes between:
    b) Emergency and normal wiring.

PART 3 - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 INSPECTION

A. Contractor must examine locations where raceways and installation components are to be installed, determine space conditions and notify the Commissioner in writing of conditions detrimental to proper and timely completion of the work.

B. Do not proceed with the work until unsatisfactory conditions have been corrected.

3.3 INSTALLATION

A. Raceways:

1. Install raceways in accordance with applicable requirements of NEC, NYCEC and National Electrical Contractors Association's "Standard of Installation", and in accordance with recognized industry practices.
2. The routing and location of conduit runs are generally not dimensional on the drawings but must be determined in the field to suit the locations of equipment, to conform to structural features and to avoid interferences. Where exposed conduits are dimensional on drawings, they must be installed to a tolerance of ¾ inch. Coordinate with equipment configuration and exact location prior to connection.
3. Support by means of ceiling trapeze, strap hangers, or wall brackets, structural steel angles or channels. Secure raceways to supports with pipe straps or U-bolts. Spacing of support must be as per NEC. Provide U-bolts at each floor level for riser raceways and connect to acceptable supports.
4. Mount supports to structure with toggle bolts on hollow masonry, expansion shields or inserts on concrete and brick, machine screws on metal, wood screws on wood.
5. Allow a 6 in. minimum separation between raceways and steam and hot water pipes. Provide approved thermal insulation for electric lines where this separation cannot be maintained.
6. Keep raceways clear of motor foundations and from underside of boilers. Also, install raceway so that they will not obstruct headroom, doorways, or walkways.
7. For outlets located in hung ceilings, run raceways in hung ceilings and connect to main ceiling support channels.
8. Run raceways concealed, except as noted. Exposed raceways must be run parallel with or at right angles to walls. In walls, run raceways vertically only.
9. Mechanically join all metal raceways, enclosures and junction boxes to form a continuous electrical conductor. Connect all electrical boxes, fittings and cabinets so as to provide effective electrical continuity and firm mechanical assembly. Maintain grounding continuity of interrupted metallic raceways with ground conductor, sized in accordance with the NEC.
10. Provide long radius bends for empty raceway system where required to satisfy the system cabling requirements.
11. Install complete conduit runs before pulling in wire or cable. Install raceways so that required conductors may be drawn in without injury or excessive strain to raceway or cable. Where raceway size is not indicated, follow applicable code.
12. Do not cross pipe shafts or ventilation duct openings. Route raceway to avoid present or future openings in floor, wall or ceiling construction, when so indicated on the drawings.
13. Keep end of raceways plugged or capped during construction.
14. For empty raceways over 10 ft. long, provide fish or pull wire. Pull wire must consist of nylon or polypropylene cord.
15. Damaged or deformed raceway must be removed and replaced.

16. Branch circuit conduits must not be supported by lighting fixtures, piping, or air conditioning ducts.
17. Work with extreme care near existing ducts, conduits, cables and other utilities to avoid damaging them.
18. For conduit installation in or under concrete.

    a) Where located in slabs, the maximum outside diameter of the conduit must be 1/3 the slab thickness. When locating in the slab, place conduits in a manner so as not to interfere with the placement of reinforcing bars or cause damage to structural members or structural support.
    b) Where located in concrete fill, the conduit must have a minimum of 1 in. cover.
    c) In terrazzo floor finish, rigid steel conduit is not permitted.
    d) Where located under the building, conduit must be concrete encased or PVC coated rigid steel.

19. Raceway Application Schedule

    a) Rigid Steel Conduit: All branch wiring and feeders must be in rigid galvanized stainless-steel conduit.
    b) Flexible Metal Conduit:

        1) Use for final conduit connection to recessed lighting fixtures in suspended ceilings. Use 4 to 6 feet of flexible metal conduit (minimum size ¾ inch) between junction box and fixture. Locate junction box at least 1 foot from fixture and accessible if the fixture is removed.
        2) Use 1 to 3 feet of flexible metal conduit for final conduit connection to:

            (a) Dry type transformers.
            (b) Motors with open, drip-proof or splash-proof housings.
            (c) Equipment subject to vibration (dry locations).
            (d) Equipment requiring flexible connection for adjustment or alignment (dry locations).

    c) Liquid-tight Flexible Metal Conduit:

        1) Use 1 to 3 feet of liquid-tight flexible metal conduit for final conduit connection to:

            (a) Motors with weather-protected or totally enclosed housings.
            (b) Equipment subject to vibration (damp and wet locations).
            (c) Equipment requiring flexible connection for adjustment or alignment (damp and wet locations).

20. Provide expansion-deflection fittings with bonding jumper at expansion joints and on length of runs in accordance with manufacturer's recommendations.

21. For Wet, Damp, or Moist Locations:

    a) Provide sealing fittings, to prevent passage of water vapors, where conduits pass from warm to cold locations, such as refrigerated spaces, air-conditioned spaces, or similar areas.

B. Sleeves:

1. Sleeves must be provided in accordance with the following guidelines:

    a) Set required sleeves and inserts in place during progress of construction to avoid cutting of completed work.
    b) Provide sleeves for raceway passing through floors and foundations. Determine exact location of sleeves in field to avoid interference with structural members or equipment of other trades.

C. Fire-Stops:

1. Where wiring, conduits, cable trays, wireways, and other electrical raceways pass through fire partitions, fire walls, or floors, install an approved fire-stop that provides an effective barrier against the spread of fire, smoke and gases. Firestop material (Heat activated putty and a high temperature fiber material) must be packed tight and must completely fill clearances between raceways and openings. It must be applied concurrently with the installation of the wiring. The fire stop fittings must have a U.L. classified hourly rating equal to the fire rating of the floor or wall.
2. Floor, exterior wall, and roof seals must also be made watertight. Mineral wood, oakum, grout or duct seal stuffed into or around penetrations must not be used.

D. Outlet Boxes:

1. Set boxes square and true with the building finish. Boxes must be secured to the building structure by adjustable strap irons.
2. Verify outlet locations in finished spaces with Architectural Drawings of interior details and finishes. In locating outlets, allow for overhead pipes, ducts, and variations in arrangement, thickness in finish, window trim and other architectural construction details. Correct any inaccuracy resulting from failure to do so without any additional expense to the City of New York.
3. Refer to Commissioner any condition that would place an outlet box in an unsuitable location, such as a molding, break glass in wall finish, or behind a radiator.
4. Mount outlet boxes for similar equipment at uniform heights. Where mounting height or location of outlets is not shown or specified, mount outlet as best suited for equipment connected thereto, or as directed.
5. Close all unused openings in outlet boxes with knockout closers manufactured for this purpose. Provide blank plates on outlet boxes in which no device is installed or device installed does not provide a suitable cover.
6. Provide barriers between switches connected to different phases for voltages exceeding 150 volts to ground.

7. Outlet boxes for fixtures recessed in hung ceilings, must be accessible through the opening created by the removal of the fixture.
8. Securely fasten exposed outlet boxes by attaching to permanent inserts or lead anchors with machine screws. Adequately support all boxes during construction to prevent movement.

E. Panelboard, Junction and Pull Boxes:

1. Panelboard, junction and pull boxes must be located clear of other trades equipment, accessible, supported from the building structure, and independent of the conduits.
2. Conceal junction and pull boxes in finished spaces.
3. Coordinate size of motor terminal boxes with motor branch circuit conduit and wiring.

END OF SECTION - 26 05 33

# SECTION 26 05 44 - SLEEVES AND SLEEVE SEALS FOR ELECTRICAL RACEWAY AND CABLING

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract (City of New York Standard Construction Contract).

### 1.2 SUMMARY

A. Section includes:

1. Provide only tested firestop systems for penetrations for the passage of cables, conduit, and other electrical equipment through fire-rated vertical barriers (walls and partitions), fire rated horizontal barriers (floor/ceiling assemblies), and vertical service shaft walls and partitions.
2. For all openings, sleeves, through penetrations the entire opening must be completely fire stopped to maintain the fire-rated integrity.
3. Examine all Drawings and all Sections of the Specifications for requirements and provisions affecting the Work of this Section.

B. Definitions:

1. Firestopping: Material or combination of materials used to retain integrity of fire-rated construction by maintaining an effective barrier against the spread of flame, smoke, and hot gases through penetrations in fire rated wall and floor assemblies.

### 1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures”.

### 1.4 SUBMITTAL S

A. Submittals Package: Submit list of manufacturers and product data submittals specified below at the same time as a package.

B. Submit Product Data: Manufacturer’s specifications and technical data for each material including the composition and limitations, documentation of UL firestop systems to be used and manufacturer's installation instructions.

C. Manufacturer's engineering judgment identification number and drawing details when no UL system is available for an application. Engineering judgment must include both project name and contractor’s name who will install firestop system as described in drawing.

D. Submit material safety data sheets provided with product delivered to job-site.

E. Shop Drawings:

1. Bill of materials.
2. Detailed descriptions of all equipment and applications.
3. Dimensional layout of each floor plan on architectural backgrounds showing location of all sleeves, and through penetrations for electrical systems and through floors and walls.

F. Product Data:

1. Catalog sheets, specifications and installation instructions.
2. Name, address and telephone number of nearest certified manufacturer's representative.

G. Contract Close-out Submittals:

1. Test Report: System acceptance test report.
2. Certificate: Affidavit, signed by the manufacturer and Contractor, certifying that the system meets the manufacturer's installation requirements, contract requirements and is operating properly.
3. Operation and Maintenance Data: Deliver six (6) copies, of operation and maintenance data for each product covering the installed products, to the Commissioner. Include: Name, address and telephone number of nearest certified service company.

1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 "Quality Requirements".

B. References

1. Test Requirements: ASTM E 814, "Standard Method of Fire Tests of Through Penetration Fire Stops"
2. Test Requirements: UL 1479, "Fire Tests of Through-Penetration Firestops"
3. Underwriters Laboratories (UL) of Northbrook, IL publishes tested systems in their "FIRE RESISTANCE DIRECTORY" that is updated annually.

a) UL Fire Resistance Directory:

1) Firestop Devices (XHJI)
2) Fire Resistance Ratings (BXRH)
3) Through-Penetration Firestop Systems (XHEZ)
4) Fill, Voids, or Cavity Material (XHHW)
5) Forming Materials (XHKU)

4. International Firestop Council Guidelines for Evaluating Firestop Systems Engineering Judgments

5. Inspection Requirements: ASTM E 2174, “Standard Practice for On-site Inspection of Installed Fire Stops.”
6. ASTM E 84, “Standard Test Method for Surface Burning Characteristics of Building Materials.”
7. All major building codes: ICBO, SBCCI, BOCA, and IBC.
8. NFPA 101 - Life Safety Code
9. NFPA 70 - National Electric Code

C. A manufacturer's direct representative (not distributor or agent) must be on-site during initial installation of firestop systems to instruct the Contractor’s personnel in proper selection and installation procedures per manufacturer's written recommendations published in their literature and drawing details.

D. Firestop System installation must meet requirements of ASTM E 814 or UL 1479 tested assemblies that provide a fire rating equal to that of construction being penetrated.

E. Firestop Systems do not reestablish the structural integrity of load bearing partitions/assemblies, or support live loads and traffic. Installer must consult the Commissioner prior to penetrating any load bearing assembly.

F. For those firestop applications that exist for which no UL tested system is available through a manufacturer, a manufacturer's engineering judgment derived from similar UL system designs or other tests will be submitted to the Commissioner for review and approval prior to installation. Engineering judgment drawings must follow requirements set forth by the International Firestop Council.

G. Installer Qualifications

1. Engage an experienced Installer who is certified, licensed, or otherwise qualified by the firestopping manufacturer as having been provided the necessary instruction to install manufacturer’s products per specified requirements. A manufacturer’s willingness to sell its firestopping products to the Contractor or to an Installer engaged by the Contractor does not in itself confer qualification on the buyer.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Hilti, Inc.
2. 3M
3. STI
4. Or approved equal.

2.2 FIRESTOPPING, GENERAL

A. Provide firestopping composed of components that are compatible with each other, the substrates forming openings, and the items, if any, penetrating the firestopping under conditions of service and application, as demonstrated by the firestopping manufacturer based on testing and field experience.

B. Provide components for each firestopping system that are needed to install fill material. Use only components specified by the firestopping manufacturer and approved by the qualified testing agency for the designated fire-resistance-rated systems.

2.3 MATERIALS

A. Use only firestop products that have been UL 1479 or ASTM E 814 tested for specific fire-rated construction conditions conforming to construction assembly type, penetrating item type, annular space requirements, and fire-rating involved for each separate instance.

