PROJECT MANUAL

FOR:

BBR HSMS HVAC – RSS Drainage Improvements

at

Blind Brook-Rye HMS & Ridge Street School

BLIND BROOK-RYE UNION FREE SCHOOL DISTRICT
TOWN OF RYE BROOK, WESTCHESTER COUNTY

NEW YORK STATE EDUCATION DEPARTMENT NUMBER:

RSS S.E.D. No. 66-19-05-02-0-001-017
HSMS S.E.D. No. 66-19-05-02-0-002-019

B.B.S. PROJECT NUMBER:

24-353

SED SUBMISSION DATE:

MARCH 28, 2025

BBS

ARCHITECTS
LANDSCAPE ARCHITECTS
ENGINEERS

244 EAST MAIN STREET
PATCHOGUE
NEW YORK 11772
T. 631.475.0349
F. 631.475.0361

100 GREAT OAKS BLVD. SUITE 115
ALBANY
NEW YORK 12205
T. 518.621.7650
F. 518.621.7655

www.BBSARCHITECTURE.COM

ARCHITECTS CERTIFICATION

THE UNDERSIGNED CERTIFIES THAT TO THE BEST OF HIS KNOWLEDGE, INFORMATION, AND BELIEF, THE PLANS AND SPECIFICATIONS ARE IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF THE NEW YORK STATE UNIFORM FIRE PREVENTION AND BUILDING CODE, THE NEW YORK STATE ENERGY CONSERVATION CONSTRUCTION CODE, THE CONSTRUCTION STANDARDS OF THE EDUCATION DEPARTMENT, NEW YORK STATE DEPARTMENT OF LABOR RULE 56, EPA AND AHERA REQUIREMENTS.

John Prentice, A.I.A. Lic. No. 029824



exp.4/30/2027

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PROJECT DIRECTORY

Architects/Engineers:	BBS Architects, Landscape Architects and Engineers, P.C. 244 East Main Street Patchogue, NY 11772 (631) 475-0349 (631) 475-0361 Fax
Superintendent of Schools:	Dr. Colin Byrne 390 North Ridge Street Rye Brook, NY 10573 (914) 937-3600 ext. 1002
Assistant Superintendent for Finance & Facilities:	Laurie Baum 390 North Ridge Street Rye Brook, NY 10573 (914) 937-3600 ext. 1003
District Counsel:	Guercio & Guercio, LLP 77 Conklin Street Farmingdale, NY 11735 (516) 694-3000 (516) 694-4738 Fax

Invitation to Bidders

BOARD OF EDUCATION
Blind Brook-Rye Union Free School District

PUBLIC NOTICE: is hereby given for separate contract sealed bids for: **The BBR HSMS HVAC at the Blind Brook UFSD.** Bids will be received by the School District, on **July 22, 2025** at **11:00 a.m.** in the **District Administration Office, at 390 North Ridge Street, Rye Brook, New York, 10573**, and at said time and place publicly opened and read aloud.

Beginning **July 7, 2025,** the Contract Documents may be examined at the Office of the Architect, **BBS Architects, Landscape Architects and Engineers, P.C., 244 East Main Street, Patchogue New York, (631-475-0349)**. Complete digital sets of Contract Documents may be obtained online as a download for a **non-refundable fee of One-Hundred ($100.00) Dollars** at the following website: bbs.biddyhq.com. Optionally, in lieu of digital copies, hard copies may be obtained through **Biddy c/o Lohrius Blueprint, 226 Newtown Road, Plainview, NY 11803 (516-465-2880)** upon a **deposit of One-Hundred ($100.00) Dollars** for each complete set. **Checks for deposits shall be made payable to the Blind Brook-Rye UNION FREE SCHOOL DISTRICT** and may be uncertified. All bid addenda will be transmitted to registered plan holders via email and will be available at the above referenced websites. Any bidder requiring documents to be shipped shall make arrangements with the printer and pay for all packaging and shipping costs. Plan holders who have obtained hard copies of the bid documents will need to make the determination if hard copies of the addenda are required for their use, and coordinate directly with the printer for hard copies of addenda to be issued. There will be no charge for registered plan holders to obtain hard copies of the bid addenda. The bid deposit for hard copies will be returned upon receipt of plans and specifications, in good condition, within thirty days after bid date, except for the lowest responsible bidder, whose check will be forfeited upon the award of the contract.

A non-mandatory pre-bid site walk through can be scheduled by contacting the District. Refer to the Project Directory for contact information.

The Contract will be awarded to the lowest responsible bidder or the proposals will be rejected within 45 days of the date of opening proposals. Bids shall be subject, however, to the discretionary right reserved by the School District to waive any informalities, accept or reject any alternatives, reject any proposals and to advertise for new proposals, if in its opinion the best interest of the School District will thereby be promoted.

Each bidder may not withdraw his bid within 45 days after the formal opening thereof. A bidder may withdraw his bid only in writing and prior to the bid opening date.

By Order of:
The Board of Education
Blind Brook-Rye Union Free School District

Dated: **July 7, 2025**

INSTRUCTIONS TO BIDDERS

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1. DOCUMENTS (ISSUANCE AND RESTRICTIONS)

A. Bid documents may be examined at the applicable office of the Architect, BBS Architects, Landscape Architects & Engineers, P.C., 244 East Main Street, Patchogue New York between the hours of 9 a.m. and 4 p.m. daily except Saturdays, Sundays, and holidays.

B. A deposit, refundable in accordance with the Invitation to Bidders, is required for each set of Bid Documents.

C. Bid documents are comprised of: Instruction to Bidders, Form of Proposal, Contract Forms and Conditions, Addenda issued prior to bid date, and General and Technical requirements of the specifications and drawings.

2. QUALIFICATIONS OF BIDDERS

Bidders will be required to present documentation attesting that they:

A. Have financial capability to produce and execute the project within the time periods specified.

B. Possess a minimum of five (5) years continuous experience as a firm doing business under the same name, engaged principally as a contractor for the work proposed.

C. Have completed at least five similar projects, listing type and scope of work, names and addresses of owners and dates of contract completion. The District has the right to verify the documentation as well as examine other aspects of the bidder's work record.

D. Can provide tabulation of equipment and facilities at their disposal to do this work.

E. Have a current bonding capacity to accommodate proposed work.

F. Have the experienced staff and technical organization for the project.

G. Maintain an office with full-time employees in a commercial space.

H. Intend to complete at least 25 percent of the Work with their own forces. General Conditions, Mobilization, etc. shall not count toward the 25 percent.

I. The Bidder is not currently involved in bankruptcy proceedings.

J. The Bidder is licensed to perform the work they are bidding on in the jurisdiction the work will take place.

K. The Contractor and each Subcontractor must have a minimum of five (5) years experience in the work and/or applicable trade they will provide with their own forces.

L. The bidder shall provide a complete Schedule of Values on an AIA form G703. Said Schedule shall be revised and resubmitted until satisfactory to the Architect. All project phases, activities and work items shall be broken out individually with lines for both labor and materials. In addition to this and to the required retainage, the Schedule of Values must be structured with the following minimum values:

General Conditions:	5% of overall contract value
Bonds and Insurance:	4% of overall contract value
Submittals:	1% of overall contract value
Punch List:	3% of overall contract value
Commissioning (if applicable):	TBD based on specific project
Closeout and O&M Manual:	2% of overall contract value

M. It is assumed that in preparing this bid, the Bidder has already compiled this information, and that it is being made available for reference with completing this package. All information contained above in Items A through L must be submitted to the Architect prior to award of contracts. Failure to provide this information may result in disqualification of bidder.

3. COMPLIANCE WITH APPLICABLE LAWS AND REGULATIONS

A. Bidder must comply with applicable federal, state, and local laws as well as all ordinances, rules, and regulations affecting work.

B. The provisions of General Municipal Law, Section 103A, as it relates to refusal to testify or sign a waiver of immunity against prosecution and the submittal of bids and transactions with the State of New York, or a political subdivision thereof, governs work under this contract.

C. Wage rates as determined by the New York State Industrial Commissioner pursuant to the labor laws of the State of New York apply to all work under this contract.

D. In accordance with the requirements of General Municipal Law § 103-g, the Bidder is required to include with its bid either (1) the “Certification of Compliance with the Iran Divestment Act” or in the case where the bidder is unable to make such certification, (2) the form entitled “Declaration of Bidder’s Inability to Provide Certification of Compliance with the Iran Divestment Act.”

E. In accordance with the requirements of Section 220-i of the New York Labor Law, all contractors and sub-contractors submitting bids or performing construction work on public work projects or private projects covered by Article 8 of the Labor Law are required to register with the New York State Department of Labor (NYSDOL) under Labor Law Section 220-i. The Bidder is required to include with its bid “Labor Law Section 220-i Certification” and include a copy of the Certificate(s) of Registration issued by the Commissioner of the Department of Labor for the bidder and each of its sub-contractors.

4. SINGLE PRIME CONTRACTS

A. Where the project cost does not exceed $1,500,000 and the Owner has decided to solicit bids from one general contractor, the Bidder must submit with its bid a separate sealed list that names each subcontractor that the Bidder will use to perform Work on the Contract, and the agreed-upon amount to be paid to each, for: (A) plumbing and gas fitting; (B) steam heating, hot water heating, ventilating and air condition apparatus and (C) electric wiring and standard illuminating fixtures.

B. After the low bid is announced, the sealed list of subcontractors submitted with such low bid shall be opened and the names of such subcontractors shall be announced, and thereafter any change of subcontractor or agreed-upon amount to be paid to each shall require the approval of the public owner, upon a showing presented to the public owner of legitimate construction need for such change, which shall be open to public inspection.

5. EXAMINATION OF DOCUMENTS AND SITE

A. Bidder shall visit sites of proposed work and be fully familiarized with conditions as they exist, as well as the character of the operations to be carried on under the proposed contract.

B. Bidder shall make all necessary on-site investigations so as to understand facilities, difficulties, and restrictions attending the execution of the work including access to and conditions of the work sites and properties.

C. Bidder shall examine and be familiar with the documents and forms delineating the work of the contract.

D. Failure to receive or to examine any instrument, document, or to perform appropriate site investigations shall in no way relieve the bidder of responsibility for proposed contract for the consideration set forth in his bid.

6. AMBIGUITIES, INTERPRETATIONS, AND ADDENDA

A. No oral interpretations, instructions, or explanation of the bid documents will be given prior to the opening of the bids. Discrepancies, ambiguities, or doubts as to the intent of the bidding document should be communicated to the Architect in writing for interpretation.

B. Interpretations, clarifications, or corrections will be made in the form of addenda forwarded to each bidder at the address furnished by each bidder and receipt acknowledged on the form of proposal.

7. PRE-BID CONFERENCE

A. When indicated in the Invitation to Bidders, a pre-bid conference will be held, at which time the Architect will have a representative available to respond to questions regarding the bid documents.

B. Addenda clarifying pertinent questions or concerns raised at the pre-bid conference, requiring modification of the bid documents, will be issued for the record and become part of the bid documents.

C. Notice as to the time and place of the pre-bid conference is stated in the Invitation to Bidders.

8. BASIS OF BID – PERFORMANCE AND QUALITY STANDARDS

A. GENERAL: To establish performance and quality standards for the products, materials, and equipment required in the work, the Contract Documents detail performance criteria, or specify two or more items or materials which are presumed to be equal. This method of establishing a level of

quality is not intended to exclude products that are equivalent in quality, performance, appearance, and function to those specified.

B. EQUIVALENTS: The Bidder, at any time, may propose to use in the work an equivalent item in lieu of that specified with NO CHANGE to the Bid Amount. The Bidder, proposing to utilize this equivalent procedure, shall provide a detailed descriptive submission of the proposed material, equipment, or method being offered as equal to those specified, including an explanation of all deviations from the product specified in the Contract Documents. The Bidder is responsible to prove equality and, in that regard, shall supply all additional information requested by the Architect, as well as pay for any required testing to support these claims. Further, the Architect is to be the sole judge of product equivalency for the purpose intended, considering equality, workmanship, aesthetics, services, maintenance, economy, and reliability of operation.