B. For cast-in place firestop devices installed prior to concrete placement for use with non-combustible and combustible plastic pipe (closed and open systems), conduit, or electrical cable bundles penetrating concrete floors.

C. Pre-formed firestop devices for use with combustible and non-combustible pipes (closed and open piping systems) or cable bundles penetrating concrete floors or walls.

D. Sealants, foams or caulking materials for use with non-combustible items including rigid steel conduit and electrical metallic tubing (EMT).

E. Intumescent sealants, caulking materials for use with combustible items (penetrants consumed by high heat and flame) including PVC jacketed, flexible cable or cable bundles, and plastic pipe.

F. Foams, intumescent sealants, or caulking materials for use with flexible cable or cable bundles.

G. Non-curing, re-penetrable intumescent putty or foam materials for use with flexible cable or cable bundles.

H. Wall opening protective materials for use with U.L. listed metallic and specified nonmetallic outlet boxes.

I. Materials used for large openings and complex penetrations made to accommodate multiple conduits.

J. Non curing, re-penetrable materials used for large openings and complex penetrations made to accommodate multiple conduits, electrical busways in raceways.

K. Provide a firestop system with an “F" Rating as determined by UL 1479 or ASTM E 814 which is equal to the time rating of construction being penetrated.

PART 3 - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 INSPECTION

A. Examine location and conditions under which work is to be performed and identify conditions detrimental to proper or timely completion.

B. Do not proceed until unsatisfactory conditions have been corrected.

3.3 INSTALLATION

A. Coordinate location and proper selection of cast-in-place firestop devices with trade responsible for the work. Ensure device is installed before placement of concrete.

B. Verify penetrations are properly sized and in suitable condition for application of materials.

C. Surfaces to which firestop materials will be applied must be free of dirt, grease, oil, rust, laitance, release agents, water repellents, and any other substances that may affect proper adhesion.

D. Provide masking and temporary covering to prevent soiling of adjacent surfaces by firestopping materials.

E. Comply with manufacturer's recommendations for temperature and humidity conditions before, during and after installation of firestopping.

F. Install firestop materials in accordance with UL Fire Resistance Directory.

G. Comply with manufacturer's instructions for installation of through-penetration materials.

1. Seal all holes or voids made by penetrations to ensure an air and water-resistant seal.
2. Protect materials from damage on surfaces subjected to traffic.

H. Do not use materials that contain flammable solvents.

I. Delivery, Storage and Handling

1. Deliver materials undamaged in manufacturer's clearly labeled, unopened containers, identified with brand, type, and UL label where applicable.
2. Coordinate delivery of materials with scheduled installation date to allow minimum storage time at job-site.
3. Store materials under cover and protect from weather and damage in compliance with manufacturer's requirements, including temperature limitations.

4. Comply with recommended procedures, precautions or remedies described in material safety data sheets as applicable.
5. Do not use damaged or expired materials.

J. Scheduling

1. Schedule installation of other firestopping materials after completion of penetrating item installation but prior to covering or concealing of openings.

K. Verify existing conditions and substrates before starting work. Correct unsatisfactory conditions before proceeding.

L. Weather conditions: Do not proceed with installation of firestop materials when temperatures exceed the manufacturer's recommended limitations for installation printed on product label and product data sheet.

M. During installation, provide masking and drop cloths to prevent firestopping materials from contaminating any adjacent surfaces.

N. Remove equipment, materials and debris, leaving area in undamaged, clean condition.

O. Clean all surfaces adjacent to sealed holes and joints to be free of excess firestop materials and soiling as work progresses.

3.4 FIELD QUALITY CONTROL

A. Examine sealed penetration areas to ensure proper installation before concealing or enclosing areas.

B. Keep areas of work accessible until inspection by the NYC Department of Buildings.

C. Inspection of through-penetration firestopping must be performed in accordance with ASTM E 2174, “Standard Practice for On-Site Inspection of Installed Fire Stops” or another recognized standard.

D. Perform under this section patching and repairing of firestopping caused by cutting or penetrating of existing firestop systems already installed by other trades.

E. Arrange and schedule all testing work to be witnessed by the Commissioner.

END OF SECTION - 26 05 44

# 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 SUMMARY

A. Section includes:

1. Work includes providing all materials, equipment, accessories, and services to complete and make ready for the City of New York, the identification of all electrical equipment as required by this section and other sections of the specifications and includes, but is not limited to normal and emergency power distribution systems, power, control and communication conductors, operational instruction and warnings; danger signs, and equipment system identification signs.
2. Provide nameplates for all electric equipment including but not limited to switchboards, distribution boards, panelboards, automatic transfer switches, transformers, disconnect switches, feeders, fused cutouts, etc.

### 1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures”.

### 1.4 SUBMITTALS

A. Submittals Package: Submit the list of manufacturers, the shop drawings and product data submittals specified below at the same time as a package.

B. Shop Drawings:

1. Bill of materials.

C. Product data:

1. Manufacturer's data on electrical identification material and products.

D. Samples, complete with nomenclature for the following:

1. Engraved lamacoid plates of each size of lettering.
2. Wraparound labels.
3. Metal tags.

E. List of all nameplates, sample panelboard directory format, and feeder labeling.

1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

B. Manufactures: Firms regularly engaged in manufacture of electrical identification products of types required whose products have been in satisfactory use in similar service for not less than 3 years.

C. Standards Compliance: Comply with requirements of applicable local codes, NEC, UL, and NEMA standards pertaining to electrical identification.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Comply with ASME A13.1 and IEEE C2.

B. Comply with 29 CFR 1910.144 for color identification of hazards; 29 CFR 1910.145 for danger, caution, warning, and safety instruction signs and tags; and the following:

1. Fire-protection and fire-alarm equipment, including raceways, must be finished, painted, or suitably marked safety red.
2. Ceiling-mounted hangers, supports, cable trays, and raceways must be finished, painted, or suitably marked safety yellow where less than 7.7 ft above finished floor.

C. Signs, labels, and tags required for personnel safety must comply with the following standards:

1. Safety Colors: NEMA Z535.1.
2. Facility Safety Signs: NEMA Z535.2.
3. Safety Symbols: NEMA Z535.3.
4. Product Safety Signs and Labels: NEMA Z535.4.
5. Safety Tags and Barricade Tapes for Temporary Hazards: NEMA Z535.5.

D. Comply with NFPA 70Eand requirements for arc-flash warning labels.

E. Adhesive-attached labeling materials, including label stocks, laminating adhesives, and inks used by label printers, must comply with UL 969.

F. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.

1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

2.2 ENGRAVED LAMACOID NAMEPLATES

A. Engraved lamacoid nameplate color must be:

1. For normal system – white lettering with black background.

B. Engraved lamacoid nameplate size must be:

1. For switchboards, distribution board, minimum 5" long and 3" high with ¾" lettering.
2. For panelboards, disconnect switches, circuit breakers, starters, motors, etc., minimum 3" long and 1½" high with ½" lettering.

C. Engraved lamacoid nameplates must be adhesive and with screws. Fasten to the outside face of the front. Provide multiple nameplates for large equipment such as generators.

D. Each circuit breaker/disconnect switch mounted in switchboard and distribution board must be identified with engraved lamacoid nameplate with ½" high letters.

E. For panelboard and distribution boards with doors: Typewritten directories mounted behind transparent plastic cover, in metal frames fastened on inside face of doors; directories to indicate circuit number, designation of room and number and item being served in directories.

F. For switchboard and distribution boards without doors: one adhesive label mounted on front, and indicate circuit number, item being served, and location to item being served.

G. Provide mimic bus for all switchboards and distribution boards.

H. All nameplates must include system voltage ratings.

2.3 LABELING

A. Identify the junction boxes, pull box, splice box, cabinet, receptacle, light switches, outlet box, etc., by means of portable labeling making devices.

B. Tape must be extra strength adhesive laminated type suitable for indoor/outdoor and sticks on any surface.

C. For junction box, pull box, splice box, cabinet, etc., fasten label to the outside face on the front and designate wire size, panel name, and circuit number.

D. For receptacles fasten label to the inside face plate and designate panel name and circuit number.

E. For outlet box, fasten label to the inside right wall toward the front and designate panel name and circuit number.

F. For light switches fasten label to the inside face plate and designate panel name and circuit number.

2.4 TAGGING

A. Tag the feeder and branch circuit in junction box, pull box, support box, splice box, panelboard/switchboard/distribution board gutter space, etc., by means of Nylon 6/6 weather resistant cable ties.

B. Provide identification plate to write-on surface that secures to cable tie. On the plate indicate where the circuit originates from (panel name, floor and circuit number, wire type, and wire size).

C. Plate must be 0.015" thick, 2½" long and ¾" high. Write with fine point blue permanent marker.

2.5 ENGRAVED LETTERING

A. Engrave device plates for local toggle switches, toggle switch-type motor starters, pilot lights, and the like, whose function is not readily apparent with 1/8-inch-high letter suitably describing the equipment controlled or indicated.

2.6 STAMPED LETTERING

A. Stamp phase identification letters into the metal of the bus bars of each phase of the main buses of each power center switchboard and panelboard; make letters visible without having to disassemble any current carrying or supporting elements.

2.7 ENAMELED SHEET METAL SIGNAGE

A. Equip all electric switchboard rooms, electric closets, metal screened spaces assigned to electric equipment and the like, with enameled sheet metal "red or white" signs reading "Electric Equipment Room - No Storage Permitted"; mount signs at clearly visible location within the rooms.

2.8 IDENTIFIABLE MARKING

A. Identify each outlet box, junction box and cabinet used in conjunction with empty raceway for wires of a future system by means of identifiable marking on the inside denoting the system.

2.9 MARK

A. Cabinets housing emergency lighting and receptacle panelboards with the work "EMERGENCY" stenciled in 2-inch-high red letters on the outside of the cabinet, in addition to other lettering and nameplates required above.

2.10 NOMENCLATURE

A. The nomenclature used to identify switch boards and panelboards to match the nomenclature used on the drawings.

B. The nomenclature used to identify switches or circuit breakers to:

1. Designate where they disconnect mains or services together with suitable differentiating nomenclature where more than one service or main is involved.
2. Designate the feeder number and the name of the load supplied where they control feeders.
3. Designate the name of the space and the load supplied where they control lighting and appliance branch circuitry.

C. The nomenclature used to identify feeders wires and cables to designate the feeder number.

PART 3 - EXECUTION

3.1 EXECUTION REQUIRMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 INSPECTION

A. Contractor must examine conditions under which electrical identification products are to be installed. Notify Commissioner in writing of conditions detrimental to proper completion of the work. Do not proceed with work until unsatisfactory conditions have been corrected.

3.3 INSTALLATION

A. Install electrical identification products as indicated, in accordance with manufacturer's written instructions, requirements of applicable Standards, and NECA's "Standard of Installation", and in accordance with recognized industry practices to ensure that installation complies with requirements and serves intended function.

B. Coordinate as necessary to interface installation of electrical identification products with other work.

C. Comply with NYC Electrical Code and the latest edition of NEC.

D. Wherever reasonably required to ensure safe and efficient operation and maintenance of electrical systems and electrically connected mechanical systems and general systems and equipment, including prevention of misuse of electrical facilities by authorized personnel, install signs or similar equivalent identifications, instructions, or warning on switches, outlets and other controls, devices and covers of electrical enclosers. Where detailed instructions or explanations are needed, provide plasticized tags with clearly written messages adequate for intended purposes.

E. Install signs at location for best convenience of viewing without interference with operation and maintenance of equipment. Secure to substrate with fasteners, except use adhesive where fasteners should not or cannot penetrate substrate.

F. Securely fasten signage and nameplates.

G. Identify each wire or cable in a feeder at its terminal points of connection and in each handhold, pull box, junction box and panel gutter through which it passes.

H. Label all conductors in wireways, pull boxes, support boxes and junction boxes with panelboard designations and circuit number.

I. Document in a readily available manner the means of identification of branch circuits (i.e. color coding, marking tape, etc.) and permanently post at each branch circuit panelboard.

J. Nameplate labeling and tagging designation must be as per schedules and floor plan.

K. Lettering must be horizontally and vertically centered and block type (sans serif) font. Maximum of (3) three lines per identification.

L. Provide labels, diagrams (one-line), room layouts, switching instructions and lock-out tag-out procedures in the building electric service room. The labels, diagrams, layouts, switching instructions, and lock-out tag-out procedures must be approved by the Commissioner.

M. Identify Individually:

1. Main and feeder devices in switchboards.
2. Circuit breaker panelboards.
3. Safety switches.
4. Single pole switches used for motor disconnect switch.
5. Cabinets, junction boxes, support boxes, and pull boxes of all systems installed, i.e., electrical, etc.
6. Receptacles.
7. Light switches.

3.4 FIELD QUALITY CONTROL

A. Upon completion of electrical identification, demonstrate compliance with requirements and submit certification to Commissioner that material and installation has been properly installed.

B. Contractor must arrange and schedule all electrical identification work to be witnessed by the Commissioner.

END OF SECTION - 26 05 53

# SECTION 26 09 23 - LIGHTING CONTROL 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 SUMMARY

A. Section includes:

1. Work includes providing all labor, materials, equipment, accessories, services and tests necessary to complete and made ready for operation by the City of New York, all vacancy and occupancy sensors in accordance with Drawings and Specifications. All occupancy sensors must fail in “On” mode.

### 1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions 01 33 00 “Submittal Procedures”.

### 1.4 SUBMITTALS

A. Submittals Package: Submit the shop drawings and product data submittals specified below at the same time as a package.

1. Shop Drawings:

a. Bill of materials.
b. Layout of all the floors with every room indicating sensor type fully coordinated with mechanical, lighting fixtures, etc.
c. Layout must show all type power packs with voltage to match lighting fixture.
d. Wiring diagrams.

2. Product Data:

a. Catalog sheets, specifications and installation instructions for each vacancy and occupancy sensor and associated accessories.
b. Name, address and telephone number of nearest certified manufacturer’s representative.

3. Contract Close-out Submittals:

a. Test Report: System acceptance test report.

4. Certificate:

    a. Affidavit, signed by the manufacturer and Contractor, certifying that the installation meets the manufacturer requirements and contract requirements, manufacturer's installation requirements, and is operating properly.

5. Operation and Maintenance Data:

    a. Deliver 6 copies, covering the installed products, to the Commissioner.

6. Include:

    a. Operation and maintenance data for each product.

1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 "Quality Requirements".

B. Manufacturers - Firms regularly engaged in manufacture of occupancy sensors, whose products have been in satisfactory use in similar service for not less than 3 years.

C. Provide equipment whose performance, under specified conditions, is certified by the manufacturer.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Hubbell Incorporated
2. Lutron
3. Cooper Controls
4. Or approved equal.

2.2 LOW VOLTAGE CEILING SYSTEM

A. Dual Technology Ceiling Sensors

1. Sensor must incorporate ultrasonic and infrared technologies in a single unit. Sensors must be Class 2, low voltage; capable of mounting on the ceiling for maximum coverage. Sensor must be available with either 180 degrees or 360 degrees coverage pattern. Sensor must incorporate one transmitter for each receiver oriented in the same direction. Transmitters/receivers must be protected from damage. Sensor must be available in ultrasonic frequencies of 32 or 40kHz. Infrared lens must have 360-degree field of view. Sensor must have a variety of mask inserts for PIR coverage rejection to prevent false tripping. Sensor must be capable of being networked with additional units to achieve adequate coverage.

Wall mount sensors must be available in a wide view model covering a minimum of 1600 square feet. Sensor must have a rugged plastic housing, white in color.

2. Sensor must use internal microprocessor for motion signal analysis and automatically adjust the sensor's time delay setting to an appropriate level for the area's usage pattern. Sensor must have automatic time-out from 8 minutes to 40 minutes. Sensor must have test time-out setting of 8 seconds, with automatic return to 8 minutes after one hour if sensor is left in test mode.
3. Sensor must have manual adjustments for timer and sensitivities and override switches to force manual adjustment mode. Manual time-out adjustment must be from 8 minutes to 40 minutes. Manual sensitivity adjustment must be from 0% to 100% for both ultrasonic and infrared. Controls must be behind cover to resist tampering. All adjustments must be accessible from the front of the sensor.
4. Sensor must be available with a set of form 1C isolated dry relay contacts for interfacing sensor to auxiliary systems. Relay must provide common, normally open and normally closed connections. Sensor must provide internal operating status and settings confirmation via LED motion lamp indicator. Sensor must have two (if 180 degree) or three (if 360 degree) real time LED motion indicators visible from the front of the unit: Red = infrared; Green = ultrasonic.

B. Ultrasonic Ceiling Mounted Sensors

1. Sensor must incorporate ultrasonic technology for occupancy sensing. Sensor must be Class 2, low voltage; capable of mounting on the ceiling for maximum coverage. Sensor must be available with either 180 degrees or 360 degrees coverage pattern. Sensor must incorporate one transmitter for each receiver oriented in the same direction. Transmitters/receivers must be protected from damage. Sensor must be available in ultrasonic frequencies of 32 or 40kHz. Sensor must be capable of being networked with additional units to achieve adequate coverage. Sensor must have a rugged plastic housing, white in color.
2. Sensor must use internal microprocessor for motion signal analysis and automatically adjust the sensor's time delay setting to an appropriate level for the area's usage pattern. Sensor must have automatic time-out from 8 minutes to 30 minutes. Sensor must have test time-out setting of 8 seconds, with automatic return to 8 minutes after one hour if sensor is left in test mode.
3. Sensor must use internal microprocessor for motion signal analysis and automatically adjust the sensor's sensitivity setting to an appropriate level for the area, compensating for air flow from HVAC. Sensor must have automatic ultrasonic sensitivity adjustment from 0% to 100%.
4. Sensor must have manual adjustments for timer and sensitivity and override switches to force manual adjustment mode. Manual time-out adjustment must be from 8 minutes to 40 minutes. Manual sensitivity adjustment must be from 0% to 100%. Controls must be behind cover to resist tampering. All adjustments must be accessible from the front of the sensor.
5. Sensor must be available with a set of form 1C isolated dry relay contacts for interfacing sensor to auxiliary systems. Relay must provide common, normally open and normally closed connections. Sensor must provide internal operating status and settings confirmation via LED motion lamp indicator. Sensor must

have one (if 180 degree) or two (if 360 degree) real time LED motion indicators visible from the front of the unit: Green = ultrasonic.

C. Passive Infrared Ceiling

1. Sensor must incorporate infrared technology for occupancy sensing. Sensor must be Class 2, low voltage; capable of mounting on the ceiling for maximum coverage. Infrared lens must have 360-degree field of view. Sensors must be available in: wide view model covering a minimum of 1500 sq. ft. for use in large areas with multiple occupants and high-density model covering a minimum of 600 sq. ft. for use in small areas with only one occupant. Sensor must have a variety of mask inserts for PIR coverage rejection to prevent false tripping. Sensor must be capable of being networked with additional units to achieve adequate coverage.
2. Sensor must have a rugged plastic housing, white in color. Sensor must use internal microprocessor for motion signal analysis and automatically adjust the sensor's time delay setting to an appropriate level for the area's usage pattern.
3. Sensor must have automatic time-out from 8 minutes to 30 minutes. Sensor must have test time-out setting of 8 seconds, with automatic return to 8 minutes after one hour if sensor is left in test mode.
4. Sensor must use internal microprocessor for motion signal analysis and automatically adjust the sensor's sensitivity setting to an appropriate level for the area, compensating for air flow from HVAC and seasonal temperature changes. Sensor must have automatic sensitivity adjustment from 0% to 100% for passive infrared detection.
5. Sensor must have manual adjustments for timer and sensitivity and override switches to force manual adjustment mode. Manual time-out adjustment must be from 8 minutes to 40 minutes. Manual infrared sensitivity adjustment must be from 0% to 100%. Controls must be behind cover to resist tampering. All adjustments must be accessible from the front of the sensor.
6. Sensor must be available with a set of form 1C isolated dry relay contacts for interfacing sensor to auxiliary systems. Relay must provide common, normally open and normally closed connections. Sensor must provide internal operating status and settings confirmation via LED motion lamp indicator. Sensor must have real time LED motion indicators visible from the front of the unit: Red = infrared.

D. Control Units Lighting Relay

1. Control units must consist of a DC power supply and a dry contact relay for switching a lighting load. Control units must be available in versions to accept any of the 120, 230, 277 and 347VAC line voltages. Output must be 24VDC nominal, and must be inherently safe, low voltage, limited power output (Class 2). Output must supply 100mA current, in addition to current consumed internally to operate internal relay. Relay must utilize normally open, silver alloy dry contacts, and must be rated for a 20A magnetic ballast load at 120V, 230V, 277V, and 347V. Control units must have line voltage wiring, consisting of input voltage and relay contact connections, exiting from one end, and low voltage DC connections, consisting of ground, power, and control wires, exiting from the other end.

2. Control units must be equipped with a ½" EMT threaded male fitting on the line voltage. Control units must be sized and qualified for the following mounting options:

   a. To the outside of a junction box with the line voltage wiring internal to the box and the low voltage wiring external.
   b. Inside the ballast cavity of a fluorescent fixture, such that the line voltage wiring is internal to the cavity and the low voltage wiring external. A ½" threaded adapter must be attached to the low voltage end of control unit in order to secure the control unit to the interior wall of the ballast cavity.
   c. Inside a standard 4" x 4" junction box.

3. Lighting relay must be available for switching additional circuit. Relay must be same construction and specifications as control units except without power supply.

E. Internal microprocessor for motion signal analysis and automatic adjust the sensor's time delay setting must not exceed 30 minutes.

PART 3 - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 INSPECTION

A. Examine location where occupancy sensors are to be installed, determine space conditions and notify Commissioner in writing of conditions detrimental to proper and timely completion of the work.

B. Do not proceed with the work until unsatisfactory conditions have been corrected.

3.3 INSTALLATION

A. Install vacancy and occupancy sensors where shown, in accordance with manufacturer's written instructions, and with recognized industry practices, to ensure that installation complies with requirements and serves intended purposes.

B. Coordinate with other work as necessary to interface installation of vacancy and occupancy sensors.

C. Installation must comply with the requirements of NEC and NECA, "Standard of Installation".

D. Install vacancy and occupancy sensors only after wiring is completed.

E. Install vacancy and occupancy sensors in areas which are clean, free from debris, excess building materials, etc. Protect occupancy sensors during construction.

F. At time of completion, replace items which have been damaged.

G. Sensors must be mounted where it will not receive light directly from a light source or reflecting source.

H. Sensor must be mounted at least 4 feet from HVAC vents to avoid air current interference.

I. Sensors must not be installed in damp locations such as near showers, in wet locations, or where exposed to rain.

J. Avoid mounting passive infrared and dual technology sensors where columns, doors, walls, or other obstructions will block the sensor's field of view.

K. Passive infrared coverage should not extend through doorways. Masking inserts must be installed for PIR coverage rejection to prevent false tripping.

L. Install system components in accordance with manufacturer's instructions. Sensor locations are approximate and are designed according to the specified manufacturer.

M. Sensors must be positioned so that lights are activated when a person is 2 feet or less through any doorway.

N. Prior to energizing circuits, test wiring for electrical continuity and for short circuits, ensure proper polarity of connections is maintained.

O. Vacancy and occupancy sensing units and systems must be located so as to avoid false triggering by heating or cooling systems, adjacent spaces and windows. Coordinate exact location prior to installation.

P. Coordinate the appropriate occupancy sensor device for the given voltage and maximum/minimum load condition.

Q. All low voltage control wiring between ceiling sensors, and power modules must be in accordance with the manufacturer's wiring diagrams and must be fluoropolymer jacketed cable suitable for running in plenum area and must be U.L. approved Class 3P or comparable and in accordance with National Electrical Code and New York City Building Code. Where concealed in voids of hollow partitions or hung ceilings, the plenum wiring may be run without raceway.

R. Coordinate exact location of sensors with sensors manufacturer for optimum coverage. Install field-of-view templates as required to mask the viewing lens to prevent false triggering.

S. Set all timers at maximum. Make any required adjustments after Commissioner's approval.

T. Set all vacancy and occupancy sensors for fail safe operation.

3.4 FIELD QUALITY CONTROL

A. Upon completion of installation of vacancy and occupancy sensors, and after connection to power source, test occupancy sensors to demonstrate compliance with requirements. When possible, field correct malfunctioning units, then retest to demonstrate compliance. Replace units which cannot be satisfactorily corrected.

B. Test all sensors to ensure electrical continuity of grounding connections and proper connection of phase and neutral wiring.