   If the Contractor has used equivalents as the basis of the bid, the "Proposed Equivalent Form", which is included in the Project Manual following the Bid Proposal Form, shall be submitted as an attachment to the Bid Form or within 72 hours after the bid or prior to the award of the contract. This form may be reproduced, if necessary, for a full listing of equivalents to be considered. This does not exclude the Bidder from submitting equivalents after the award of contract. The intent of this process is that, if the Bidder is already aware of an equivalency submission, the risk of acceptance can be reduced by verifying equivalency and, therefore, the bid price prior to award. The risk of whether proposed equivalents are accepted is borne by the Bidder.

   If an equivalent is accepted, the Bidder must coordinate the installation of the equivalent and make all associated changes required. The Bidder also waives any claim for additional cost or contract time associated with the equivalent which becomes apparent before, during, or after installation. The Bidder agrees to bear any and all additional costs to all other contractors or subcontractors which are caused by the incorporation of the equivalent.

C. SUBSTITUTIONS: For consideration by the Owner, the Bidder may propose to use in the work substitute items in lieu of those specified, which do not meet the project performance and quality criteria, and can be furnished and installed at a reduced cost (credit) to the Owner with no impact on the work being done by others.

   1. Proposed substitutions must be submitted with the bid or within 72 hours after the bid or prior to the award of the contract, on the Proposed Substitution Form, which is in the Project Manual following the Proposed Equivalent Form. The Bidder must list any and all deviations from the Contract Documents as well as the corresponding credit amount to be deducted from the Base Bid Proposal if the substitution is accepted by the Owner. This does not exclude the Bidder from submitting a substitution for consideration after the award of Contract.

   2. Substitutions cannot be used as the basis of the bid, they must be listed separately and will be evaluated on a case by case basis. All base bid amounts must be based on the specified materials or acceptable equivalents.

   3. In no way will the proposed substitutions influence the successful bidder selection process. Substitutions may not be used to arrive at the lowest qualified bid amount.

   4. If a substitution is accepted, the Bidder must coordinate the installation of the substitute and make all associated changes required. The Bidder also waives any claim for additional cost or contract time associated with the substitute which becomes apparent before, during, or after installation. The Bidder agrees to bear any and all additional costs to all other contractors or subcontractors which are caused by the incorporation of the substitution.

9. PREPARATION, IDENTIFICATION, AND SUBMISSION OF PROPOSAL

A. Bidders shall submit triplicate copies of Form of Proposal (one marked 'Official Tender' and others marked 'Copy'), properly signed and completed in every respect as per these Instructions to Bidders, in an opaque, sealed envelope plainly and prominently marked:

"Sealed Bid for (Project Name) _____

Bid Date _____, 20___, by (Name/Address of Bidder)."

B. Attached to the Form of Proposal envelope, Bidders shall submit a separate and sealed envelope clearly marked 'Bid Security,' which shall contain copies of the 'Bid Security,' as called for in these Instructions to Bidders. The name and address of the Surety Company providing the Bid Bond shall be written on the outside of the envelope containing the Bid Security.

C. All bids shall be held for a period of forty-five (45) days after their receipt and opening, during which time the Owner has the right to enter into a contract, and the bid securities of the three (3) lowest responsible bidders shall be held until the execution of the Contract.

D. The Owner reserves the right to waive any irregularities in the submission of bids. Once the Form of Proposal has been submitted in the sealed envelope, there shall be no alterations or amendments; external markings or separate supplementary information shall, in no way, affect the sealed bid information. Any necessary adjustment to the proposal shall be made prior to its submission and shall be part of the enclosed sealed bid.

E. A bidder may withdraw his bid, either in person or by telegraphic or written request, at any time prior to the scheduled closing time for the receipt of bids. Negligence on the part of the bidder in preparing his bid confers no right for the withdrawal of the bid after it has been opened.

10. BID SECURITY

A. Proposal must be accompanied by bid security of not less than ten percent (10%) of the amount of bid, which may be a certified check, cashier's check, bank draft, or bid bond executed by a Surety Company authorized to do business in the State of New York and made payable to the Owner.

1. Bid Security shall be submitted in a separate sealed envelope clearly identifying the company and project as well as the name and address of the Surety Company.

2. Each bond must be accompanied by a Power of Attorney, giving names of Attorneys-in-fact, and the extent of their bonding authority. All bonds shall be countersigned by a resident Agent and with a Surety Company or Corporation meeting the following qualifications:

a. Surety must be licensed to do business in the State of New York.

b. Surety shall be listed on the current U.S. Treasury Department Circular 570 entitled "Companies Holding Certificates of Authority" from the Secretary of the Treasury under the Act of Congress approved July 30, 1974 (6 U.S.C., Sec. 6-13), as Acceptable Sureties on Federal Bonds.

c. Surety must meet minimum rating requirements as published in current "Best's Key Rating Guide" as listed below:

1) For contracts not exceeding $250,000, the following shall apply for all bonding companies holding a certified guarantee agreement form, the Small Business Administration (a copy of said agreement must accompany the bond).

Contract Amount	Financial Size Category	Policy Holder Rating
$0-(But not including) $100,000	Class VI	B
$100,000 - (But not including) $250,000	Class VIII	B

2) On all other bonds, the Surety shall be rated as equal to "A" or better as to "Policy Holder Ratings" and "XI" or better as to "Financial Size Category" by "Best's Key Rating Guide."

3) Limitations:

a) Bonding limits or bonding capacity refers to the limit or amount of bond acceptable on any one project.

b) The bonding limit for each contractor shall not exceed the amount listed on the above referenced U.S. Treasury Department List for the Surety issuing the bond.

4) All Surety companies are subject to approval and may be rejected by the Owner without cause, in the same manner that bids may be rejected.

5) Compliance: In the event any of the requirements outlined herein are not complied with, the Owner shall have the right to reject the bid or annul the Award of the Contract.

B. Bid security will be returned to all except the three lowest bidders, after formal analysis and evaluation of bids. No bid will be withheld beyond the forty-five (45) day period stipulated above.

C. Remaining bid security will be returned to bidders after Owner and successful bidder have executed the Agreement and the Owner has received and approved performance and payment bonds.

D. If the required agreement has not been executed within the specified period of time after the bid opening, bid security of any bidder will be returned upon his request, provided he has not been notified of acceptance of his bid prior to the date of his request.

11. RECEIPT AND OPENING OF BIDS

A. Bids will be received up to the time and at the location indicated for the opening in the Invitation to Bidders, after which they will be visibly opened and read aloud, and the contents made known to all interested parties present.

12. MODIFICATION OR WITHDRAWAL OF PROPOSAL

A. Bid may not be modified after it has been deposited with Owner.

B. Bid may not be withdrawn after time set for receipt of bids.

C. Withdrawn bid may not be resubmitted.

D. Bid withdrawn after opening of bids will result in forfeiture of bid security.

13. DISQUALIFICATION OF PROPOSAL

A. The Bidder acknowledges the right of the Owner to reject any or all bids.

B. Bid may be disqualified and rejected under any or all of the following conditions:

1. If the Bidder fails to furnish the required bid security, or to submit data required by the Contract Documents, or if the Bid is in any way incomplete or irregular.
2. If the Bid has not been deposited at the designated location prior to the date and time for receipt as indicated in the Bid Advertisement of these "Instructions to Bidders".
3. If there is reason to believe that a bidder has submitted more than one bid for the same project.
4. Or, if there is reason to believe that collusion exists among the bidders.
5. Failure to establish to Owner's satisfaction:

    a. Proof of ownership, control, or ability to procure necessary plant and equipment to commence the work at the time prescribed and thereafter prosecute and complete at the rate, or within the time specified.
    b. That he is not already obligated by prior commitment to other work as to likely delay start, prosecution, or completion of the work required by the contract.
    c. That he proposes to use reliable and responsible subcontractors or suppliers.

14. AWARD OF CONTRACT

A. The contract will be awarded to the lowest qualified responsible bidder, provided his bid is reasonable and it is in the best interest of the Owner to accept.

B. Owner may determine the lowest bid by adding one base bid to other base bid(s) and/or by adding to or deducting from those base bid(s), additive or deduct alternates, or substitutions, if any, which the Owner elects to accept after the opening of bids.

15. EXECUTION OF CONTRACT

A. Form of Agreement as prepared by Owner shall be Standard Form of Agreement between Owner and Contractor, A.I.A. Form A101.

B. Contracts shall be executed in triplicate within ten (10) days after notification of award at which time the successful contractor shall deliver to the Owner all the necessary counterparts of the Contract in the form set forth in the Bid and Contract Documents.

C. Performance and payment bonds shall be submitted in the form of A.I.A. Document A312, covering performance as well as labor and material payment and extended for the period of time stipulated in Article 11 of the General and/or Supplementary General Conditions, "Bonds and Insurance". An executed bond must be issued by surety company licensed in New York State.

D. At the time of execution of the Contract and prior to the start of construction operations, the successful bidder shall furnish Certification of Insurance in the form and amounts stipulated under the section of the specification describing insurance requirements.

E. Schedule of Values, as per A.I.A. Form G703, provide breakdown of costs.

16. TAXES AND PERMITS

A. Material purchased for use in the construction of buildings owned by the State, County, municipality, or political subdivision are exempt from Federal excise and State sales taxes when such materials are incorporated into and become part of the completed improvement.

B. Materials, appliances, tools, equipment, or fuel costs which do not become part of the completed improvement will be subject to all applicable taxes.

C. The Owner is not subject to Federal Tax on transportation of property.

D. Local Building Permit will not be required.

E. Exemption certificates will be furnished by Owner for purchases of materials where material is to be incorporated into work, upon receipt of a copy of the supplier's invoice showing items, net prices, and federal excise tax separately.

17. SUBCONTRACTOR'S LISTING

A. For multiple prime contracts, a listing of all subcontractors and major material suppliers (including address, telephone number, and name of individual to contact) whose services are proposed to be employed on the project shall be submitted within 15 days after signing of the contract.

18. TIME OF COMPLETION

A. Bidder shall agree to start work on _____, and complete within the number of calendar days specified in the Form of Proposal. Project must be completed by _____.

B. Restrictions, if any, applicable to construction activities in the Owner's facilities as a result of State, Federal or Local orders, laws, regulations or rules, and the duration of any such restrictions, the Owner may modify the construction schedule, including the anticipated start date, set forth in the Contract/Bid Documents. By submitting a bid, the Bidder consents to any such schedule modification and further acknowledges and agrees that there shall be no additional compensation for schedule modifications caused directly or indirectly by such restrictions. The Bidder further acknowledges and agrees that the sole remedy for any schedule modifications or delays caused directly or indirectly by such restrictions shall be an extension of time, to be determined in the sole discretion of the Owner.

19. CONDITIONS OF WORK OPERATIONS

A. Work under Contract shall be executed and pursued without interruption of or interference with the school operations.

B. Work operations, access to buildings, and extent of movement of personnel within buildings shall be coordinated with and limited by School Authorities.

C. Contractor shall notify School Authorities at least 24 hours in advance to advise of intended work operations to be scheduled and receive approval prior to starting work.

20. REQUIRED BID INFORMATION

A. In addition to any other information/documentation required by these Instructions to Bidders or other Bid Documents, the following information/documentation must be submitted with each bid to be considered a complete and responsive bid. Failure to include any required document in the bid submission may lead to disqualification or rejection of a bid, at the sole discretion of the Owner.

1. Bid Proposal Form
2. Proposed Equivalent Form
3. Proposed Substitution Form
4. List of Subcontractors – Provide in a sealed envelope along with bid. (If a Single Prime Contract - See Paragraph 4(A) of these Instructions to Bidders).
5. Iran Divestment Act Forms (Certification of Compliance or Declaration of Inability), signed and notarized.
6. Statement of Bidder's Qualifications

7. Sexual Harassment Prevention Certification
8. Labor Law Section 220-i Certification and NYS DOL Certificates of Contractor Registration
9. Bid Bond/Security
10. Information/documentation required by Paragraph 2 of these Instructions for Bidders and the Statement/Proof of Bidder's Qualifications Form.

END OF SECTION

INFORMATION AVAILABLE TO BIDDERS

BBS Architects, Landscape Architects & Engineers, P.C. (BBS), accepts no responsibility for information contained within the items listed below that have been provided by others.

Any questions concerning information contained within these items shall be forwarded via the standard Request for Information process. BBS will forward these Requests for response by the appropriate party.

A. Pre-Construction Survey, Bulk Sampling and Analysis of Suspect Asbestos Containing Materials – Prepared by JC Broderick & Associates, Inc. 1775 Expressway Drive North – Suite 1, Hauppauge NY 11788 631-584-5492. Document follows this section.

B. Pre-Construction Lead Materials Inspection and Sampling – Prepared by JC Broderick & Associates, Inc. 1775 Expressway Drive North – Suite 1, Hauppauge NY 11788 631-584-5492. Document follows this section.

C. Pre-Construction PCB Inspection and Sampling – Prepared by JC Broderick & Associates, Inc. 1775 Expressway Drive North – Suite 1, Hauppauge NY 11788 631-584-5492. Document follows this section.

D. Site Survey - Prepared by L.K. McLean Associates, P.L.S. 437 South Country Road, Brookhaven, NY 11719, 631-286-8668. Survey of existing conditions (and underground structures and utilities determined from ground penetrating radar) prior to any site construction.

END OF SECTION

BBR HSMS HVAC – RSS Drainage Improvements at the Blind Brook-Rye UFSD

NAME OF BIDDER: _____

BUSINESS ADDRESS: _____

TELEPHONE NUMBER: _____ **DATE OF BID:** _____

The bidder mentioned above declares and certifies:

First: That said bidder is of lawful age and the only one interested in this bid, and that no one other than said bidder has any interest herein.

Second: That this bid is made without any previous understanding, agreement, or connection with any other person, firm, or corporation making a bid for the same purpose, and is in all respects fair and without collusion or fraud.

Third: That no member of the Board of Education of the **Blind Brook-Rye Union Free School District,** Town of **Rye Brook, New York**, nor any officer or employee or person whose salary is payable as a whole or in part from the treasury of said Board of Education is directly or indirectly interested in this bid or in the supplies, materials, equipment, work, or services to which it relates, or in any portion of the profits thereof.

Fourth: That said bidder has carefully examined the Instruction to Bidders, schedules, and specifications prepared under the direction of the Board of Education, and will, if successful in this bid, furnish and deliver at the prices bid and within the time stated, all materials, supplies, apparatus, goods, wares, merchandise, services, or labor for which this bid is made.

Fifth: Single Prime Contracts: Where the project cost does not exceed $1,500,000 and the Owner has decided to solicit bids from one general contractor, the Bidder shall submit with its bid a separate sealed list that names each subcontractor that the bidder will use to perform work in the contract, and the agreed-upon amount to be paid to each, for: (A) Plumbing and gas fitting; (B) Steam heating, hot water heating, ventilating and air condition apparatus and (C) Electric wiring and standard illuminating fixtures.

After the low bid is announced, the sealed list of subcontractors submitted with such low bid shall be opened and the names of such subcontractors shall be announced, and thereafter any change of subcontractor or agreed-upon amount to be paid to each shall require the approval of the public owner, upon a showing presented to the public owner of legitimate construction need for such change, which shall be open to public inspection.

Sixth: That the prices quoted are exclusive of all federal, state, and municipal sales and excise taxes.

Seventh: The undersigned further declares that he has received and examined the following addenda:

Addendum No. _____ Dated: _____

Addendum No. _____ Dated: _____

Addendum No. _____ Dated: _____

Addendum No. _____ Dated: _____

Clarification No. _____ Dated: _____

Clarification No. _____ Dated: _____

FOR PROPOSAL FORM TO BE VALID, ALL PAGES OF THE PROPOSAL FORM MUST BE DULY EXECUTED.

Eighth: The Bidder shall check here ____ if the bid has been based upon equivalents in lieu of any kind, type, brand, or manufacturer of material other than those named in the specifications. If checked, the Bidder shall submit the Equivalency Form in accordance with Instructions to Bidders, Paragraph 8B. This item in no way prohibits the Bidder from submitting equivalents after the award of contract.

Ninth: The undersigned further understands and agrees that he is to furnish all labor, materials, equipment, supplies, and other facilities and things necessary and required for the execution and completion of:

BBR HSMS HVAC – RSS Drainage Improvements at Blind Brook-Rye UFSD

in strict accordance with the contract documents:

BASE BID GC-1 – GENERAL CONSTRUCTION

The General Contractor shall state the complete price to perform all work including, but not limited to, all general construction, demolition, and abatement as required at the Ridge Street School, as shown on the drawings and as specified herein.

BASE BID GC-1 BID PRICE = $_____

Lump Sum Allowance No.1 $_____
(See Section 012100)

TOTAL GENERAL CONSTRUCTION
BASE BID GC-1 BID PRICE = $_____
Total Bid price in dollars and cents

$_____
Bid price written in words

ALTERNATES FOR BASE BID GC-1

1. ALTERNATE No. GC-1

The General Contractor shall state the complete price to be **(added to)** the base bid to provide all labor and materials required to _____

_____as shown on the drawings, and as specified herein.

ADD: _____
Bid price written in words

$_____
Bid price in dollars and cents

BASE BID SC-1 – SITE CONSTRUCTION

The Site Contractor shall state the complete price to perform all work including, but not limited to, all site construction, demolition, and abatement as required at the Ridge Street School, as shown on the drawings and as specified herein.

BASE BID SC-1 BID PRICE = $_____

Lump Sum Allowance No.1 $_____
(See Section 012100)

TOTAL SITE CONSTRUCTION
BASE BID SC-1 BID PRICE = $_____
Total Bid price in dollars and cents

$_____
Bid price written in words

ALTERNATES FOR BASE BID SC-1

2. ALTERNATE No. SC-1

The Site Contractor shall state the complete price to be **(added to)** the base bid to provide all labor and materials required to _____
_____as shown on the drawings, and as specified herein.

ADD: _____
Bid price written in words

$_____
Bid price in dollars and cents

BASE BID MC-1 – MECHANICAL CONSTRUCTION

The Mechanical Contractor shall state the complete price to perform all work including, but not limited to, all mechanical work required at the Blind Brook-Rye High School Middle School, as shown on the drawings and as specified herein.

BASE BID MC-1 BID PRICE = $_____

Lump Sum Allowance No.1 $_____
(See Section 012100)

TOTAL MECHANICAL CONSTRUCTION
BASE BID MC-1 BID PRICE = $_____
Total Bid price in dollars and cents

$_____
Bid price written in words

ALTERNATES FOR BASE BID MC-1

1. ALTERNATE No. MC-1

The Mechanical Contractor shall state the complete price to be **(added to)** the base bid to provide all labor and materials required to _____ _____as shown on the drawings, and as specified herein.

ADD: _____
Bid price written in words

$_____
Bid price in dollars and cents

Tenth: **BID SECURITY**

Each bidder shall deposit with his bid a bid bond, bank draft, or certified check in the amount of not less than ten percent (10%) of the Base Bid made payable to:

Board of Education, Xxxxxxxxxxxxxxxxxxxxxxxx **in the amount:**

_____ $(_____)

AND agrees such surety shall be a measure of liquidated damages should he default in delivery of agreement.

Eleventh: **COMPLETION** (Contractor shall fill in number of days)

It is intended that the work under this contract be completed substantially within _____ consecutive calendar days after receipt of authorized letter of intent issued by the District.

Twelfth: **NON-COLLUSIVE BIDDING CERTIFICATION**
General Municipal Law, Section 103-d
(Submit with Bid Proposal Form)

A. By submission of this bid, the bidder and each person signing on behalf of the bidder certifies, and if this is a joint bid each party hereto certifies as to its own organization, under penalty of perjury that to the best of the bidder's 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 which have been 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 a bid for the purpose of restricting competition.

B. A bid shall not be considered for award nor shall award be made where A-1, 2, and 3 above have not been complied with provided, however, that if in any case the bidder shall so state and shall furnish with a bid a signed statement which sets forth in detail the reasons therefore, where A-1, 2, and 3 above have not been complied with, the bid shall not be considered for award nor shall any award be made unless the head of the purchasing unit of the political subdivision, public department agency, or official thereof to which the bid is made, or his designee, determines that such disclosure was not made for the purpose of restricting competition.

The fact that the bidder: (a) has published price lists, rates, or tariffs covering items being procured, (b) has informed prospective customers of proposed or pending publication of new or revised price lists for such items, or (c) has sold the same items to other customers at the same prices being bid, does not constitute without more, a disclosure within the meaning of Paragraph A above.

C. If the bidder is a corporation, the corporation shall be deemed to have been authorized by the Board of Directors of the bidder to make the above certification and such authorization shall be deemed to include the signing and submission of the bid and the inclusion therein of the certificate as to non-collusion as the act and deed of the corporation.

(Seal of Corporation) _____
Corporate or Company Name

By: _____
Signature Title

Date: _____

Thirteenth: On acceptance of this proposal for said work, the undersigned hereby binds himself or themselves to enter into written contract with the Board of Education within ten (10) days of date of notice of award, and to comply in all respects with the provisions set forth in "Instructions for Bidders" and "General Conditions of Contract" in relation to security for the faithful performance of the terms of said contract.

IF A CORPORATION (Seal of corporation):

NAME	ADDRESS
President	
Secretary	
Treasurer	

IF A FIRM:

NAME OF MEMBERS	ADDRESS

PROPOSED EQUIVALENT FORM

Project: _____

Name of Bidder (Corporate Name): _____

Date: _____ Prime Contract For: _____

In accordance with Instructions to Bidders, Article 8, the above listed Bidder proposes the following materials, equipment, or methods for consideration by the Architect as equivalents to those specified or shown in the Contract Documents, and for incorporation into the Work at no additional cost to the Owner. The Contractor is aware of the risk of acceptance.

Project Manual Section Number and Specified Product	Proposed Equivalent

PROPOSED SUBSTITUTION FORM

The Base Bid Contract Sum proposed by the undersigned on the preceding Bid Proposal Form is based upon all items exactly as shown and described in the Contract Documents. For the Owner's consideration, the Bidder proposes the following substitute materials, equipment, or methods to be used in the work, in lieu of those specified, with a credit for cost savings to the Owner if accepted. Refer to Article 8(c) of the Instructions to Bidders.

	Specified Product and Section Number	Proposed Substitute	Credit Amount
1.	_____	_____	
	_____	_____	$_____
2.	_____	_____	
	_____	_____	$_____
3.	_____	_____	
	_____	_____	$_____

Name of Bidder (Corporate Name):_____

Date: _____ By: _____
Signature of Corporate Officer

CERTIFICATION OF COMPLIANCE WITH THE IRAN DIVESTMENT ACT

As a result of the Iran Divestment Act of 2012 (the "Act"), Chapter 1 of the 2012 Laws of New York, a new provision has been added to State Finance Law (SFL) § 165-a and New York General Municipal Law § 103-g, both effective April 12, 2012. Under the Act, the Commissioner of the Office of General Services (OGS) will be developing a list of "persons" who are engaged in "investment activities in Iran" (both are defined terms in the law) (the "Prohibited Entities List"). Pursuant to SFL § 165-a(3)(b), the initial list is expected to be issued no later than 120 days after the Act's effective date at which time it will be posted on the OGS website.

By submitting a bid in response to this solicitation or by assuming the responsibility of a Contract awarded hereunder, each Bidder/Contractor, any person signing on behalf of any Bidder/Contractor and any assignee or subcontractor and, in the case of a joint bid, each party thereto, certifies, under penalty of perjury, that once the Prohibited Entities List is posted on the OGS website, that to the best of its knowledge and belief, that each Bidder/Contractor and any subcontractor or assignee is not identified on the Prohibited Entities List created pursuant to SFL § 165-a(3)(b).

Additionally, Bidder/Contractor is advised that once the Prohibited Entities List is posted on the OGS Website, any Bidder/Contractor seeking to renew or extend a Contract or assume the responsibility of a Contract awarded in response to this solicitation must certify at the time the Contract is renewed, extended or assigned that it is not included on the Prohibited Entities List.

During the term of the Contract, should the School District receive information that a Bidder/Contractor is in violation of the above-referenced certification, the School District will offer the person or entity an opportunity to respond. If the person or entity fails to demonstrate that he/she/it has ceased engagement in the investment which is in violation of the Act within 90 days after the determination of such violation, then the School District shall take such action as may be appropriate including, but not limited to, imposing sanctions, seeking compliance, recovering damages or declaring the Bidder/Contractor in default. The School District reserves the right to reject any bid or request for assignment for a Bidder/Contractor that appears on the Prohibited Entities List prior to the award of a contract and to pursue a responsibility review with respect to any Bidder/Contractor that is awarded a contract and subsequently appears on the Prohibited Entities List.