C. Submit report certifying all tests.

D. Instruction: Factory-authorized service technicians to demonstrate the vacancy and occupancy sensors and instruct the New York City maintenance personnel for a minimum of 8 hours of instruction. Schedule instruction with the user a minimum of four weeks in advance of instruction dates.

E. Include one adjustment to each vacancy and occupancy sensor after project is accepted by the Commissioner.

END OF SECTION - 26 09 23

# 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 SUMMARY

A. Section includes:

1. The work includes the providing of all labor, materials, equipment, accessories, services and tests necessary to complete and made ready for operation by the City of New York, all wiring devices in accordance with Drawings and Specifications.

B. Related Sections:

1. Generally, the location of devices and outlet boxes in finished rooms or spaces must be where indicated. In the case of special rooms and areas, locations must be obtained from the Commissioner and from the scaled drawings of interior details and finish. All local switches near doors must be located at strike side of door as finally hung, whether so indicated on the plans or not, unless specifically indicated otherwise.
2. Except as otherwise indicated or where shown on the Contract Drawings, the following dimensions from finish floor to center of outlet must be established.

| | | |
|---|---|---|
| a. | Receptacle outlets, unless otherwise noted | 1'-6" |
| b. | Motor controllers | 5'-0" |
| c. | Safety and disconnect switches | 5'-0" |
| d. | Panelboards (lighting and power) | 6'-6" above finished floor to top. |

### 1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures”.

### 1.4 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

B. "Manufacturers" - Firms regularly engaged in manufacture of wiring devices and installation components, whose products have been in satisfactory use in similar service for not less than 3 years.

C. Provide equipment whose performance, under specified conditions, is certified by the manufacturer.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Harvey Hubbell Incorporated
2. General Electric Co.
3. Leviton
4. Or approved equal.

2.2 WIRING DEVICES

A. Local Wall Switches:

1. Switches must be heavy duty, toggle, quiet type, fully enclosed in composition cases.
2. Switches must be rated 20-amp, 120/277-volt, AC.
3. Color as selected by the Commissioner.
4. Switches must be as indicated below:

    a. Single Pole
    b. 3 Way

5. Key switches of equivalent rating and grade to above switches must be provided where indicated on Drawings.
6. Where it is not possible to set the switch box flush with the wall, furnish raised edge plates.
7. Where more than one switch is being installed, provide multiple gang switch plates for number of switches as indicated.
8. Gang switch plates for five or more switches (or receptacles) must be engraved with titles as directed by the Commissioner.

B. Receptacles:

1. Receptacles must be the grounding type, (except as otherwise noted) composition base, meeting NEMA standards, publication WD-1-1971.
2. Where it is not possible to set the outlet box flush into the wall, furnish raised edge plates. Convenience receptacle must be mounted with ground pole up, except those mounted above counter levels.
3. Receptacles must be as indicated below or approved equal, color as selected by the Commissioner:

    a. Duplex Convenience Receptacles: 125 Volts, 2-Pole, 3-Wire, U ground slot type.

1) 20 Amp. (20 Amp circuits).

a) Single Receptacles: 20 Amp, 125 Volts, 2-Pole, 3-Wire, twist-lock type.
b) Duplex Receptacles: 20 Amp, 125 Volts, 2-Pole, 3-Wire, grounded, twist-lock type.
c) Outdoor Receptacles: 20 Amps, 125 Volts, 2-Pole, 3-Wire, U ground slot type, duplex convenience receptacle, with weatherproof cover.
d) Ground Fault Interrupter Duplex Receptacles, 20 Amp.

C. Switch, Receptacle, and Signaling Outlet Plates:

1. Plates must be tamper-resistant, one piece #14 cold rolled zinc plated stainless, finished 32D steel.
2. Surface mounted wiring devices and blank outlet plates must be cadmium plated. Interior outlet plates must be pressed steel. Outlets exposed to weather or corrosive conditions must be of the cast-metal type.
3. Plates for weatherproof receptacles must consist of cast-aluminum gasketed plate with spring-loaded lift covers providing access to the outlet. Lift cover to correspond to number of outlets to be gasketed. Plates for weatherproof switches must consist of a cast plate with flexible bubble for activating a push type switch with cover. Plates must be for corrosion-resistant devices.
4. Coordinate all finishes and colors as selected by the Commissioner.

2.3 INSTALLATION COMPONENTS

A. Wiring Troughs:

1. Wiring troughs must be 4" x 4" or 6" x 6", brake-formed of code gauge (No. 16 gauge minimum) steel, furnished in standard 10-foot sections with knockouts, as required. Wiring troughs must be of the screw-on cover type and must have a high-grade enamel finish baked on a chemically-cleaned and zinc-phosphatized surface providing maximum resistance to corrosion.
2. Wiring troughs must be furnished with all the required components, such as square junction boxes, 90-degree elbows, T-shaped pull boxes, crossover pull boxes, box-connecting couplings, fittings and screw-on cover plates. Lengths of individual sections must be provided in accordance with installation requirements.

B. Manual Motor Starters:

1. Manual motor starters must be horsepower rated, and voltage rated for the motor load.
2. The operating mechanism must be a snap switch with one pole per phase.
3. Overload protection must be provided with one thermal overload relay with replaceable tripping element for each pole, manually reset from the operating handle. The heater for each tripping element must be coordinated with the nameplate rating of the motor.

PART 3 - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 GENERAL TECHNICAL NOTES

A. In centering outlets allow for overhead pipes, ducts, etc., and for variation in thickness of fireproofing and plastering. Allowances must also be made for window trims, paneling, counters, casework, etc. Any inaccuracies resulting from failure to comply with the above must be corrected without additional expense to the City of New York.

B. Receptacles listed in this Section of the Specification must be of the type indicated. Where furnished under this Section of the Specification, provide matching plugs for each receptacle.

C. Where indicated, switch and receptacle must be combined.

3.3 INSPECTION

A. Contractor must examine location where wiring devices and installation components are to be installed, determine space conditions and notify Commissioner in writing of conditions detrimental to proper and timely completion of the work.

B. Do not proceed with the work until unsatisfactory conditions have been corrected.

3.4 INSTALLATION

A. Install wiring devices and installation components where shown, in accordance with manufacturer's written instructions, and with recognized industry practices, to ensure that installation complies with requirements and serves intended purposes.

B. Coordinate with other work as necessary to interface installation of wiring devices and installation components.

C. Installation must comply with the requirements of NEC and NECA, "Standard of Installation".

D. Install devices only after wiring is completed.

E. Install receptacles and switches only in electrical outlet boxes which are clean, free from debris, excess building materials, etc.

F. At time of completion, replace items which have been damaged, including those burned and scorched by faulty plugs.

3.5 FIELD QUALITY CONTROL

A. Upon completion of installation of wiring devices and installation components, and after connection to power source, test wiring devices and installation components to demonstrate compliance with requirements. When possible, field correct malfunctioning units, then retest to demonstrate compliance. Replace units which cannot be satisfactorily corrected.

B. Test wiring devices and installation components to ensure electrical continuity of grounding connections.

END OF SECTION - 26 27 26

SECTION 26 28 13 - FUSES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract (City of New York Standard Construction Contract).

1.2 SUMMARY

A. Section includes:

1. Work includes providing all labor, materials, equipment, accessories, services and tests necessary to complete and make ready for operation by the City of New York, the fuses as shown in accordance with Drawings and Specifications.

1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures”.

1.4 SUBMITTALS

A. Submittals Package: Submit the list of manufacturers, the shop drawings and product data submittals specified below at the same time as a package.

B. Shop Drawings:

1. Bill of materials.

C. Product Data:

1. Catalog sheets, specifications, time current curves, and installation instructions for each fuse type.
2. Name, address and telephone number of nearest certified manufacturer’s representative.

D. Contract Close-out Submittals:

1. Test Report: System acceptance test report.
2. Certificate: Affidavit, signed by the manufacturer and Contractor, certifying that the equipment and system installation meets the manufacturer’s requirements and contract requirements and is operating properly.
3. Operation and Maintenance Data: Deliver six (6) copies of operation and maintenance data for each product, covering the installed products, to the Commissioner.

1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Bussmann
2. Shawmut
3. Square D
4. Or Approved Equal.

2.2 600 VOLT FUSES

A. All fuses must be of the same manufacturer. Fuses must not be installed until equipment is to be energized. All fuses must have a 300,000 ampere RMS symmetrical interrupting rating unless specified otherwise. Fuse symbols in parentheses are those of Bussmann.

B. Fuses: 601 to 6000 Amperes must be U.L. Class L (KRP-C), with time-delay characteristics of 10 seconds or more, at 500% of current rating.

C. Fuses (600V): Up to 600 Amperes must be UL Class "J", UL Class "J" (LPJ time delay).

D. Fuses (250V): Up to 600 Amperes must be UL Class “RKI” (LPN time delay).

E. Spare Fuses:

1. A complete set of spare fuses must be purchased at the same time the initial fuses are purchased. Spare fuses must consist of a standard carton for 0 to 100 amperes rating. For above 100 amperes rating provide 10% of each type and rating, or a set of three, whichever is greater.

PART 3 - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 INSPECTION

A. Examine location where fuses are to be installed and notify the Commissioner in writing of conditions detrimental to proper and timely completion of the work.

B. Do not proceed with the work until unsatisfactory conditions have been corrected.

3.3 INSTALLATION

A. Install fuses where shown or required, in accordance with manufacturer's written instructions, and with recognized industry practices, to ensure that installation complies with requirements and serves intended purposes.

B. Installation must comply with the requirements of NEC and applicable portions of NECA's "Standard of Installation".

C. Install Class J fuse rejection kits on all heavy-duty safety switches not already fitted for Class J fuses.

3.4 FIELD QUALITY CONTROL

A. Upon completion of installation of fuses, test in accordance with latest edition of NETA and inspect equipment and system to ensure compliance with requirements.

B. Final tests and inspections must be made prior to energization of the equipment. This must include a thorough cleaning, tightening, inspection and review of all electrical connections.

C. Issue written report documenting all test, inspections, test results including data, personnel, dates, instruments, equipment inspected, results, etc.

D. Arrange and schedule all testing work to be witnessed by the Commissioner.

END OF SECTION – 26 28 13

# SECTION 26 28 16 - ENCLOSED SWITCHES SWITHES AND CIRCUIT BREAKERS

## PART 1 - GENERAL

### 1.1 RELATED DOCUMENTS

A. The following documents apply to all required work for the Project: (1) the Contract Drawings, (2) the Specifications, (3) the General Conditions, (4) the Addendum and (5) the Contract (City of New York Standard Construction Contract).

### 1.2 SUMMARY

A. Section includes:

1. This section includes the providing of all labor, materials, equipment, accessories, services and tests necessary to complete and make ready for operation by the City of New York, all heavy-duty safety and disconnect switches (fused and unfused) in accordance with Drawings and Specifications.

### 1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures”.

### 1.4 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

B. Safety and disconnect switches must comply with applicable standards of NEMA and must be listed and labeled by Underwriters' Laboratories, Inc. Switches must be approved for service where required, and approved for use in New York City in accordance with NYCEC.

C. Comply with NEC (NFPA 70) for construction and installation of safety and disconnect switches.

D. Provide equipment whose performance under specified conditions is certified by the Manufacturer.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Square D
2. Cutler Hammer
3. General Electric

4. Or approved equal.

2.2 SWITCH INTERIOR

A. All switches must have switch blades which are fully visible in the OFF position when the door is open. Switches must have removable arc suppressors, where necessary to permit easy access to line-side lugs. Lugs must be UL listed for aluminum and/or copper cables and front removable. All current carrying parts must be plated. 30A thru 100A switches must have provisions for field installed fuse pullers. Switches must include solid neutral where required.

2.3 SWITCH MECHANISM

A. Switches must have a quick-make and quick-break operating handle and mechanism which must be an integral part of the box, not the cover. Switches must have a defeatable dual cover interlock to prevent inadvertent opening of the switch door in the ON position or closing of the switch mechanism with the door open. Handle position must indicate if switch is ON or OFF. Handle must have provision for padlock.

2.4 ENCLOSURES

A. Enclosures must be NEMA 1 enclosure heavy duty type except as otherwise noted or required with multiple knockouts on all sides and back, hinged door, and cover interlock which prevents door from opening when switch is in ON position. Enclosure must have provisions for positive padlocking in ON and OFF positions.