I, _____, being duly sworn, deposes and says that he/she is

the _____ of the _____ Corporation and that

neither the Bidder/ Contractor nor any proposed subcontractor is identified on the Prohibited Entities List.

_____

SIGNED

SWORN to before me this

_____ day of _____

20____

Notary Public: _____

DECLARATION OF BIDDER'S INABILITY TO PROVIDE CERTIFICATION OF COMPLIANCE WITH THE IRAN DIVESTMENT ACT

Bidders shall complete this form if they cannot certify that the bidder /contractor or any proposed subcontractor is not identified on the Prohibited Entities List. The District reserves the right to undertake any investigation into the information provided herein or to request additional information from the bidder.

Name of the Bidder: _____

Address of Bidder: _____

Has bidder been involved in investment activities in Iran? _____
Describe the type of activities including but not limited to the amounts and the nature of the investments (*e.g*. banking, energy, real estate)_____
_____
_____
_____

If so, when did the first investment activity occur? _____

Have the investment activities ended? _____

If so, what was the date of the last investment activity?_____

If not, have the investment activities increased or expanded since April 12, 2012? _____

Has the bidder adopted, publicized, or implemented a formal plan to cease the investment activities in Iran and to refrain from engaging in any new investments in Iran?_____

If so, provide the date of the adoption of the plan by the bidder and proof of the adopted resolution, if any and a copy of the formal plan. _____

In detail, state the reasons why the bidder cannot provide the Certification of Compliance with the Iran Divestment Act below (additional pages may be attached):
_____
_____
_____
_____
_____
_____

I, _____ being duly sworn, deposes and says that he/she is the

_____ of the _____ Corporation and the foregoing

is true and accurate.

_____
SIGNED

SWORN to before me this

_____ day of _____

20____
Notary Public: _____

IRAN DIVESTMENT ACT COMPLIANCE RIDER

FOR SCHOOL DISTRICTS

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

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

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

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

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

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

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

STATEMENT OF BIDDER'S QUALIFICATIONS

1. Name of Bidder:

_____

2. Type of Business Entity:

_____

3. If the bidder is a corporation, state the date and place of incorporation of the corporation. If a partnership, state the date of organization and type of partnership. If individually owned, state the date of organization. If the form of your organization is other than those listed above, please describe.

_____

4. For how many years has the bidder done business under its present name, and how many years has your organization been in business as a contractor?

_____

5a. List the persons who are directors, officers, principals, owners, managerial employees or partners in the bidder's business.

_____

_____

5b. Under what other or former names has your organization operated?

_____

_____

6. Have any of the persons listed in Number 5 owned/operated/been shareholders in any other companies? If so, please state name of the person(s) who has owned/operated/been shareholders and name(s) of other companies:

7. Has your organization ever failed to complete any work awarded to it?

8. Has any director, officer, owner or managerial employee had any professional license suspended or revoked? If the answer to this question is yes, list the name of the individual, the professional license he/she formerly held, whether said license was revoked or suspended and the date of the revocation or suspension.

9. During the three year period preceding the submission of this bid, has the bidder been found guilty of any OSHA Violations? If the answer to this question is yes, describe the nature of the OSHA violation, an explanation of remediation or other steps taken regarding such violation(s).

10. During the five year period preceding the submission of this bid, has the bidder been charged with any claims pertaining to unlawful intimidation or discrimination against any employee by reason of race, creed, color, disability, sex or natural origin and/or violations of an employee's civil rights or equal employment opportunities? If the answer to this question is yes, list the persons making such claim against the bidder, a description of the claim, the status of the claim, and what disposition (if any) ahs been made regarding such claim.

11. During the five year period preceding the submission of this bid, has the bidder been named as a party in any lawsuit in an action involving a claim for personal injury or wrongful death arising from performance or work related to any project in which it has been engaged? If the answer to this question is yes, list all such lawsuits, the index number associated with said suit and the status of the lawsuit at the time of the submission of this bid.

12. During the five year period preceding the submission of this bid, has the bidder been the subject of an investigation and/or proceedings before the Department of Labor for alleged violations of the Labor Law as it relates to the payment of prevailing wages and/or supplemental payment requirements? If the answer to this question is yes, please list each such instance of the commencement of a Department of labor proceeding, for which project such proceeding was commenced, and the status of the proceeding at the time of the submission of this bid.

13. During the five year period preceding the bidder's submission of this bid, has the bidder been the subject of an investigation and/or proceeding before any law enforcement agency, including, but not limited to any District Attorney's Office? If the answer to this question is yes, please list each such instance, the law enforcement agency, the nature of the proceeding, the project for which such proceeding was commenced, if applicable to a project, and the status of the proceeding at the time of the submission of this bid.

14. During the five year period preceding the bidder's submission of this bid, has the bidder been the subject of proceedings involving allegations that it violated the Workers' Compensation Law including, but not limited to the failure to provide proof of worker's compensation or disability coverage and/or any lapses thereof. If the answer to this question is yes, list each such instance of violation and the status of the claimed violation at the time of the submissions of this bid.

15. Has the bidder, its officers, directors, owner and/or managerial employees been convicted of a crime or been the subject of a criminal indictment during the five years preceding the submission of this bid? If the answer to this question is yes, list the name of the individual convicted or indicated, the charge against the individual and the date of disposition of the charge.

16. During the five year period preceding the bidder's submission of this bid, has the bidder been charged with and/or found guilty of any violations of federal, state, or municipal environmental and/or health laws, codes, rules and/or regulations? If the answer to this question is yes, list the nature of the charge against the bidder, the date of the charge, and the status of the charge at the time of the submission of this bid.

17. Does the bidder have any major construction projects ongoing at the time of the submission of this bid? If the answer to this question is yes, list the projects on which the bidder is currently working, the percentage complete, and the owner, architect, contract amount and the expected date of completion of said project. State total worth of work in progress and under contract.

18. Has the bidder ever been terminated from a Project by the Owner? If the answer to this question is yes, list the projects on which the bidder was terminated, the nature of the termination (convenience, suspension, for cause), and the date of said termination.

19. Are there any other judgments, claims, arbitration proceedings or suits pending or outstanding against your organization or its officers?

_____

_____

_____

_____

Dated: By: _____
(Signature)

_____
(Print Name and Title)

Sworn to before me this

_____ day of _____, 201__.

_____
Notary Public

CERTIFICATION REGARDING WORKPLACE SEXUAL HARASSMENT/TRAINING

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 the bidder has and has implemented a written policy addressing sexual harassment prevention in the workplace and provides annual sexual harassment prevention training to all of its employees. Such policy shall, at a minimum, meet the requirements of section two hundred one-g of the labor law.

If this is submitted by a corporate entity, the certification shall be deemed to have been authorized by the board of directors (or comparable entity) of the bidder, and such authorization shall be deemed to include the signing and submission of this bid and the inclusion therein of this certification as the act and deed of the corporate entity.

Name of Bidder: _____ (Print)

_____ (Signature)

_____ (Print Name)

_____ (Print Title)

Date: _____

Labor Law Section 220-i Certification

This Certification is provided pursuant to Section 220-i of the New York Labor Law, which requires contractors and subcontractors submitting bids or performing work on a covered project to be registered with the New York State Department of Labor (NYSDOL). This Certification must be completed and submitted as part of your bid proposal.

- NYSDOL Registration Number: _____
- Registration Expiration Date: _____

By signing below, the person authorized to sign on behalf of the Bidder hereby certifies, under penalty of perjury, that the Bidder and each of its subcontractors are registered with the New York State Department of Labor pursuant to Section 220-i of the New York Labor Law.

Bidder further represent that it included with this Certification, a copy of the Certificate(s) of Registration issued by the Commissioner of the Department of Labor for the Bidder and each of its subcontractor(s).

I further certify that I will provide immediate written notice to the Owner if the contractor or any subcontractor's registration becomes suspended, revoked, or expired at any point prior to or during the course of the project.

Project: _____

Signature: _____

Bidder Name: _____

Bidder Title: _____

Company Name: _____

Date: _____

AIA® Document A101™ – 2007

Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum

AGREEMENT made as of the day of in the year
(In words, indicate day, month and year.)

BETWEEN the Owner:
(Name, legal status, address and other information)

and the Contractor:
(Name, legal status, address and other information)

for the following Project:
(Name, location and detailed description)

The Architect:
(Name, legal status, address and other information)

The Owner and Contractor agree as follows.

ADDITIONS AND DELETIONS:
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

AIA Document A201™–2007, General Conditions of the Contract for Construction, is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

Init.
/

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TABLE OF ARTICLES

1 THE CONTRACT DOCUMENTS

2 THE WORK OF THIS CONTRACT

3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

4 CONTRACT SUM

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7 TERMINATION OR SUSPENSION

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ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. An enumeration of the Contract Documents, other than a Modification, appears in Article 9.

ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be the date of this Agreement unless a different date is stated below or provision is made for the date to be fixed in a notice to proceed issued by the Owner.
(Insert the date of commencement if it differs from the date of this Agreement or, if applicable, state that the date will be fixed in a notice to proceed.)

If, prior to the commencement of the Work, the Owner requires time to file mortgages and other security interests, the Owner's time requirement shall be as follows:

§ 3.2 The Contract Time shall be measured from the date of commencement.

§ 3.3 The Contractor shall achieve Substantial Completion of the entire Work not later than ( ) days from the date of commencement, or as follows:
(Insert number of calendar days. Alternatively, a calendar date may be used when coordinated with the date of commencement. If appropriate, insert requirements for earlier Substantial Completion of certain portions of the Work.)

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User Notes: (1212313908)

Portion of Work	Substantial Completion Date

, subject to adjustments of this Contract Time as provided in the Contract Documents.
(Insert provisions, if any, for liquidated damages relating to failure to achieve Substantial Completion on time or for bonus payments for early completion of the Work.)

ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be ($), subject to additions and deductions as provided in the Contract Documents.

§ 4.2 The Contract Sum is based upon the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner:
(State the numbers or other identification of accepted alternates. If the bidding or proposal documents permit the Owner to accept other alternates subsequent to the execution of this Agreement, attach a schedule of such other alternates showing the amount for each and the date when that amount expires.)

§ 4.3 Unit prices, if any:
(Identify and state the unit price; state quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price Per Unit ($0.00)

§ 4.4 Allowances included in the Contract Sum, if any:
(Identify allowance and state exclusions, if any, from the allowance price.)

Item	Price

ARTICLE 5 PAYMENTS

§ 5.1 PROGRESS PAYMENTS

§ 5.1.1 Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

§ 5.1.3 Provided that an Application for Payment is received by the Architect not later than the day of a month, the Owner shall make payment of the certified amount to the Contractor not later than the day of the month. If an Application for Payment is received by the Architect after the application date fixed above, payment shall be made by the Owner not later than ( ) days after the Architect receives the Application for Payment.
(Federal, state or local laws may require payment within a certain period of time.)

§ 5.1.4 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form and supported by such data to substantiate its accuracy as the Architect may require. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment.

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§ 5.1.5 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 5.1.6 Subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

.1 Take that portion of the Contract Sum properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the Contract Sum allocated to that portion of the Work in the schedule of values, less retainage of percent (%). Pending final determination of cost to the Owner of changes in the Work, amounts not in dispute shall be included as provided in Section 7.3.9 of AIA Document A201™–2007, General Conditions of the Contract for Construction;

.2 Add that portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction (or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing), less retainage of percent (%);

.3 Subtract the aggregate of previous payments made by the Owner; and

.4 Subtract amounts, if any, for which the Architect has withheld or nullified a Certificate for Payment as provided in Section 9.5 of AIA Document A201–2007.

§ 5.1.7 The progress payment amount determined in accordance with Section 5.1.6 shall be further modified under the following circumstances:

.1 Add, upon Substantial Completion of the Work, a sum sufficient to increase the total payments to the full amount of the Contract Sum, less such amounts as the Architect shall determine for incomplete Work, retainage applicable to such work and unsettled claims; and
(Section 9.8.5 of AIA Document A201–2007 requires release of applicable retainage upon Substantial Completion of Work with consent of surety, if any.)

.2 Add, if final completion of the Work is thereafter materially delayed through no fault of the Contractor, any additional amounts payable in accordance with Section 9.10.3 of AIA Document A201–2007.

§ 5.1.8 Reduction or limitation of retainage, if any, shall be as follows:
(If it is intended, prior to Substantial Completion of the entire Work, to reduce or limit the retainage resulting from the percentages inserted in Sections 5.1.6.1 and 5.1.6.2 above, and this is not explained elsewhere in the Contract Documents, insert here provisions for such reduction or limitation.)

§ 5.1.9 Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

§ 5.2 FINAL PAYMENT

§ 5.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

.1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Section 12.2.2 of AIA Document A201–2007, and to satisfy other requirements, if any, which extend beyond final payment; and

.2 a final Certificate for Payment has been issued by the Architect.

§ 5.2.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the Architect's final Certificate for Payment, or as follows:

ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 INITIAL DECISION MAKER

The Architect will serve as Initial Decision Maker pursuant to Section 15.2 of AIA Document A201–2007, unless the parties appoint below another individual, not a party to this Agreement, to serve as Initial Decision Maker.

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(If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)

§ 6.2 BINDING DISPUTE RESOLUTION

For any Claim subject to, but not resolved by, mediation pursuant to Section 15.3 of AIA Document A201–2007, the method of binding dispute resolution shall be as follows:
(Check the appropriate box. If the Owner and Contractor do not select a method of binding dispute resolution below, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.)

[ ] Arbitration pursuant to Section 15.4 of AIA Document A201–2007

[ ] Litigation in a court of competent jurisdiction

[ ] Other *(Specify)*

ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201–2007.

§ 7.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201–2007.

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201–2007 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.
(Insert rate of interest agreed upon, if any.)

%

§ 8.3 The Owner's representative:
(Name, address and other information)

§ 8.4 The Contractor's representative:
(Name, address and other information)

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§ 8.5 Neither the Owner's nor the Contractor's representative shall be changed without ten days written notice to the other party.

§ 8.6 Other provisions:

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 The Contract Documents, except for Modifications issued after execution of this Agreement, are enumerated in the sections below.

§ 9.1.1 The Agreement is this executed AIA Document A101–2007, Standard Form of Agreement Between Owner and Contractor.

§ 9.1.2 The General Conditions are AIA Document A201–2007, General Conditions of the Contract for Construction.

§ 9.1.3 The Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages

§ 9.1.4 The Specifications:
(Either list the Specifications here or refer to an exhibit attached to this Agreement.)

Section	Title	Date	Pages

§ 9.1.5 The Drawings:
(Either list the Drawings here or refer to an exhibit attached to this Agreement.)

Number	Title	Date

§ 9.1.6 The Addenda, if any:

Number	Date	Pages

Portions of Addenda relating to bidding requirements are not part of the Contract Documents unless the bidding requirements are also enumerated in this Article 9.

§ 9.1.7 Additional documents, if any, forming part of the Contract Documents:

.1 AIA Document E201™–2007, Digital Data Protocol Exhibit, if completed by the parties, or the following:

.2 Other documents, if any, listed below:
(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A201–2007 provides that bidding requirements such as advertisement or invitation to bid, Instructions to Bidders, sample forms and the Contractor's bid are not part of the Contract Documents

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unless enumerated in this Agreement. They should be listed here only if intended to be part of the Contract Documents.)

ARTICLE 10 INSURANCE AND BONDS

The Contractor shall purchase and maintain insurance and provide bonds as set forth in Article 11 of AIA Document A201–2007.

(State bonding requirements, if any, and limits of liability for insurance required in Article 11 of AIA Document A201–2007.)

Type of insurance or bond	Limit of liability or bond amount ($0.00)

This Agreement entered into as of the day and year first written above.

OWNER *(Signature)*	**CONTRACTOR** *(Signature)*
(Printed name and title)	*(Printed name and title)*

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Rider to AIA Document A101 – 2007
Standard Form of Agreement Between Owner and Contractor

The Contractor represents and warrants the following to the Owner (in addition to any other representations and warranties contained in the Contract Documents) as an inducement to the Owner to execute this Agreement, which shall survive any termination of this Agreement and the final completion of the work:

1. Contractor and Subcontractors are financially solvent, able to pay all debts as they mature and are possessed of sufficient working capital to complete the Work and perform all obligations hereunder;

2. Contractor is able to furnish all labor, materials, plant, tools, suppliers, equipment required to complete the Work and perform its obligations hereunder;

3. Contractor is authorized to do business in the State of New York and the United States and is properly licensed by all governmental, public, and quasi public authorities having jurisdiction over it and over the Work and the Project;

4. Contractor's execution of this Agreement and its performance thereof, is within its duly authorized powers;

5. Contractor's duly authorized representative has visited the site of the Project, is familiar with the local and special conditions under which the Work is to be performed and has correlated on-site observation with the requirements of the Contract Documents;

6. Contractor possesses a high level of experience and expertise in the business administration, construction management, construction rules and regulations on school property, and the superintendence of Projects of the size, complexity and nature of the particular Project, and that it will perform the Work with the care and diligence of such a Contractor.

The foregoing warranties are in addition to, and not in lieu of, any and all other liability imposed upon the Contractor's duties, obligations, and performance hereunder. The Contractor's liability hereunder shall survive the Owner's final acceptance of and payment of the Work. All representations and warranties set forth in this Agreement, including this paragraph, shall survive the final completion of the Work or the earlier termination of this Agreement. The Contractor realizes that the Owner is relying upon the Contractor's skill and experience in connection with the Work called for hereunder.

AIA® Document A201™ – 2007

General Conditions of the Contract for Construction

for the following PROJECT:
(Name and location or address)

THE OWNER:
(Name, legal status and address)

THE ARCHITECT:
(Name, legal status and address)

ADDITIONS AND DELETIONS:
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

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ARTICLE 1 GENERAL PROVISIONS

§ 1.1 BASIC DEFINITIONS

§ 1.1.1 THE CONTRACT DOCUMENTS

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding requirements.

§ 1.1.2 THE CONTRACT

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

§ 1.1.3 THE WORK

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

§ 1.1.4 THE PROJECT

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by separate contractors.

§ 1.1.5 THE DRAWINGS

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules and diagrams.

§ 1.1.6 THE SPECIFICATIONS

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

§ 1.1.7 INSTRUMENTS OF SERVICE

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.1.8 INITIAL DECISION MAKER

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2 and certify termination of the Agreement under Section 14.2.2.

§ 1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

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§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

§ 1.3 CAPITALIZATION

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles or (3) the titles of other documents published by the American Institute of Architects.

§ 1.4 INTERPRETATION

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

§ 1.5 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS AND OTHER INSTRUMENTS OF SERVICE

§ 1.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and will retain all common law, statutory and other reserved rights, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors and material or equipment suppliers are authorized to use and reproduce the Instruments of Service provided to them solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers may not use the Instruments of Service on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Architect and the Architect's consultants.

§ 1.6 TRANSMISSION OF DATA IN DIGITAL FORM

If the parties intend to transmit Instruments of Service or any other information or documentation in digital form, they shall endeavor to establish necessary protocols governing such transmissions, unless otherwise already provided in the Agreement or the Contract Documents.

ARTICLE 2 OWNER

§ 2.1 GENERAL

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.1.2 The Owner shall furnish to the Contractor within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

§ 2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

§ 2.2.1 Prior to commencement of the Work, the Contractor may request in writing that the Owner provide reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. Thereafter, the Contractor may only request such evidence if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) a change in the Work materially changes the Contract Sum; or (3) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due. The Owner shall furnish such evidence as a condition precedent to commencement or continuation of the Work or

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the portion of the Work affected by a material change. After the Owner furnishes the evidence, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.2 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 2.2.3 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.2.4 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.2.5 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

§ 2.3 OWNER'S RIGHT TO STOP THE WORK

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

§ 2.4 OWNER'S RIGHT TO CARRY OUT THE WORK

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such deficiencies. In such case an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect or failure. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

ARTICLE 3 CONTRACTOR

§ 3.1 GENERAL

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

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§ 3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed and correlated personal observations with requirements of the Contract Documents.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.2.3, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall make Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract, unless the Contract Documents give other specific instructions concerning these matters. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences or procedures, the Contractor shall evaluate the jobsite safety thereof and, except as stated below, shall be fully and solely responsible for the jobsite safety of such means, methods, techniques, sequences or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely written notice to the Owner and Architect and shall not proceed with that portion of the Work without further written instructions from the Architect. If the Contractor is then instructed to proceed with the required means, methods, techniques, sequences or procedures without acceptance of changes proposed by the Contractor, the Owner shall be solely responsible for any loss or damage arising solely from those Owner-required means, methods, techniques, sequences or procedures.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.4 LABOR AND MATERIALS

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other

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facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 3.4.2 Except in the case of minor changes in the Work authorized by the Architect in accordance with Sections 3.12.8 or 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

§ 3.5 WARRANTY

The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

§ 3.6 TAXES

The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

§ 3.7 PERMITS, FEES, NOTICES AND COMPLIANCE WITH LAWS

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7.4 Concealed or Unknown Conditions. If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature, that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 21 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend an equitable adjustment in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor in writing, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may proceed as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume

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the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

§ 3.8 ALLOWANCES

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents,

.1 Allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;

.2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and

.3 Whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.9 SUPERINTENDENT

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Architect the name and qualifications of a proposed superintendent. The Architect may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Architect has reasonable objection to the proposed superintendent or (2) that the Architect requires additional time to review. Failure of the Architect to reply within the 14 day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.10 CONTRACTOR'S CONSTRUCTION SCHEDULES

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall prepare and submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work.

§ 3.10.2 The Contractor shall prepare a submittal schedule, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, and shall submit the schedule(s) for the Architect's approval. The Architect's approval shall not unreasonably be delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect.

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§ 3.11 DOCUMENTS AND SAMPLES AT THE SITE

The Contractor shall maintain at the site for the Owner one copy of the Drawings, Specifications, Addenda, Change Orders and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and one copy of approved Shop Drawings, Product Data, Samples and similar required submittals. These shall be available to the Architect and shall be delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

§ 3.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents. Their purpose is to demonstrate the way by which the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve and submit to the Architect Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Architect in writing of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or similar submittals by the Architect's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such written notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. The Contractor shall not be

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required to provide professional services in violation of applicable law. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall cause such services or certifications to be provided by a properly licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor all performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review, approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Contractor shall not be responsible for the adequacy of the performance and design criteria specified in the Contract Documents.

§ 3.13 USE OF SITE

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.14 CUTTING AND PATCHING

§ 3.14.1 The Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting and patching shall be restored to the condition existing prior to the cutting, fitting and patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or separate contractors by cutting, patching or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter such construction by the Owner or a separate contractor except with written consent of the Owner and of such separate contractor; such consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold from the Owner or a separate contractor the Contractor's consent to cutting or otherwise altering the Work.

§ 3.15 CLEANING UP

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery and surplus materials from and about the Project.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 ACCESS TO WORK

The Contractor shall provide the Owner and Architect access to the Work in preparation and progress wherever located.

§ 3.17 ROYALTIES, PATENTS AND COPYRIGHTS

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for such defense or loss when a particular design, process or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications or other documents prepared by the Owner or Architect. However, if the Contractor has reason to believe that the required design, process or product is an infringement of a copyright or a patent, the Contractor shall be responsible for such loss unless such information is promptly furnished to the Architect.

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§ 3.18 INDEMNIFICATION

§ 3.18.1 To the fullest extent permitted by law the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

ARTICLE 4 ARCHITECT

§ 4.1 GENERAL

§ 4.1.1 The Owner shall retain an architect lawfully licensed to practice architecture or an entity lawfully practicing architecture in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 4.1.2 Duties, responsibilities and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified or extended without written consent of the Owner, Contractor and Architect. Consent shall not be unreasonably withheld.

§ 4.1.3 If the employment of the Architect is terminated, the Owner shall employ a successor architect as to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

§ 4.2 ADMINISTRATION OF THE CONTRACT

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for, the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents, except as provided in Section 3.3.1.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and report to the Owner (1) known deviations from the Contract Documents and from the most recent construction schedule submitted by the Contractor, and (2) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of and will not be responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

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§ 4.2.4 COMMUNICATIONS FACILITATING CONTRACT ADMINISTRATION
Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to communicate with each other through the Architect about matters arising out of or relating to the Contract. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with separate contractors shall be through the Owner.