B. For exterior installations, the enclosures must be NEMA 3R.

C. All enclosures must be the NEMA types which are most suitable for the environmental conditions of the area.

2.5 RATINGS

A. Heavy Duty, NEMA 3R, Single Throw, 600-Volt ac, 1200 A and Smaller: UL 98 and NEMA KS 1, horsepower rated, with clips or bolt pads to accommodate cartridge fuses, lockable handle with capability to accept three padlocks, and interlocked with cover in closed position.

B. Fuses must be rated for an interrupting capacity as shown on drawings. Switches must be rated for voltage, poles, amperes, and horsepower, as required or shown on Drawings. All switches must be rated for maximum available fault current as required and/or as noted.

2.6 FUSES

A. Fused safety and disconnect switches must be provided with fuses of class and type specified in section 26 28 13 Fuses and rating as shown on drawings.

PART 3 - EXECUTION

3.1 EXECUTION REQUIRMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 INSPECTION

A. Contractor must examine locations where safety and disconnect switches are to be installed and notify the Commissioner in writing of conditions detrimental to proper and timely completion of work.

B. Do not proceed with work until unsatisfactory conditions have been corrected.

3.3 INSTALLATION

A. Install safety and disconnect switches as required by all applicable codes and as shown on Drawings. Install safety and disconnect switches in accordance with manufacturer's written instructions, the applicable requirements of NEC, New York City Electrical Code recognized industry practices, and applicable portions of NECA's "Standard of Installation".

B. Coordinate with other work as necessary to interface installation of safety and disconnect switches with other equipment in the area.

C. Coordinate safety and disconnect switch installation work with electrical raceway and cable work as necessary for proper interface.

D. Install disconnect switches within sight of motor-driven appliances, and motors and controllers, unless otherwise indicated.

E. Provide nameplate on switch, indicating equipment served.

3.4 FIELD QUALITY CONTROL

A. Upon completion of installation of safety and disconnect switches, test and inspect system to ensure compliance with requirements. When possible, field correct malfunctioning equipment, then retest to demonstrate compliance. Replace equipment which cannot be satisfactorily corrected.

B. Close all switches to check for proper energization of all loads.

END OF SECTION - 26 28 16

SECTION 26 50 00 - LIGHTING

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. Work includes providing all labor, materials, equipment, accessories, services and tests necessary to complete and make ready for operation by the City of New York, all lighting fixtures, ballasts, and lamps, in accordance with Drawings and Specifications.

1.3 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures”.

1.4 SUBMITTALS

A. Submittals Package: Submit the shop drawings and product data submittals specified below at the same time as a package.

B. Manufacturer must provide toll-free phone technical support assistance 24 hours per day, 365 days per year.

C. Manufacturer must be capable of providing on-site service support within 24 hours.

D. Shop Drawings:

1. Bill of materials.
2. Details of construction and finishes.
3. Drawings to scale.
4. Catalog cuts (without required details not acceptable).
5. Electrical ratings, mounting, ballasts, lenses, and lamps.
6. Certified photometric data.
7. Clear indication of assigned fixture type.
8. Installation instructions where required.

E. Product Data:

1. Catalog sheets, specifications, wiring diagram and installation instructions.
2. Name, address and telephone number of nearest certified manufacturer’s representative.

F. Contract Close-out Submittals:

1. Test Report: System acceptance test report.
2. Certified Affidavit, signed by the manufacturer, certifying that the equipment installation meets the manufacturer's requirements and the contract requirements and is operating properly.
3. Operation and Maintenance Data: Deliver six (6) copies of catalog cuts for all lamps, fixtures, poles, and ballasts; and operation and maintenance data for each product, covering the installed products, to the Commissioner.

G. Samples:

1. Submit for review, samples for lighting fixtures. The fixtures or components are to be tagged with the project name and fixture type. Samples must be held available for reference throughout the construction period. Fixtures or components must be identical with the approved samples. No approved reference sample (fixture or component) is to be installed on the Project.
2. Submit one sample with lamps for all lighting fixture types.

1.5 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 "Quality Requirements".

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Cooper Lighting
2. Acuity Brands (Lithonia)
3. WAC Lighting
4. Or approved equal.

2.2 LIGHTING FIXTURES - GENERAL

A. Furnish, install and connect interior lighting fixtures as scheduled on the Drawings, and as required for a complete and satisfactory operating system.

B. Coordinate mounting hardware to match installation requirements.

C. Lighting fixture catalog numbers are to be considered only as a guide. All fixtures must incorporate the general and particular requirements included in the Contract Documents. It may be necessary to modify the manufacturer's standard fixture corresponding to the designated type or catalog number.

D. All methods of construction and details of workmanship, where not specifically described or shown on the Drawings, must be satisfactory to the Commissioner and must be subject to approval.

2.3 LIGHTING FIXTURES - FABRICATION

A. Provide required thickness of metal, plastic and composite materials so that all fixtures are rigid, stable, and will resist deflection, twisting, warping under normal installation, and re-lamping procedures.

1. All luminaire housings minimum 20 gauge cold rolled steel, unless a heavier gauge is specified or required by NEC and New York City Electrical Code.
2. All aluminum extrusion housing minimum 3/16" thick.
3. All spun, hydroformed, or sheet aluminum reflectors fabricated from #12 aluminum sheets minimum, 15 gauge (.057") or heavier.
4. All acrylic & polycarbonate lenses and/or diffusers minimum 1/8" thick.
5. All glass lenses and diffusers, unless specifically noted otherwise, must be water white borosilicate. Greenish tint lenses and diffusers are not acceptable.

B. Provide positive, durable, means of connection at all joints as required. No hollow rivets, unless specifically approved, are acceptable.

C. Provide neoprene, silicone, rubber, or other appropriate gasketing, stops, and barriers where required to prevent light leak, control sound and vibration, prevent water leaks and, if pertinent, water vapor penetration.

D. Provide finished product with the following minimum qualities:

1. Ground and/or burr free metal edges.
2. Tight fitting connections, hinges and closures.
3. Clean neat corners, edges, trims and frames.

E. All cast parts, including die-cast members, must be of uniform quality; free from blow holes, pores, hard spots, shrinkage defects, cracks or other imperfections that affect strength and appearance, or are indicative of inferior metals or alloys.

2.4 FINISHES

A. Fixture finishes must be applied in a manner that will assure a durable wear resistant surface.

1. Prior to finishing, all surfaces must be free from foreign materials such as dirt, rust, oil, polishing compounds and mold release agents.
2. Where necessary surface cleaned by accepted chemical means must receive corrosion inhibiting (phosphating) treatment assuring positive paint adhesion.
3. All castings and extrusions machined, sanded or similarly treated, and given minimum one coat of baked-on clear methacrylate lacquer, unless a painted finish is specified.

4. Aluminum surfaces exposed to weather (other than anodized reflectors covered elsewhere) must receive a Duronodic or polyester powder paint finish as specified for corrosion resistance.
5. Sheet steel fixture housings, iron and steel parts, which have not received phosphating treatment ("Bonderizing" or similar process) or are to be utilized in exterior applications, must be made corrosion resistant by zinc or cadmium plating or hot-dip galvanizing.
6. All exterior (visible) finishes must be approved by the Commissioner.

2.5 FIXTURE TRIMS

A. Fixtures must have finish trim designed as specified.

B. Provide trim details as shown on the Drawings or as specified. The trim finish and dimensions are subject to the approval by the Commissioner.

1. Mitered corners must be smoothed before shop finish is applied. No lapping of trim metal for all flush mounted ceiling trims for rectangular or square recessed fixtures.
2. All exposed ceiling trim and inside reveals on all fixtures must be factory painted in a color to match the Commissioner's sample.

2.6 MARKING OF FIXTURES

A. Fixtures designed for voltages other than 110-125-volt circuits must be clearly marked. Furnish lighting fixtures with the appropriate ballast.

B. Emergency light fixtures must be marked with:

1. One red dot (painted) – for fixtures with battery packs.
2. Dot must be ½" in diameter and located inside the fixture but visible from outside.

C. Refer to Section 26 05 53 Identification for Electrical Systems for additional requirements.

2.7 LED LUMINAIRES AND DRIVERS

A. LED luminaire must be constructed and heat-sinked to maintain LED performance as reported by LED manufacturer and exhibited in IESNA LM-79 and LM-80 test reports.

B. LEDs must be of the color temperature and Color Rendering Index (CRI) as specified on the drawings. Minimum LED performance must be 70% lumen maintenance at 50,000 hours operation at a forward current up to 700mA with junction temperature maintained at or below 135°C.

C. LED drivers must be integral or remote type as specified on drawings and must provide continuous current matched to LED array requirements. Driver must High Power Factor (HPF) with <20% total harmonic distortion (THD) full load. Driver performance must comply with the requirements of the Federal Communications Commission (FCC) rules and regulations, Title 47 CFR Part 15.

2.8 WIRING

A. All wiring must comply with the following standards:

1. All wiring within lighting fixtures, or from the connection to the building wiring system, must be as specified under Section 26 05 19.
2. Wiring within fixture housing is to be concealed, except where the fixture design or mounting dictates otherwise.
3. Wiring channels and wireways must be free from projections and rough or sharp edges throughout, and at points or edges over which conductors must pass and may be subject to injury or wear.
4. Insulated bushings must be installed at points of entrance and exit of flexible wiring.
5. All joints between fixture wiring must be made with solderless connectors.

PART 3 - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 INSPECTION

A. Examine location where the lighting fixtures are to be installed, determine space conditions and notify Commissioner in writing of conditions detrimental to proper and timely completion of the work.

B. Do not proceed with the work until unsatisfactory conditions have been corrected.

3.3 INSTALLATION

A. Provide and install all lighting equipment described in the Contract Documents. Installation must be carried out in accordance with N.E.C. requirements, manufacturer's instructions, and with recognized industry practices. Comply with NEMA standards and with applicable portions of NECA's "Standard of Installation".

1. Verify fixture locations with architectural plans, reflected ceiling plans and other references prior to installation.
2. Check for adequate headroom and non-interference with other equipment, such as ducts, pipes, openings, etc.
3. Install rows of fixtures in straight lines, except as noted. Install fixtures so that fixture doors open from same side.
4. Notify Commissioner in writing of conditions detrimental to proper and timely completion of the work.

B. The housing of recessed lighting fixtures must be adequately protected during installation.

1. Provide internal blocking or framing to provide perfect linear alignment and to prevent distortion of sides or dislocation of matching parts.

C. Install in accordance with the NEC, The National Electrical Contractors Association's "Standard of Installation", and in accordance with recognized industry practices to ensure that products serve the intended functions.

D. Fluorescent lamps must be installed on-site to ensure proper lamp installation and to avoid issues with lamps shifting during fixture shipment.

E. Prior to acceptance of lighting fixtures by Commissioner, lighting equipment must be in first class operating order and free from all defects (condition, finish, etc.).

F. Prior to acceptance of lighting fixtures by the City of New York, all equipment and necessary components must be installed such as side panels, louvers, etc.

G. Fixtures must be completely clean and free from finger marks, dust, plaster or paint spots.

H. Any reflectors, lenses, diffusers, side panels or other parts damaged prior to the final inspection must be replaced at no expense to the City of New York.

I. Housings must be rigidly installed and adjusted to a neat flush fit with the ceiling.

J. No light leaks must be permitted at the ceiling line or from any visible part or joints.

3.4 SUPPORTS

A. Provide mounting frames (plaster frames for example) to other trades as required for installation and as called for under other sections of these Contract Documents. Frames are to be finished matte white baked enamel, unless otherwise noted.

B. Provide bars, angles or other attachment devices for all recessed fixtures. Fixtures must be securely attached so there is minimum possible movement up, down, or sideways. Fixtures must be mounted to permit access of wiring. Fastening devices must be of a positive, locking type, and will not require the use of special tools to apply or remove. Tie must not be used in place of fastening devices.

C. Furnish additional running bars for support of recessed fixtures and support weight of the fixture from the main running bars (black iron) or from the structural steel, or concrete, by means of inserts, handing rods, Kindorf or Unistrut channels.

D. Surface mounted or pendant fixtures mounted on suspended ceilings must be supported by approved running straps, bars or channels from the top of the ceiling outlet box to the black iron where it exists or to the structural steel or concrete. Surface mounted or pendant fixtures installed on an existing suspended ceiling must be supported in conformance with existing conditions or as shown on the Drawings.

E. Where necessary to meet Code requirements, enclosure housing must be constructed to provide a one-hour fire rating.

F. Make necessary adjustments in ceiling required to install lighting fixtures and verify all ceiling conditions and furnish appropriate mounting details for each lighting fixture.

G. Provide pendant or surface mounted fixtures with required mounting devices and accessories. Coordinate locations of fixtures in mechanical areas, and if required, modify locations and mounting to suit conditions as directed. Provide mounting stems on pendant fixtures of the correct length to uniformly maintain the fixture heights shown on the Drawings or established in the field.

3.5 ADJUSTMENT

A. After the installation of lighting fixtures is completed, fixtures requiring adjustment (both interior and exterior units) must be adjusted after dark under the supervision of the Commissioner.

3.6 CLEANING

A. Lighting fixture mounting frames, plaster rings, etc. are required to be installed prior to the finishing assembly which must not be installed until the project is "broom clean". When the fixture location or construction cannot permit sequential installation, carefully protect all reflectors, lenses, flanges, and other visible surfaces.

B. Before final acceptance by the Commissioner, all protective (strippable) coatings, dust, finger marks, paint spots and any other materials deleterious to the appearance or functioning of the lighting fixtures must be removed. Abrasive cleaners are not permitted.

3.7 FIELD QUALITY CONTROL

A. Upon completion of installation of lighting fixtures, and after energization, test system to demonstrate compliance with the contract requirements. When possible, correct malfunctioning units at the site and retest. Otherwise, remove and replace with new units.

B. Final tests and inspections must be made prior to energization of the equipment. This must include a thorough cleaning, tightening and review of all electrical connections and inspection of all grounding conductors. Submit written report to Commissioner.

C. Correct installation of or replace drivers not complying with manufacturer’s standards.

D. Submit written report documenting completion of lighting fixtures on a room-by-room basis.

E. Arrange and schedule all testing work to be witnessed by Commissioner.

END OF SECTION - 26 50 00

# SECTION 28 46 00 - FIRE DETECTION AND ALARM

## 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. The work includes the providing of all labor, materials, equipment, accessories, services and tests necessary to complete and make ready for operation by the City of New York.

B. In general, the work must include but not be limited to providing the following equipment, systems, work, etc.:

1. Addressable analog duct smoke sensors with remote LED light and test button.
2. Fire Smoke Dampers (FSD).
3. Terminations.
4. Wire and conduit.
5. Two New Rooftop AC unit shut down wiring and programming existing FA system.
6. Perform fire alarm testing for mechanical system

### 1.3 QUALITY ASSURANCE

A. Refer to DDC General Conditions Section 01 40 00 “Quality Requirements”.

B. Provide Temporal 3 Manual/Automatic Fire Alarm System and installation components which have been listed and labeled by Underwriters’ Laboratories and which have complied with applicable portions of National Electrical Manufacturers Association Standards. FACP must be certified for use in NYC.

C. The system and all associated operations must be in accordance with the following:

1. New York City Building Code 2022 and New York City Electrical Code 2011
2. NFPA 72, National Fire Alarm Code, 2016 as amended by Appendix “Q”
3. NFPA 70, National Electrical Code 2020
4. NFPA 101, Life Safety Code 2015
5. NFPA 90A, Standard for the Installation of Air Conditioning and Ventilating Systems 2009
6. UL 864 Fire Protective Signaling Systems.
7. UL 268 Smoke Detectors.
8. UL 1638 Visual Fire Alarm Signaling Devices.
9. USDOJ’s 2010 ADA Standards for Accessible Design and ICC A117.1-2009.

D. All raceways and wiring must be installed in compliance with the New York City Electrical Code, and NFPA Standard 70 (National Electrical Code - Article 760). All applicable portions of the National Electrical Code must be implicitly followed, in particular with regard to material type and quality, circuitry extensions from and connections to outlet and junction boxes, panel boards and similar appurtenances.

E. All equipment and supervision of installation must be provided by the equipment manufacturer. Software, including revisions, is specifically included in this project.

F. All control equipment must have transient protection devices.

G. The Temporal 3 Manual/Automatic Fire Alarm System installation must comply with all applicable requirement of ICC/ANSI A117.1-2009.

H. To ensure compatibility, the equipment furnished under this specification must be the standard product of one manufacturer, who has been engaged in the production of this type of equipment.

I. Prior to the commencement of work, the Contractor must obtain all permits necessary for installation of the work. All permit costs and inspection fees must be included as part of the required work.

J. New York City Electrical Code Requirements must be adhered to with regard to submitting specifications, wiring diagrams, shop drawings and plans. Responsibility for furnishing the quantities of copies, as directed by such requirements, must be included as part of the Work of this Section.

K. The Contractor must submit NFPA 72 letter of completion and system acceptance test report.

L. The Contractor must submit to the Bureau of Fire Prevention the following required documents; B-45 and A-433 Application for Electrical Inspection and Summary of System Equipment to be installed, As-Built Riser Diagram formatted 11 x 17. Input/Output programming matrix that defines the sequence of operation. Written statement from Contractor-retained Engineer licensed in the State of New York, certifying that a functional test has been conducted, and the system operates as designed and in accordance with the input/output programming matrix.

M. The Contractor must include NYC licensing as required by NFPA 72 Section 10.4.2.1 as amended by Appendix Q of the NYCBC. Fire alarm installations must be performed by a New York State licensed contractor. Installation must be supervised by persons who are qualified and experienced in the installation, inspection, and testing of FA systems.

1.4 SUBMITTAL PROCEDURES

A. Refer to DDC General Conditions Section 01 33 00 “Submittal Procedures”.

1.5 SUBMITTALS

A. Submittals Package: Submit the shop drawings and product data submittals specified below at the same time as a package.

B. Shop Drawings must include:

1. Bill of materials.
2. Product data sheets for system components highlighted to indicate the specific products, features, or functions required to meet this specification. Alternate or as-equal products submitted under this section must provide a detailed line-by-line comparison of how the submitted product meets, exceeds, or does not comply with this specification.
3. Composite wiring and/or schematic diagrams of the complete system as proposed to be installed (standard diagrams will not be accepted).
4. Shop drawings floor plans at 1/8" scale showing system details including location of FACP, all devices, circuiting and details of graphic annunciator.
5. Operating instructions for FACPs.
6. Product certification signed by the manufacturer of the fire alarm system components certifying that their products comply with indicated requirements.
7. Submission to the New York City Building Department and the New York City Fire Department: In addition to routine submission of the above material, make an identical submission to the Commissioner. Include copies of shop drawings as required to depict component locations to facilitate review. Upon receipt of comments from the Commissioner, make resubmissions if required to make clarifications or revisions to obtain approval.

C. Product Data:

1. Catalog sheets, specifications and installation instructions.
2. Name, address and telephone number of nearest certified manufacturer’s representative.

D. Quality Control Submittals:

1. Copy of license for installing fire alarm system.

E. Contract Close-out Submittals:

1. Test Report:

a. System acceptance test report.
b. NFPA 72 letter of completion.

2. Certificate: Affidavit, signed by the manufacturer and Contractor, certifying that the equipment and system installation meets manufacturer’s requirements and the contract requirements, and is operating properly.

PART 2 - PRODUCTS

2.1 MANUFACTURER

A. Sole Source Manufacturer: Siemens

1. No Substitutions Permitted.

2.2 EQUIPMENT AND MATERIAL, GENERAL

A. All equipment and components must be new. The materials, appliances, equipment and devices must be tested and listed by a nationally recognized approvals agency for use as part of a protective signaling system, meeting the National Fire Alarm Code.

B. All equipment and components must be installed in strict compliance with manufacturers' recommendations. Consult the manufacturer's authorized distributor for all wiring diagrams, schematics, physical equipment sizes, etc., before beginning system installation.

C. All equipment must be attached to walls and ceiling/floor assemblies and must be held firmly in place (e.g., detectors must not be supported solely by suspended ceilings). Fasteners and supports must be adequate to support the required load.

2.3 CONDUIT AND WIRE

A. Conduit:

1. Conduit must be in accordance with The National Electrical Code (NEC).
2. Where required, all wiring must be installed in conduit or raceway. Conduit fill must not exceed 40 percent of interior cross-sectional area where three or more cables are contained within a single conduit.
3. Cable must be separated from any open conductors of power, or Class 1 circuits, and must not be placed in any conduit, junction box or raceway containing these conductors, per NEC Article 760.
4. Wiring for 24 volt DC control, alarm notification, emergency communication and similar power-limited auxiliary functions may be run in the same conduit as initiating and signaling line circuits. All circuits must be provided with transient suppression devices and the system must be designed to permit simultaneous operation of all circuits without interference or loss of signals.
5. Conduit must not enter the top of fire alarm control panel, or any other remotely mounted control panel equipment or back boxes, except where conduit entry is specified by the FACP manufacturer.
6. Conduit must be 3/4-inch (19.1 mm) minimum.

B. Wire:

1. All fire alarm system wiring must be new.
2. Wiring must be in accordance with New York City Building Code Section 907 and NEC Article 760 and as recommended by the manufacturer of the fire alarm system. Number and size of conductors must be as recommended by the fire

alarm system manufacturer, but not less than 16 AWG for Initiating Device Circuits, Signaling Line Circuits, and Notification Appliance Circuits.

3. All wire and cable must be listed and/or approved by a recognized testing agency for use with a protective signaling system and approved for use in New York City.
4. Wiring used for the multiplex communication circuit (SLC) must be twisted and unshielded and support a minimum wiring distance of 12,500 feet. The design of the system must permit use of IDC and NAC wiring in the same conduit with the SLC communication circuit.
5. All field wiring must be electrically supervised for open circuit and ground fault.
6. The fire alarm control panel must be capable of t-tapping Class B (NFPA Style 4) Signaling Line Circuits (SLCs). Systems that do not allow or have restrictions in, for example, the amount of t-taps, length of t-taps etc., are not acceptable.
7. Installation, core drilling, cable, conduit, fire stopping etc. to be in accordance with NYC Electrical Code and all applicable codes as required for a complete and operational system.

C. Terminal Boxes, Junction Boxes and Cabinets:

1. All boxes and cabinets must be UL listed for their use and purpose.

2.4 SYSTEM COMPONENTS

A. All the system components must be manufactured by fire alarm system manufacturer.

2.5 SYSTEM COMPONENTS - ADDRESSABLE DEVICES

A. Addressable Devices - General

1. Detectors must be intelligent (analog) and addressable and must connect with two wires to the fire alarm control panel Signaling Line Circuits.
2. The detectors must provide a test means whereby they will simulate an alarm condition and report that condition to the control panel. Such a test may be initiated at the detector itself (by activating a magnetic switch) or initiated remotely on command from the control panel.
3. Detectors must also store an internal identifying type code that the control panel must use to identify the type of device (ION, PHOTO).
4. Detectors will operate in an analog fashion, where the detector simply measures its designed environment variable and transmits an analog value to the FACP based on real-time measured values. The FACP software, not the detector, must make the alarm/normal decision, thereby allowing the sensitivity of each detector to be set in the FACP program and allowing the system operator to view the current analog value of each detector.
5. Addressable modules must mount in a 4-inch square (101.6 mm square), 2-1/8 inch (54 mm) deep electrical box. An optional surface mount Lexan enclosure must be available.

B. Intelligent Duct Smoke Detector

1. The smoke detector housing must accommodate either an intelligent ionization detector or an intelligent photoelectric detector, of that provides continuous analog monitoring and alarm verification from the panel.
2. When sufficient smoke is sensed, an alarm signal is initiated at the FACP, and appropriate action taken to change over air handling systems to help prevent the rapid distribution of toxic smoke and fire gases throughout the areas served by the duct system.

C. Addressable Dry Contact Monitor Module

1. Addressable monitor modules must be provided to connect one supervised IDC zone of conventional alarm initiating devices (any N.O. dry contact device) to one of the fire alarm control panel SLCs.
2. The IDC zone must be suitable for Style D or Style B operation. An LED must be provided that must flash under normal conditions, indicating that the monitor module is operational and in regular communication with the control panel.
3. For difficult to reach areas, the monitor module must be available in a miniature package and must be no larger than 2-3/4 inch (70 mm) x 1-1/4 inch (31.7 mm) x 1/2 inch (12.7 mm). This version need not include Style D or an LED.
4. For multiple dry contact monitoring a module must be available that provides 10 Style B or 5 Style D input circuits.

D. Addressable Control Module

1. Addressable control modules must be provided to supervise and control the operation of one conventional NACs of compatible, 24 VDC powered polarized audio/visual notification appliances.
2. The control modules NAC may be wired for Style Z or Style Y (Class A/B) with a current rating of 2 Amps for Style Z and 3 Amps for Style Y. For speaker applications the modules is rated for 50 watts at 25 or 70.7 Vrms.
3. Audio/visual power must be provided by a separate supervised power circuit from the main fire alarm control panel or from a supervised UL listed remote power supply.
4. For multiple circuit control a module must be available that provides 6 Style B or 3 Style D control circuits.