§ 4.2.5 Based on the Architect's evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.5.2 and 13.5.3, whether or not such Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5 and 3.12. The Architect's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the Architect, of any construction means, methods, techniques, sequences or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may authorize minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 If the Owner and Architect agree, the Architect will provide one or more project representatives to assist in carrying out the Architect's responsibilities at the site. The duties, responsibilities and limitations of authority of such project representatives shall be as set forth in an exhibit to be incorporated in the Contract Documents.

§ 4.2.11 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.12 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either and will not be liable for results of interpretations or decisions rendered in good faith.

§ 4.2.13 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

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§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 DEFINITIONS

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a separate contractor or subcontractors of a separate contractor.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

§ 5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

§ 5.2.1 Unless otherwise stated in the Contract Documents or the bidding requirements, the Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Architect the names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each principal portion of the Work. The Architect may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Architect has reasonable objection to any such proposed person or entity or (2) that the Architect requires additional time for review. Failure of the Owner or Architect to reply within the 14-day period shall constitute notice of no reasonable objection.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person or entity previously selected if the Owner or Architect makes reasonable objection to such substitution.

§ 5.3 SUBCONTRACTUAL RELATIONS

By appropriate agreement, written where legally required for validity, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work, which the Contractor, by these Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may

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be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

§ 5.4 CONTINGENT ASSIGNMENT OF SUBCONTRACTS

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

.1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor in writing; and

.2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon such assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. If the Owner assigns the subcontract to a successor contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 OWNER'S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS

§ 6.1.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other construction or operations on the site under Conditions of the Contract identical or substantially similar to these including those portions related to insurance and waiver of subrogation. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, the Contractor shall make such Claim as provided in Article 15.

§ 6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

§ 6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each separate contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with other separate contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to the construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, separate contractors and the Owner until subsequently revised.

§ 6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces, the Owner shall be deemed to be subject to the same obligations and to have the same rights that apply to the Contractor under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6 and Articles 10, 11 and 12.

§ 6.2 MUTUAL RESPONSIBILITY

§ 6.2.1 The Contractor shall afford the Owner and separate contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a separate contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly report to the Architect apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results. Failure of the Contractor so to report shall constitute an acknowledgment that

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the Owner's or separate contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work, except as to defects not then reasonably discoverable.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a separate contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a separate contractor's delays, improperly timed activities, damage to the Work or defective construction.

§ 6.2.4 The Contractor shall promptly remedy damage the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or separate contractors as provided in Section 10.2.5.

§ 6.2.5 The Owner and each separate contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 OWNER'S RIGHT TO CLEAN UP

If a dispute arises among the Contractor, separate contractors and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Architect will allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 GENERAL

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor and Architect; a Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor; an order for a minor change in the Work may be issued by the Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents, and the Contractor shall proceed promptly, unless otherwise provided in the Change Order, Construction Change Directive or order for a minor change in the Work.

§ 7.2 CHANGE ORDERS

§ 7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor and Architect stating their agreement upon all of the following:

.1 The change in the Work;
.2 The amount of the adjustment, if any, in the Contract Sum; and
.3 The extent of the adjustment, if any, in the Contract Time.

§ 7.3 CONSTRUCTION CHANGE DIRECTIVES

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

.1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
.2 Unit prices stated in the Contract Documents or subsequently agreed upon;
.3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or

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.4 As provided in Section 7.3.7.

§ 7.3.4 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed in a proposed Change Order or Construction Change Directive so that application of such unit prices to quantities of Work proposed will cause substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 7.3.5 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.6 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.7 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the method and the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.7 shall be limited to the following:

.1 Costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and workers' compensation insurance;

.2 Costs of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed;

.3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;

.4 Costs of premiums for all bonds and insurance, permit fees, and sales, use or similar taxes related to the Work; and

.5 Additional costs of supervision and field office personnel directly attributable to the change.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 MINOR CHANGES IN THE WORK

The Architect has authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes will be effected by written order signed by the Architect and shall be binding on the Owner and Contractor.

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ARTICLE 8 TIME

§ 8.1 DEFINITIONS

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 8.2 PROGRESS AND COMPLETION

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, prematurely commence operations on the site or elsewhere prior to the effective date of insurance required by Article 11 to be furnished by the Contractor and Owner. The date of commencement of the Work shall not be changed by the effective date of such insurance.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

§ 8.3 DELAYS AND EXTENSIONS OF TIME

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by an act or neglect of the Owner or Architect, or of an employee of either, or of a separate contractor employed by the Owner; or by changes ordered in the Work; or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond the Contractor's control; or by delay authorized by the Owner pending mediation and arbitration; or by other causes that the Architect determines may justify delay, then the Contract Time shall be extended by Change Order for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 CONTRACT SUM

The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.2 SCHEDULE OF VALUES

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit to the Architect, before the first Application for Payment, a schedule of values allocating the entire Contract Sum to the various portions of the Work and prepared in such form and supported by such data to substantiate its accuracy as the Architect may require. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 9.3 APPLICATIONS FOR PAYMENT

§ 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. Such application shall be notarized, if required, and supported by such data substantiating the Contractor's right to payment as the Owner or Architect may require, such as copies of requisitions from Subcontractors and material suppliers, and shall reflect retainage if provided for in the Contract Documents.

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§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or material supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage and transportation to the site for such materials and equipment stored off the site.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work.

§ 9.4 CERTIFICATES FOR PAYMENT

§ 9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either issue to the Owner a Certificate for Payment, with a copy to the Contractor, for such amount as the Architect determines is properly due, or notify the Contractor and Owner in writing of the Architect's reasons for withholding certification in whole or in part as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data comprising the Application for Payment, that, to the best of the Architect's knowledge, information and belief, the Work has progressed to the point indicated and that the quality of the Work is in accordance with the Contract Documents. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion and to specific qualifications expressed by the Architect. The issuance of a Certificate for Payment will further constitute a representation that the Contractor is entitled to payment in the amount certified. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work, (2) reviewed construction means, methods, techniques, sequences or procedures, (3) reviewed copies of requisitions received from Subcontractors and material suppliers and other data requested by the Owner to substantiate the Contractor's right to payment, or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.5 DECISIONS TO WITHHOLD CERTIFICATION

§ 9.5.1 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

.1 defective Work not remedied;

.2 third party claims filed or reasonable evidence indicating probable filing of such claims unless security acceptable to the Owner is provided by the Contractor;

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.3 failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment;

.4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;

.5 damage to the Owner or a separate contractor;

.6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or

.7 repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When the above reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.3 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or material or equipment suppliers to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Architect will reflect such payment on the next Certificate for Payment.

§ 9.6 PROGRESS PAYMENTS

§ 9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect.

§ 9.6.2 The Contractor shall pay each Subcontractor no later than seven days after receipt of payment from the Owner the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and material and equipment suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay or to see to the payment of money to a Subcontractor, except as may otherwise be required by law.

§ 9.6.5 Contractor payments to material and equipment suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors and suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, shall create any fiduciary liability or tort liability on the part of the Contractor for breach of trust or shall entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.7 FAILURE OF PAYMENT

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents the amount certified by the Architect or awarded by binding

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dispute resolution, then the Contractor may, upon seven additional days' written notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shut-down, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 SUBSTANTIAL COMPLETION

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion, shall establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and shall fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in such Certificate. Upon such acceptance and consent of surety, if any, the Owner shall make payment of retainage applying to such Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 9.9 PARTIAL OCCUPANCY OR USE

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer as required under Section 11.3.1.5 and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

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§ 9.10 FINAL COMPLETION AND FINAL PAYMENT

§ 9.10.1 Upon receipt of the Contractor's written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection and, when the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment and (5), if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

- **.1** liens, Claims, security interests or encumbrances arising out of the Contract and unsettled;
- **.2** failure of the Work to comply with the requirements of the Contract Documents; or
- **.3** terms of special warranties required by the Contract Documents.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor or material supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 SAFETY PRECAUTIONS AND PROGRAMS

The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Contract.

§ 10.2 SAFETY OF PERSONS AND PROPERTY

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to

- **.1** employees on the Work and other persons who may be affected thereby;
- **.2** the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors; and

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.3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

§ 10.2.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury or loss.

§ 10.2.3 The Contractor shall erect and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent sites and utilities.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3, except damage or loss attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 INJURY OR DAMAGE TO PERSON OR PROPERTY

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, written notice of such injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 10.3 HAZARDOUS MATERIALS

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and report the condition to the Owner and Architect in writing.

§ 10.3.2 Upon receipt of the Contractor's written notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of such material or substance or who are to perform the task of removal or safe containment of such material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be

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extended appropriately and the Contract Sum shall be increased in the amount of the Contractor's reasonable additional costs of shut-down, delay and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss or expense is due to the fault or negligence of the party seeking indemnity.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 The Contractor shall indemnify the Owner for the cost and expense the Owner incurs (1) for remediation of a material or substance the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall indemnify the Contractor for all cost and expense thereby incurred.

§ 10.4 EMERGENCIES

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 CONTRACTOR'S LIABILITY INSURANCE

§ 11.1.1 The Contractor shall purchase from and maintain in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located such insurance as will protect the Contractor from claims set forth below which may arise out of or result from the Contractor's operations and completed operations under the Contract and for which the Contractor may be legally liable, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

- **.1** Claims under workers' compensation, disability benefit and other similar employee benefit acts that are applicable to the Work to be performed;
- **.2** Claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees;
- **.3** Claims for damages because of bodily injury, sickness or disease, or death of any person other than the Contractor's employees;
- **.4** Claims for damages insured by usual personal injury liability coverage;
- **.5** Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;
- **.6** Claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle;
- **.7** Claims for bodily injury or property damage arising out of completed operations; and
- **.8** Claims involving contractual liability insurance applicable to the Contractor's obligations under Section 3.18.

§ 11.1.2 The insurance required by Section 11.1.1 shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from the date of commencement of the

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Work until the date of final payment and termination of any coverage required to be maintained after final payment, and, with respect to the Contractor's completed operations coverage, until the expiration of the period for correction of Work or for such other period for maintenance of completed operations coverage as specified in the Contract Documents.

§ 11.1.3 Certificates of insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the Work and thereafter upon renewal or replacement of each required policy of insurance. These certificates and the insurance policies required by this Section 11.1 shall contain a provision that coverages afforded under the policies will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner. An additional certificate evidencing continuation of liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment as required by Section 9.10.2 and thereafter upon renewal or replacement of such coverage until the expiration of the time required by Section 11.1.2. Information concerning reduction of coverage on account of revised limits or claims paid under the General Aggregate, or both, shall be furnished by the Contractor with reasonable promptness.

§ 11.1.4 The Contractor shall cause the commercial liability coverage required by the Contract Documents to include (1) the Owner, the Architect and the Architect's consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's completed operations.

§ 11.2 OWNER'S LIABILITY INSURANCE

The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance.

§ 11.3 PROPERTY INSURANCE

§ 11.3.1 Unless otherwise provided, the Owner shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance written on a builder's risk "all-risk" or equivalent policy form in the amount of the initial Contract Sum, plus value of subsequent Contract Modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a replacement cost basis without optional deductibles. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in Section 9.10 or until no person or entity other than the Owner has an insurable interest in the property required by this Section 11.3 to be covered, whichever is later. This insurance shall include interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Project.

§ 11.3.1.1 Property insurance shall be on an "all-risk" or equivalent policy form and shall include, without limitation, insurance against the perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, earthquake, flood, windstorm, falsework, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Architect's and Contractor's services and expenses required as a result of such insured loss.

§ 11.3.1.2 If the Owner does not intend to purchase such property insurance required by the Contract and with all of the coverages in the amount described above, the Owner shall so inform the Contractor in writing prior to commencement of the Work. The Contractor may then effect insurance that will protect the interests of the Contractor, Subcontractors and Sub-subcontractors in the Work, and by appropriate Change Order the cost thereof shall be charged to the Owner. If the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain insurance as described above, without so notifying the Contractor in writing, then the Owner shall bear all reasonable costs properly attributable thereto.

§ 11.3.1.3 If the property insurance requires deductibles, the Owner shall pay costs not covered because of such deductibles.

§ 11.3.1.4 This property insurance shall cover portions of the Work stored off the site, and also portions of the Work in transit.

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§ 11.3.1.5 Partial occupancy or use in accordance with Section 9.9 shall not commence until the insurance company or companies providing property insurance have consented to such partial occupancy or use by endorsement or otherwise. The Owner and the Contractor shall take reasonable steps to obtain consent of the insurance company or companies and shall, without mutual written consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse or reduction of insurance.