E. Addressable Relay Module

1. Addressable Relay Modules must be available for HVAC control and other building functions. The module must provide two from C relays rated at up to 3 Amps resistive and up to 2.0 Amps inductive. The relay coil must be magnetically latched to reduce wiring connection requirements. And to ensure that 100% of all auxiliary devices energized at the same time on the same pair of wires.
2. For multiple relay control a modules must be available that provides 6 programmable Form-C relays.

F. Addressable Releasing Control Module

1. An addressable FlashScan releasing module must be available to supervise and control compatible releasing agent solenoids.
2. The modules must operate on a redundant protocol for added protection.
3. The module must be configurable for Style Z or Style Y (Class A/B) and support one 24 volt or two 12 volt solenoids.

PART 3 - EXECUTION

3.1 EXECUTION REQUIREMENTS

A. Refer to DDC General Conditions for execution requirements.

3.2 INSPECTION

A. Contractor must examine location where Temporal 3 Manual/Automatic Fire Alarm System and all components are to be installed and notify the Commissioner in writing of conditions detrimental to proper and timely completion of the work.

B. Do not proceed with the work until unsatisfactory conditions have been corrected.

3.3 INSTALLATION

A. Install system components and all associated devices in accordance with NFPA 72 and manufacturer's recommendations.

B. Coordination with other trades as necessary to interface installation of Temporal 3 Manual/Automatic Fire Alarm System and components with other equipment, systems.

C. Installation personnel must be supervised by persons who are qualified and experienced in the installation, inspection, and testing of Temporal 3 Manual/Automatic Fire Alarm System. Examples of qualified personnel must include, but not be limited to, the following:

1. Certified company personnel.
2. National Institute of Certification in Engineering Technologies (NICET) fire alarm level II certified personnel.
3. Personnel licensed or certified by State of New York.

D. System Wiring: Wire/cable must be a type listed for its intended use and must be installed in accordance with the appropriate articles from the current approved edition of NFPA 70: National Electric Code (NEC). The wire/cable must be NYC approved fire alarm fire rate cable. All wire/cable must be installed in Rigid Steel Conduit.

E. Contractor must obtain from the Temporal 3 Manual/Automatic Fire Alarm System Manufacturer written instruction regarding the appropriate wire/cable to be used for this installation. No deviation from the written instruction must be made by the Contractor without the prior written approval of the Fire Alarm System Manufacturer and the Commissioner.

F. Fasten equipment to structural members of building or metal supports attached to structure, or to concrete surfaces.

G. Independently bundle and support all exposed fire alarm cable at a maximum distance of 5'-0" with approved listed hangers.

H. Install all equipment and devices in accordance with manufacturer's recommendations including spacing, suitability for application (i.e., air changes, etc.).

I. Smoke Sensors, Detectors, Multi-Criteria Intelligent Detectors, etc.

1. Furnish and install smoke sensors at locations where shown on the Drawings or called for in the Specifications.
2. Smoke sensors must be surface or semi-flush mounted at designated locations.
3. In general, smoke sensors must be mounted on ceilings and walls. The Contractor must furnish and install a suitable surface or semi-flush backbox to which the sensor must be mounted.
4. Do not install smoke sensor heads until the Work (including cleaning) of all trades in the building has been completed. Protect all installed smoke sensor/detector heads from airborne dust and debris, with plastic bags, until the final acceptance test. Any sensor cleaning costs, necessitated by failure to protect the smoke sensor/detector heads, is the responsibility of the Contractor.
5. Install smoke sensors not less than three feet from air diffusers.

J. Duct Smoke Sensors, Remote LED, and Test Switch

1. The Contractor must furnish the duct smoke sensors.
2. The Contractor must coordinate with the work of other trades for the installation of the duct smoke sensor housings.
3. Provide holes in the ductwork for duct smoke sensor sampling and reference tubes, where shown on the HVAC Drawings.
4. Provide the actual installation of the duct smoke sensor/detector housings and sampling and reference tubes on and into the ductwork, where shown on the HVAC Drawings.
5. All sampling and reference tubes must be cut to fit the interior dimensions of the ductwork being penetrated and in a manner that meets the manufacturer's criterion for an acceptable and working arrangement.
6. Coordinate with HVAC for locations of the duct smoke sensors, in order to provide adequate conduit, wiring and connections.
7. Do not install duct smoke sensor heads until the Work (including cleaning) of all trades in the building has been completed and the air handling systems have been run for a minimum of four (4) hours. Protect all installed duct smoke sensor heads from duct airborne dust and debris, with plastic bags, until the final acceptance test. Any sensor cleaning costs, necessitated by failure to protect the duct smoke sensor heads, is the responsibility of the Contractor.
8. Provide installation in accordance with New York City Building Code RS134-4.
9. Remote LED and test switch for duct smoke sensors: Locate flush, on the hung ceiling in the corridor space immediately adjacent to the duct smoke sensors they monitor and surface mounted, on a column or wall at 5 feet above the floor in

mechanical spaces. Provide conduit from remote LED to the duct smoke sensors they monitor.

K. Wiring

1. All wiring must be:

   a. Of the size and configuration type recommended by the manufacturer for each type of circuit in the system and meet the requirements below listed in "b" through “i.”
   b. Copper conductors only fire rated for use without conduit in horizontal runs. Aluminum conductors or copper clad, plated or coated aluminum conductors will not be acceptable.
   c. Color-code fire alarm conductors differently from the normal building power wiring. Use one color code for alarm initiating device circuits wiring and a different color code for supervisory circuits. Color-code notification appliance circuits differently from alarm-initiating circuits. Paint fire alarm system junction boxes and covers red.
   d. Color coded throughout.
   e. Alternating circuits for audible and visual alarms must be provided so that the loss of a portion of the wiring on a floor will not render more than 60% of each type of device inoperable.
   f. In conformance with the National Electrical Code standards.
   g. A minimum of No. 16 A.W.G., unless otherwise noted.
   h. THWN/THHN insulated for wire conductor sizes of 10 A.W.G. and physically larger.
   i. TFFN/TFN insulated for, wire conductor sizes of 12 A.W.G. and physically smaller.
   j. Multiconductor cables: Type FPLP, with minimum insulation thickness of 15 mills; minimum temperature of 150°C; colored red; red color jacket overall, minimum thickness 25 mills; cable printing per UL 1424, with the additional description: “ALSO CLASSIFIED NYC CERT. FIRE ALARM CABLE” legible without removing the jacket.
   k. Power conductors must not be installed in common raceways with low voltage conductors.

2. All wires must test free from grounds and crosses between conductors.
3. A ground wire equal in size to the largest conductor used on the system, but not less than No. 10 A.W.G., attached to the FACP, must be installed in ¾” Rigid Steel Conduit and securely connected to the “grounding bus bar” in the same manner as the other ground wires. Ground FACP at cold water main as required by NYCBC.
4. Circuit wiring from the FACP and remote devices to the system peripheral equipment must be a minimum of the following:

   a. Data communications and power wiring to the remote annunciator panel from the Fire Alarm Control Panel (FACP): Two (2) No. 18 A.W.G., twisted

and shielded, copper conductors and two (2) No. 14 A.W.G., copper conductors.

b. Each multiple addressable peripherals network (MAPNET) data communications circuit from the FACP: Two (2) cables, each with two (2) No. 18 A.W.G., twisted and shielded, copper conductors.
c. Each Zone Addressable Module power circuit from the FACP: Two (2) No. 14 A.W.G., copper conductors.
d. Each alarm initiating, supervisory or status monitoring circuit from the FACP/Node Panel: Two (2) No. 14 A.WG., copper conductors.
e. Each alarm horn/strobe circuit from the FACP/Panel: Two (2) No. 14 A.W.G., copper conductors.
f. Each control circuit from the FACP/Node Panel: Two (2) No. 14 A.W.G., copper conductors.
g. Each alarm mitigating, supervisory or status monitoring circuit from a Monitor Zone Addressable Module (MZAM): Two (2) No. 16 A. W. G., copper conductors.
h. Each control circuit from a Control Zone Addressable Module (CZAM): Two (2) No. 14 A.W.G., copper conductors.
i. Magnetic door holders – Two (2) No. 12 AWG and one (1) No. 12 ground copper conductors for each floor.

5. Each conductor must be identified with wire markers (alpha-numeric) at every splice and terminal point. Attach permanent wire marker within 2 inches of the wire terminators. Marker legends must be visible. Utilize consistent color code for fire alarm system conductors throughout. The contractor must submit for approval prior to installation of wire, a proposed color code for system conductors to allow rapid identification of circuit types.
6. Wiring for addressable devices must be NFPA 72 style 4. Wiring for data communication must be style 7.
7. Wiring within sub-panels must be arranged and routed to allow accessibility to equipment for adjustment and maintenance.

L. Conduit and Raceways

1. All wiring must be installed in rigid steel conduit and where required by the NYC Building Code and NYC Fire Department.
2. All conduits must be grounded to a water main by approved ground clamps or by other means conforming with the National Electrical Code with a conductor equal in size the largest conductor in the system, but in no case must ground conductor be smaller than No. 10 A.W.G.
3. All penetrations of floor slabs and firewalls must be fire stopped in accordance with a listed UL firestopping assembly.
4. Fire alarm system terminal and junction locations must be identified in accordance with NFPA Standard 70, Section 760-3. Terminal and junction boxes must be painted red and stenciled in white letters "FIRE ALARM", preventing unintentional interference with the fire alarm system wiring during testing, servicing and additional modifications to the system.

5. Install conduit parallel with or at right angles to building lines. Where conditions permit, maintain continuous exposed horizontal runs along wall at minimum height of 9 feet above floor level or grade.
6. Permanently label or mark at both ends of each wire. Conduit and junction box labels must be permanent and conform to the requirements of the National Electric Code, Art. 760.
7. Make elbows, offsets and beds uniform and symmetrical. Bend conduit with approved bending devices.
8. Cut conduit ends square, ream and remove burrs. Conduit must be clean, dry, and free of debris. Immediately after installation, plug or cap exposed ends with standard accessories until wires are pulled.
9. Use flexible conduit to make connections to equipment subject to vibrations. Use liquid tight flexible metal conduit where conduit and fittings are installed outdoors or exposed to moisture or chemical fumes indoors. Flexible conduit may not be used in lengths exceeding four feet for other equipment.

M. End of line-devices (resistors, diodes, capacitors, etc.) must be furnished as required for mounting as directed by the manufacturer.

N. Devices

1. Relays and other devices to be mounted in auxiliary panels are to be securely fastened to avoid false indications and failures due to shock or vibration.
2. Wiring within sub-panels must be arranged and routed to allow accessibility to equipment for adjustment and maintenance.

O. Splices and Cable Terminations

1. All splices must be made using solderless connectors or compression type terminal strips. All connectors must be installed in conformance with the manufacturer’s recommendations.
2. Crimp-on type spade lugs must be used for terminations of stranded conductors to binder screw or stud type terminals. Spade lugs must have upset legs and insulation sleeves sized for the conductors.

P. Boxes, Enclosures and Wiring Devices

1. Boxes must be red with red covers and must be installed plumb and firmly in position.

    a. Extension rings with blank covers must be installed on junction boxes where required.
    b. Junction boxes served by concealed conduit must be flush mounted.
    c. Upon initial installation, all wiring outlets, junction, pull and outlet boxes must have dust covers installed. Dust covers must not be removed until wiring installation when permanent dust covers or devices are installed.
    d. “Fire alarm system” decal or silk-screened label must be applied to all junction box covers.

Q. All final connections between the FACP and all circuit wiring must be made under the supervision of a manufacturer's technical representative.

R. System's Programming Requirements

1. Description for the fire alarm control panel must utilize room/space designations and numbers to be used by the facility after occupancy. Descriptors to be approved by the Commissioner.
2. Contractor must include three (3) fire alarm system reprogrammings of the Fire Alarm Control Panel (FACP) as directed by the Commissioner.

3.4 FIELD QUALITY CONTROL

A. Upon completion of the installation, all debris created by the installation must be removed from the premises or disposed of as directed by the Commissioner.

B. Prior to the final acceptance test, contractor must test the completed system for proper operation. The system must be demonstrated to perform all of the specified functions. Any system, equipment or wiring failures discovered during said test must be restored or replaced before requesting scheduling of the final acceptance test. Prepare and submit complete (8) test reports signed by testing firm and Fire Alarm System Installer.

C. The system must be tested for final acceptance in the presence of the Commissioner, Contractor's representative and the Manufacturer's representative.

D. During the final acceptance test:

1. Test in accordance with NFPA 72.
2. Every manual fire alarm station must be tested.
3. Every smoke sensor/detector must be tested using real smoke or manufacturer approved method.
4. Every Carbon Monoxide sensor/detector must be tested by manufacturer approved method.
5. All sprinkler system waterflow alarm switches must be tested by flowing water.
6. All other alarm initiating devices must be activated to their alarm state.
7. All sprinkler system valve tamper switches must be tested by closing sprinkler valves.
8. All other supervised devices must be activated to their off-normal position or state.
9. Every audible alarm signaling device must be sounded.
10. Every visual alarm signaling device must be flashed.
11. Every system control function must be tested for its proper operation.
12. All supervised circuits must be opened at two (2) locations to test for proper supervision.
13. Actuate all manual initiating devices one at a time and verify proper operation.
14. Verify installation and operation of:

    a. Operation of all signaling and indication systems as specified.
    b. Operations of safety interlock, by-passes and resets.

c. Remote LED and test switches for duct smoke sensors.
d. Fire Smoke Dampers

E. Correct or adjust items not found acceptable by the Commissioner.

F. Repeat tests to indicate corrected items.

1. In addition to the testing specified to be performed by the contractor, the installation must be subject to test by the Commissioner.
2. System wiring: fire alarm circuits must be tested for continuity, grounds, and short circuits.

G. Acceptance Testing

1. The Contractor must conduct system acceptance testing.
2. A written Acceptance Test Procedure (ATP) for testing the fire alarm system components and installation must be prepared by the Contractor in accordance with NFPA 72 and this Specification. The contractor must be responsible for the performance of the ATP, demonstrating the function of the system and verifying the correct operation of all system components, circuits, and programming before Commissioner's final acceptance. Prior to acceptance testing, the contractor must complete and submit the "Record of Completion" form as identified in NFPA 72 Figure 1-6.2.1.
3. An acceptance test of the fire alarm system must be conducted by the contractor and the fire alarm equipment vendor as directed by the Commissioner after the fire alarm equipment vendor has performed a 100% test of the system.
4. In the event of system failure to perform as specified and programmed during the ATP procedure, at the discretion of the acceptance inspector, the test must be terminated.

    a. Retest the system, correcting all deficiencies and providing test documentation to the acceptance inspector.
    b. The acceptance Inspector may require the complete ATP to be performed again if, in the inspector's judgment, modifications to the system hardware or software warrant full retesting.

5. The acceptance inspector must be notified before the start of the required tests. All items found at variance with the drawings or this specification during testing or inspection by the acceptance inspector must be corrected.
6. Test reports must be delivered to the acceptance inspector as completed.

H. Upon successful completion of all final acceptance tests, the Contractor's and Manufacturer's representatives must each author and sign a letter confirming the successful completion of testing. Two (2) copies of each letter must be forwarded to the Commissioner and NYC Fire Department.

I. All final acceptance testing must be done at a time convenient to the Commissioner and the NYC Fire Department and all testing costs must be borne by the Contractor.

J. Coordinate all testing of fan shutdown fire/smoke damper closure and smoke control with HVAC trade.

3.5 INSTRUCTION

A. Manufacturer must provide the City of New York with complete, printed operating instructions and brief sub-system description in manual or handbook form.

B. The Contractor and manufacturer's Company Field Advisor must provide four (4) distinct instruction sessions, with minimum instruction time of two (2) days for each session. Sessions must be scheduled at jobsite location determined by the Commissioner prior to start of guarantee period. Instruction must include:

1. Instruction in the receipt, handling and acknowledgment of alarms.
2. Instruction in the system operation including manual control of output functions from the system control panel.
3. Instruction in the testing of the system including logging of detector sensitivity, field test of devices and response to common troubles.
4. The total instruction requirement must be a minimum of 40 hours, and must be sufficient to cover all items specified.

END OF SECTION - 28 46 00

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

# ADDENDA CONTROL SHEET

BID SUBMISSION DATE/ TIME: May 28, 2026; between 11:30am and 2:00pm
BID OPENING DATE/ TIME: May 28, 2026; 2:30pm

PROJECT No. : **CO294RF**

TITLE: **Bronx Family Criminal Courthouse Roof Upgrade**

| ADDENDA ISSUED | NO. OF DWG | DATE | APPROVED BY: ARCHITECTURE/ ENGINEERING | APPROVED BY: GENERAL COUNSEL |
|---|---|---|---|---|
| #1 Questions from Bidders and Responses to Questions; Revisions to Documents; Revisions to PASSPort Forms | | 5/20/2026 | SZ | SM 5/20/26 |
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THE CITY OF NEW YORK
DEPARTMENT OF DESIGN AND CONSTRUCTION
DIVISION OF PUBLIC BUILDINGS

**May 20, 2026**

# ADDENDUM No. # 1

FOR FURNISHING ALL LABOR AND MATERIAL NECESSARY AND REQUIRED FOR:

85026B0088 – CO294RF

## Bronx Family Criminal Courthouse Roof 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. (Not Used)

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

3. **Revisions to PASSPort forms:**
   See Attachment C.

Transferring Data Between Rounds of an RFX: A new document titled "Transferring Data Between Rounds of an RFX" has been added to the Documents section of the View RFx tab. Please refer to this document when an addendum has been issued. Note: Whenever an addendum is issued, the RFX item grid will be cleared. You can import the work you have already done by following the steps on this document.

DDC strongly advises vendors to finalize and submit bids 48 hours prior to due date and time. The City is not responsible for technical issues (e.g. internet connection, power outages, technology malfunction, computer errors, etc.) related to bid submissions.

If additional information is required, please contact the Department of Design and Construction, Contract Section via PASSPort (in the Discussions with Buyer section).

Richard Jones, PE CWI CDT
Chief Engineer

***DDC PROJECT #:*** **CO294RF**

**PROJECT NAME:** **Bronx Family Criminal Courthouse Roof Upgrade**

**ATTACHMENT A - BIDDERS QUESTIONS AND DDC RESPONSES**

NOT USED

***DDC PROJECT #:*** **CO294RF**

**PROJECT NAME:** **Bronx Family Criminal Courthouse Roof Upgrade**

**ATTACHMENT B – REVISIONS TO THE DOCUMENTS**

**Revisions to Volume 3:**
Addendum to the General Conditions, Additional Sections/ Sub-Sections:

- Added Section 1.16 related to Temporary Roof Protection

***DDC PROJECT #:*** **CO294RF**

**PROJECT NAME:** **Bronx Family Criminal Courthouse Roof Upgrade**

**ATTACHMENT C – REVISIONS TO PASSPORT FORMS**

# This Addendum initiates Round 2 of the procurement.

*Please note that numbering of addenda is independent of rounds.*

**Questionnaire Changes:**

None

**Item Grid Changes:**

Unit Price Schedule for Extra Work: items added for Temporary Roof Protection

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

# ADDENDA CONTROL SHEET

BID SUBMISSION DATE/ TIME: May 28, 2026; between 11:30am and 2:00pm
BID OPENING DATE/ TIME: May 28, 2026; 2:30pm

PROJECT No. : **CO294RF**

TITLE: **Bronx Family Criminal Courthouse Roof Upgrade**

| ADDENDA ISSUED | NO. OF DWG | DATE | APPROVED BY: ARCHITECTURE/ ENGINEERING | GENERAL COUNSEL |
|---|---|---|---|---|
| #1 Questions from Bidders and Responses to Questions; Revisions to Documents; Revisions to PASSPort Forms | | 5/20/2026 | | |
| #2 Questions from Bidders and Responses to Questions; Revisions to Documents; Revisions to PASSPort Forms | | 5/26/2026 | SJ | SM 5/26/26 |
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THE CITY OF NEW YORK
DEPARTMENT OF DESIGN AND CONSTRUCTION
DIVISION OF PUBLIC BUILDINGS

**May 26, 2026**

# ADDENDUM No. # 2

FOR FURNISHING ALL LABOR AND MATERIAL NECESSARY AND REQUIRED FOR:

85026B0088 – CO294RF

## Bronx Family Criminal Courthouse Roof 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 Documents:**
   See Attachment B. (Not Used)

3. **Revisions to PASSPort forms:**
   See Attachment C.

DDC strongly advises vendors to finalize and submit bids 48 hours prior to due date and time. The City is not responsible for technical issues (e.g. internet connection, power outages, technology malfunction, computer errors, etc.) related to bid submissions.

If additional information is required, please contact the Department of Design and Construction, Contract Section via PASSPort (in the Discussions with Buyer section).

Richard Jones, PE CWI CDT
Chief Engineer

***DDC PROJECT #:*** **CO294RF**

**PROJECT NAME:** **Bronx Family Criminal Courthouse Roof Upgrade**

**ATTACHMENT A - BIDDERS QUESTIONS AND DDC RESPONSES**

| No. | Bidders Questions | DDC Responses |
|---|---|---|
| 1 | Please advise if an allowance should be included for disconnecting and reconnecting plumbing, electrical and HVAC. | An allowance is not included for disconnecting and reconnecting MEP on the 10th Floor Mechanical Room. Contractors will be responsible in their base bid for the cost to make concrete spall and crack repairs with finish coatings as per any work restrictions outlined in the Contract and shown on the Drawings. |
| 2 | The Drawings do not depict the obstructions present for the under-slab patching. | The Drawings depict the under-slab obstructions on Sheet PH-016. |
| 3 | Refer to Drawing A-100, Detail '2' shows two different configurations for Roof Type A (one for edges/drains & other for typical sealed panels). Please clarify which specific detail applies to the overall Roof Type A assembly? | Refer to Drawing A-100, Detail 2. The intent is that both configurations shown apply to Roof Type A, depending on location within the roof assembly.<br><br>For edges and drains, the applicable configuration is the left side of Detail 2/A-100 Roof Type A, which is labeled “Filler at edges and drains.” This condition governs roof edges and drain areas and utilizes polyiso rigid insulation.<br><br>For the field/typical roof areas, the applicable configuration is the right side of Detail 2/A-100 Roof Type A, labeled “Typical w/ fixed-sized sealed panels,” which governs the general roof field and utilizes sealed VIP insulation panels. |
| 4 | Refer to Drawing DM-102, ACM summary shows the roof membrane, screed, and ballast at Roof 9 as ACM; however, Drawing H004 does not show this roof removal under the ACM scope. Please clarify which Drawing governs? | For ACM scope, the “H” Drawings supersede architectural “DM” or “A” Drawings. |
| 5 | Refer to Drawing A-100, Details 2 and 3 show 15% a screed surface; however, Note 1 on Drawing A-101 shows a 20% screed surface. Please clarify which percentage governs the scope? | Please allocate 15% of total roof areas for concrete screed repairs before application of roofing systems. |
| 6 | Please provide the existing vendor contact info of fire alarm and BMS control. | **Fire Alarm Vendo**r: Everon Solutions<br>Contact Name: Carlos Henandez;<br>HernandezCarlos@everonsolutions.com<br><br>**BMS Vendor**: Honeywell Building Solutions<br>Contact Name: Sean Casey;<br>sean.casey@honeywell.com |

***DDC PROJECT #:*** **CO294RF**

**PROJECT NAME:** **Bronx Family Criminal Courthouse Roof Upgrade**

**ATTACHMENT B – REVISIONS TO THE DOCUMENTS**

NOT USED

***DDC PROJECT #:*** **CO294RF**

**PROJECT NAME:** **Bronx Family Criminal Courthouse Roof Upgrade**

**ATTACHMENT C – REVISIONS TO PASSPORT FORMS**

# This Addendum is included within Round 2 of the procurement.

*Please note that numbering of addenda is independent of rounds.*

**Questionnaire Changes:**

None

**Item Grid Changes:**

None

FMS ID: **CO294RF**


**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/ddc


Department of Design and Construction

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

**CONTRACT NO. 1 GENERAL CONSTRUCTION WORK**

# Bronx Family Criminal Courthouse Roof Upgrade

**LOCATION:** **215 East 161 Street**
**BOROUGH:** **Bronx, New York 10451**
**CITY OF NEW YORK**

Contractor

Dated _____ , 20 _____

Entered in the Comptroller's Office

First Assistant Bookkeeper

Dated _____ , 20 _____