§ 11.3.2 BOILER AND MACHINERY INSURANCE

The Owner shall purchase and maintain boiler and machinery insurance required by the Contract Documents or by law, which shall specifically cover such insured objects during installation and until final acceptance by the Owner; this insurance shall include interests of the Owner, Contractor, Subcontractors and Sub-subcontractors in the Work, and the Owner and Contractor shall be named insureds.

§ 11.3.3 LOSS OF USE INSURANCE

The Owner, at the Owner's option, may purchase and maintain such insurance as will insure the Owner against loss of use of the Owner's property due to fire or other hazards, however caused. The Owner waives all rights of action against the Contractor for loss of use of the Owner's property, including consequential losses due to fire or other hazards however caused.

§ 11.3.4 If the Contractor requests in writing that insurance for risks other than those described herein or other special causes of loss be included in the property insurance policy, the Owner shall, if possible, include such insurance, and the cost thereof shall be charged to the Contractor by appropriate Change Order.

§ 11.3.5 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, the Owner shall waive all rights in accordance with the terms of Section 11.3.7 for damages caused by fire or other causes of loss covered by this separate property insurance. All separate policies shall provide this waiver of subrogation by endorsement or otherwise.

§ 11.3.6 Before an exposure to loss may occur, the Owner shall file with the Contractor a copy of each policy that includes insurance coverages required by this Section 11.3. Each policy shall contain all generally applicable conditions, definitions, exclusions and endorsements related to this Project. Each policy shall contain a provision that the policy will not be canceled or allowed to expire, and that its limits will not be reduced, until at least 30 days' prior written notice has been given to the Contractor.

§ 11.3.7 WAIVERS OF SUBROGATION

The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents and employees, each of the other, and (2) the Architect, Architect's consultants, separate contractors described in Article 6, if any, and any of their subcontractors, sub-subcontractors, agents and employees, for damages caused by fire or other causes of loss to the extent covered by property insurance obtained pursuant to this Section 11.3 or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by the Owner as fiduciary. The Owner or Contractor, as appropriate, shall require of the Architect, Architect's consultants, separate contractors described in Article 6, if any, and the subcontractors, sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

§ 11.3.8 A loss insured under the Owner's property insurance shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.3.10. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their Sub-subcontractors in similar manner.

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§ 11.3.9 If required in writing by a party in interest, the Owner as fiduciary shall, upon occurrence of an insured loss, give bond for proper performance of the Owner's duties. The cost of required bonds shall be charged against proceeds received as fiduciary. The Owner shall deposit in a separate account proceeds so received, which the Owner shall distribute in accordance with such agreement as the parties in interest may reach, or as determined in accordance with the method of binding dispute resolution selected in the Agreement between the Owner and Contractor. If after such loss no other special agreement is made and unless the Owner terminates the Contract for convenience, replacement of damaged property shall be performed by the Contractor after notification of a Change in the Work in accordance with Article 7.

§ 11.3.10 The Owner as fiduciary shall have power to adjust and settle a loss with insurers unless one of the parties in interest shall object in writing within five days after occurrence of loss to the Owner's exercise of this power; if such objection is made, the dispute shall be resolved in the manner selected by the Owner and Contractor as the method of binding dispute resolution in the Agreement. If the Owner and Contractor have selected arbitration as the method of binding dispute resolution, the Owner as fiduciary shall make settlement with insurers or, in the case of a dispute over distribution of insurance proceeds, in accordance with the directions of the arbitrators.

§ 11.4 PERFORMANCE BOND AND PAYMENT BOND

§ 11.4.1 The Owner shall have the right to require the Contractor to furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder as stipulated in bidding requirements or specifically required in the Contract Documents on the date of execution of the Contract.

§ 11.4.2 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 UNCOVERING OF WORK

§ 12.1.1 If a portion of the Work is covered contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, costs of uncovering and replacement shall, by appropriate Change Order, be at the Owner's expense. If such Work is not in accordance with the Contract Documents, such costs and the cost of correction shall be at the Contractor's expense unless the condition was caused by the Owner or a separate contractor in which event the Owner shall be responsible for payment of such costs.

§ 12.2 CORRECTION OF WORK

§ 12.2.1 BEFORE OR AFTER SUBSTANTIAL COMPLETION

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, whether discovered before or after Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

§ 12.2.2 AFTER SUBSTANTIAL COMPLETION

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct

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nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.4.

§ 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction, whether completed or partially completed, of the Owner or separate contractors caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 ACCEPTANCE OF NONCONFORMING WORK

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 GOVERNING LAW

The Contract shall be governed by the law of the place where the Project is located except that, if the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

§ 13.2 SUCCESSORS AND ASSIGNS

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns and legal representatives to covenants, agreements and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate such assignment.

§ 13.3 WRITTEN NOTICE

Written notice shall be deemed to have been duly served if delivered in person to the individual, to a member of the firm or entity, or to an officer of the corporation for which it was intended; or if delivered at, or sent by registered or certified mail or by courier service providing proof of delivery to, the last business address known to the party giving notice.

§ 13.4 RIGHTS AND REMEDIES

§ 13.4.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights and remedies otherwise imposed or available by law.

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§ 13.4.2 No action or failure to act by the Owner, Architect or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach there under, except as may be specifically agreed in writing.

§ 13.5 TESTS AND INSPECTIONS

§ 13.5.1 Tests, inspections and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of (1) tests, inspections or approvals that do not become requirements until after bids are received or negotiations concluded, and (2) tests, inspections or approvals where building codes or applicable laws or regulations prohibit the Owner from delegating their cost to the Contractor.

§ 13.5.2 If the Architect, Owner or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection or approval not included under Section 13.5.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection or approval by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.5.3, shall be at the Owner's expense.

§ 13.5.3 If such procedures for testing, inspection or approval under Sections 13.5.1 and 13.5.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure including those of repeated procedures and compensation for the Architect's services and expenses shall be at the Contractor's expense.

§ 13.5.4 Required certificates of testing, inspection or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

§ 13.5.5 If the Architect is to observe tests, inspections or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.5.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

§ 13.6 INTEREST

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at such rate as the parties may agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

§ 13.7 TIME LIMITS ON CLAIMS

The Owner and Contractor shall commence all claims and causes of action, whether in contract, tort, breach of warranty or otherwise, against the other arising out of or related to the Contract in accordance with the requirements of the final dispute resolution method selected in the Agreement within the time period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all claims and causes of action not commenced in accordance with this Section 13.7.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 TERMINATION BY THE CONTRACTOR

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, for any of the following reasons:

.1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;

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.2 An act of government, such as a declaration of national emergency that requires all Work to be stopped;

.3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or

.4 The Owner has failed to furnish to the Contractor promptly, upon the Contractor's request, reasonable evidence as required by Section 2.2.1.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, repeated suspensions, delays or interruptions of the entire Work by the Owner as described in Section 14.3 constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' written notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, including reasonable overhead and profit, costs incurred by reason of such termination, and damages.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor or a Subcontractor or their agents or employees or any other persons performing portions of the Work under contract with the Contractor because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' written notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.2 TERMINATION BY THE OWNER FOR CAUSE

§ 14.2.1 The Owner may terminate the Contract if the Contractor

.1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;

.2 fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;

.3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or

.4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the above reasons exist, the Owner, upon certification by the Initial Decision Maker that sufficient cause exists to justify such action, may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' written notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

.1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;

.2 Accept assignment of subcontracts pursuant to Section 5.4; and

.3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Initial Decision Maker, upon application, and this obligation for payment shall survive termination of the Contract.

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§ 14.3 SUSPENSION BY THE OWNER FOR CONVENIENCE

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay or interruption as described in Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

.1 that performance is, was or would have been so suspended, delayed or interrupted by another cause for which the Contractor is responsible; or

.2 that an equitable adjustment is made or denied under another provision of the Contract.

§ 14.4 TERMINATION BY THE OWNER FOR CONVENIENCE

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of written notice from the Owner of such termination for the Owner's convenience, the Contractor shall

.1 cease operations as directed by the Owner in the notice;

.2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and

.3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Contractor shall be entitled to receive payment for Work executed, and costs incurred by reason of such termination, along with reasonable overhead and profit on the Work not executed.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 CLAIMS

§ 15.1.1 DEFINITION

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim.

§ 15.1.2 NOTICE OF CLAIMS

Claims by either the Owner or Contractor must be initiated by written notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party must be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3 CONTINUING CONTRACT PERFORMANCE

Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents. The Architect will prepare Change Orders and issue Certificates for Payment in accordance with the decisions of the Initial Decision Maker.

§ 15.1.4 CLAIMS FOR ADDITIONAL COST

If the Contractor wishes to make a Claim for an increase in the Contract Sum, written notice as provided herein shall be given before proceeding to execute the Work. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.5 CLAIMS FOR ADDITIONAL TIME

§ 15.1.5.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, written notice as provided herein shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary.

Init.
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§ 15.1.5.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated and had an adverse effect on the scheduled construction.

§ 15.1.6 CLAIMS FOR CONSEQUENTIAL DAMAGES

The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

.1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and

.2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.6 shall be deemed to preclude an award of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 INITIAL DECISION

§ 15.2.1 Claims, excluding those arising under Sections 10.3, 10.4, 11.3.9, and 11.3.10, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim arising prior to the date final payment is due, unless 30 days have passed after the Claim has been referred to the Initial Decision Maker with no decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of such request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

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§ 15.2.6.1 Either party may, within 30 days from the date of an initial decision, demand in writing that the other party file for mediation within 60 days of the initial decision. If such a demand is made and the party receiving the demand fails to file for mediation within the time required, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 15.3 MEDIATION

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.6 shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 15.4 ARBITRATION

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 15.4.4 CONSOLIDATION OR JOINDER

§ 15.4.4.1 Either party, at its sole discretion, may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration

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permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Either party, at its sole discretion, may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as the Owner and Contractor under this Agreement.

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I, , hereby certify, to the best of my knowledge, information and belief, that I created the attached final document simultaneously with its associated Additions and Deletions Report and this certification at 12:12:38 on 07/12/2016 under Order No. 1767259550_1 from AIA Contract Documents software and that in preparing the attached final document I made no changes to the original text of AIA® Document A201™ – 2007, General Conditions of the Contract for Construction, as published by the AIA in its software, other than those additions and deletions shown in the associated Additions and Deletions Report.

_____

(Signed)

_____

(Title)

_____

(Dated)

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SUPPLEMENTARY GENERAL CONDITIONS OF THE CONTRACT

(CROSS-REFERENCE AIA DOCUMENT A201 - 2007)

1. List of Drawings

The Drawings, which are the graphic and pictorial portions of the Contract Documents that show the design, location and dimension of the Work are as listed within the "List of Drawings" provided with the drawing set. All Work under this Contract shall be executed in accordance with the Contract Documents, which are typically composed of the Project Manual, Specifications and Drawings. The Contract Documents are complimentary as described in the General Conditions. The "List of Drawings" will be incorporated in the Standard Form of Agreement Between the Owner and the Contractor.

2. Provision of Documents

A. Each Prime Contractor is entitled to three printed sets of Drawings, three Project Manuals, and three sets of all Addenda materials. The three sets are inclusive of the original set obtained for bidding purposes. These sets will be provided at the Owners expense exclusive of the original Bid Deposit, which is forfeited by the awarded contractors.

B. Additional sets of Contract Documents will be provided to the contractors for the cost of reproduction and distribution charges. Payment is due upon receipt of the Documents.

C. Reproducible copies of the Drawings shall be provided upon the request of the Prime Contractor and are to be provided for the cost of reproduction and distribution charges. Payment is due upon receipt of the Documents.

D. For expediency, at the discretion of the Architect, Prime Contractors may be directed to pick up documents at the project designated printing facility. This practice will not be permitted without authorization of/and coordination by the Architect.

E. Electronic drawing files, AutoCAD format, may be available, at the discretion of the Architect, for a cost of $25.00 per drawing. Contractors requesting this service will be required to sign a disclaimer. Request for electronic files must be made in writing to the Architects office. This request must include a specific list of drawings required in this format. In response, the architect will verify the drawings requested and will forward the disclaimer for signature. Electronic files will be released upon receipt of payment and a fully executed disclaimer form.

3. Minimum Rates of Wages

A. In accordance with Section 220, Subdivision 3 and 220-d of the Labor Law, the Industrial Commissioner, Department of Labor, State of New York, has ascertained the prevailing rates of wages which will apply to this Project.

B. The Prevailing Rates of Wages, which are the minimum hourly rates to be paid on this project, shall be indicated in the Prevailing Wage Rate Schedule published by the New York State Department of Labor which are included in the Project Manual.

C. Any person or corporation that willfully pays, after entering such contract, less than established wage schedule shall be guilty of a misdemeanor and, upon conviction, shall be punished for such first offense by a fine of $500 or by imprisonment for not more than 30 days or both fined and imprisoned. A second offense carries a heavier penalty.

4. A.I.A. Documents

A. The "General Conditions of the Contract for Construction" Standard A.I.A. Document A201, 2007 edition and these Supplementary General Conditions of the Contract, will become, under the Agreement, a portion of the Documents of the Contract and shall govern all Work under this Contract.

B. The following supplements modify the "General Conditions of the Contract for Construction," A.I.A. Document A201, 2007 Edition. Where a portion of the General Conditions is modified or deleted by these Supplementary Conditions, the unaltered portions of the General Conditions shall remain in effect.

C. **Article 1 - General Provisions**

1.1 Basic Definitions

Add the following Subparagraph to 1.1.2:

1.1.2.1 Where the term "Contract" or "Prime Contract" is used in the General Conditions, Supplementary Conditions, and other Contract Documents, it shall mean the separate Owner-Contractor Agreement between the Owner and each Prime Contractor identified in Division 1.

1.2 Correlation and Intent of the Contract Documents

Add new subparagraph 1.2.4:

In the event of conflicts or discrepancies among the Contract Documents, interpretations will be based on the following priorities.

1. Modifications issued after execution of the Agreement.

2. The Agreement Between the Owner and the Contractor.

3. Addenda, issued prior to the execution of the Agreement, with those of later dates having precedence over those of earlier dates.

4. The Supplementary Conditions, Rider to the General Conditions, Special Provisions or Requirements (if any)

5. The General Conditions of the Contract for Construction.

6. Drawings and Specifications.

After execution of the Agreement and during the course of the Work should any ambiguities, discrepancies, omissions, or apparent errors be found on the drawings or in the specifications to which the Contractor has failed to call attention prior to submitting his bid, then the intention of the Contract Documents is to be interpreted by the Architect.

The Architect's decision as to the intent shall be final, and the Contractor hereby agrees to carry out the Work in accordance with the decision of the Architect.

Until such time as an interpretation is issued, it shall be assumed that the Contractor has based his bid on providing the Work in the better quality, greater quantity, or most expensive manner, for Work complete in every detail, even though every item necessarily involved is not particularly mentioned.

If necessary measurements are missing or Work specified or shown in the Contract Documents is obviously incorrect or impossible to execute, or figures fail to check, the Contractor shall call these facts to the attention of the Architect for interpretation as described above.

Add new subparagraph:

1.2.5 Figured Dimensions--Drawings in general are made to scale, but all Working dimensions shall be taken from the figured dimensions or by actual measurements at the job and in no case by scaling. The Contractor shall study and compare all drawings and verify all figures before laying out the Work for construction and shall be responsible for any and all errors in his Work which might have been avoided by not doing so. Whether or not an error is believed to exist, no deviation from the drawings and dimensions given thereon shall be made unless written approval of the Architect is obtained.

D. **Article 2 - Owner**

2.2 Information and Services Required of the Owner

2.2.5 Delete in its entirety.

Delete Paragraph 2.3 in its entirety and replace with the following:

2.3 If the Contractor fails to correct Work which is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or fails to carry out Work in accordance with the Contract Documents or fails or refuses to provide a sufficient amount of properly supervised and coordinated labor, materials, or equipment so as to be able to complete the Work within the Contract Time or fails to remove and discharge (within ten days) any lien field upon Owner's property by anyone Claiming by, through, or under Contractor, or disregards, the instructions of the Architect, Construction Manager (if applicable) or Owner when based on the requirements of the Contract Documents, the Owner, by written order signed personally or by an agent so empowered by the Owner, may order the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated (as determined by the Owner or its agent); however, the right of Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right either on its behalf or for the benefit of the Contract or any other person or entity. The Contractor shall stop work upon receipt of said order or upon such later time as may be specified in said order. The written order described herein above may be delivered to and shall be deemed received by the Contractor in the same manner as set forth in paragraph 2.4.1.1.

Article 2.4 Owners Right to Carry Out The Work

Delete paragraph 2.4 in its entirety and replace with the following:

2.4 Owner's Right to Carry Out the Work

Add after second sentence of 2.4 the following sentence:

"Such Change Order shall be deemed to have been executed by the Contractor, whether or not actually signed by the Contractor. If payments then or thereafter due the Contractor are not

sufficient to cover such amounts the Contractor shall pay the difference to the Owner."

Add after second sentence of 2.4 the following sentence:

If the Owner, Architect or Construction Manager (if applicable) request that any of the Prime Contractors perform additional work which is not included in the Construction Documents and which will result in either additional cost or additional time a fully executed Change Order is required.

The Contractor shall submit a proposal for the additional work. This proposal shall contain a complete itemization of the costs associated with the work inclusive of all labor and materials. All proposals for any work that the Contractor, its Subcontractors or Subcontractors of subcontractors perform in connection with the additional work shall be submitted utilizing the format contained herein below (item 7.2.3). In no event shall the total for overhead and profit on any Change Order exceed fifteen percent (15%) of the cost of the work.

1. Any proposals submitted without an itemized breakdown as indicated herein will be returned for resubmission.

2. For work performed by the Prime Contractor, fifteen percent (15%) overhead and profit is permitted for their labor and material costs.

3. Overhead can only be applied to the cost of labor and materials, including delivery.

4. Overhead and profit is not permitted on rental of equipment and machinery.

5. Equipment and machinery costs shall not include items already on site and under use for the base contract.

6. Additional bond costs shall be 2 % maximum.

7. Insurance costs fall within overhead costs.

8. Subcontractor proposals in connection with the work shall include a maximum of ten percent (10%) overhead and profit for their work.

9. The Prime Contractor is permitted five percent (5%) profit on the work of its Subcontractor as indicated in the Table at 7.2.3.

10. Under no circumstance shall the Contractor or its Subcontractors be entitled to overtime costs unless otherwise agreed and approved by the Owner. (Ref Article 8 – Time)

11. A change in the Contract sum shall only be accomplished by a written Change Order. Payments cannot be issued against a Change Order unless it has been fully executed.

12. Adjustments in time if required will be in accordance with Article 8.

Proposals for additional work shall be submitted in the following format accompanied by sufficient substantiating data to permit a proper evaluation.

	Proposed Change Order	Estimated cost
A	Prime Contractors Materials (itemized quantities & cost)	
B	Prime Contractors Labor (itemized)	
C	Subtotal (A+B)	
D	Any credit due shall be applied here	
E	Overhead 10% of Subtotal	

F	Subtotal (C+D+-E)	
G	Subcontracted work (include itemized quantities and costs and 10% max OH&P)	
H	Subtotal (F+G)	
I	Prime Contractors Profit 5%	
J	Subtotal (H+I)	
K	Equipment and Machinery Rental (itemized)	
L	Bond Costs (2% max)	
M	Total Proposed Change Order (J+K+L)	

E. **Article 3 - Contractor**

3.1 General:

Add the following Paragraph to 3.1:

3.1.4 Where the term "Prime Contractor" is used in the General Conditions, Supplementary Conditions, and other Contract Documents, it shall be interpreted in accordance with Subparagraph 6.1.2.1. of the Supplementary Conditions."

3.2 Review of Contract Documents and Field Conditions by Contractor

Delete Paragraph 3.2.2 in its entirety and replace with the following:

3.2.2 The Contractor is deemed to be a qualified expert in the systems and construction requirements of the Work of its Contract. The Contractor hereby specifically acknowledges and declares that the Contract Documents are full and complete, are sufficient to have enabled it to determine the cost of the Work and that the Drawings, the Specifications and all addenda are sufficient to enable the Contractor to construct the Work outlined therein in accordance with applicable laws, statues, building codes and regulations, and otherwise to fulfill all of its obligations under the Contract Documents. In addition, if the Contractor performs any construction activity and if it knows or should have know that any of the Contract Documents contains an error, inconsistency or omission, the Contractor shall be responsible for such performance and shall bear the costs for correction thereof.

3.3 Supervision and Construction Procedures:

Add the following Subparagraph to 3.3.1:

3.3.1.1 The Contractor shall:

1. review any specified construction or installation procedure, including those recommended by manufacturers,

2. advise the Architect:

   a. if the specified procedure deviates from good construction practice, or
   b. of any objections the Contractor may have to the procedure; and

3. propose any alternative procedure.

3.4 Labor and Materials:

Add the following Paragraphs to 3.4:

3.4.4 The Contractor shall check all materials and labor entering into the Work site and shall keep full detailed accounts thereof.

3.4.5 The Contractor acknowledges that it is the Contractor's responsibility to hire all personnel for the proper and diligent execution of the Work and the Contractor shall maintain labor peace for the duration of the Project. In the event of a labor dispute, the Contractor shall not be entitled to any increase in the Contract Schedule or the Contract Sum.

3.4.6 After the Contract has been executed, the Owner and the Architect will consider a formal request for the substitution of products in place of those specified only under the conditions set forth in the General Requirements (Division 1 of the Specifications).

3.4.7 By making requests for substitution based on Subparagraph 3.4.2 above, the Contractor:

1. represents that the Contractor has personally investigated the proposed substitute product;

2. represents that the Contractor will provide the same warranty for the substitution that the Contractor would for that specified;

3. certifies that the cost data presented is complete and includes all related costs under this Contract except the Architect's redesign costs, and waives all claims for additional costs related to the substitutions which subsequently becomes apparent;

4. will coordinate the installation of the accepted substitute, making such changes as may be required for the Work to be complete in all respects; and

5. will reimburse the Owner for additional costs from claims by other Prime Contractors resulting from incorporation of requested substitution.

3.4.8 The burden of proof of equivalence rests with the bidder. Adequate supporting information must accompany proposed equivalents. The Owner or Architect reserves the right to accept or reject proposed equivalents.

3.5 Warranty:

Add the following to Subparagraph 3.5:

The Contractor will be responsible for and shall make good any defects due to faulty materials for two (2) years and two (2) years on labor after final payment has been made, except where sections of the Specifications call for a longer period of time.

3.5.2 The burden of proof of equivalence rests with the bidder. Adequate supporting information must accompany proposed equivalents. The Owner or Architect reserves the right to accept or reject proposed equivalents.

3.6 Taxes:

Add the following Subparagraph to 3.6:

3.6.1 The Owner is exempt from payment of Federal, State, Local Taxes, and

from payment of Sales and Compensating Use Taxes of the State of New York and of Cities and Counties on all materials and supplies sold to the Owner pursuant to the provisions of this Contract. These taxes are not to be included in bids. This exemption does not, however, apply to tools, machinery, equipment, or other property leased by or to the Contractor or a subcontractor; and the Contractor and his subcontractor 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.

3.9 Superintendent:

Delete paragraph 3.9.2 in its entirety and replace with the following:

3.9.2 Qualifications of Superintendent: The Contractor shall employ a Superintendent, for the duration of the Project, whose qualifications meet or exceed those listed below. Prior to employing the Superintendent, the Contractor shall submit to the Architect the name of the proposed Superintendent and, if requested by the Architect, a statement attesting to his qualifications.

1. Five (5) years of experience as a Superintendent in the particular construction discipline required by the Contract.

2. Superintendent on at least two (2) construction projects equal to, or greater than, the Contract Sum for this Contract.
3. Superintendent on at least two (2) projects of similar construction types and procedures as this Project.

3.12 Shop Drawings, Product Data, and Samples:

Add the following to the end of paragraph 3.12.1:

"The shop drawings shall include fabrication, erection, layout, and setting drawings and schedules, wiring and piping diagrams; and any other information required for proper approval of or installation of all parts of the Work specified. If any modifications are required to a standard item, such modifications shall be clearly shown or noted at the time of submission of shop drawings."

Delete paragraph 3.12.2 in its entirety and substitute the following:

"Product Data are illustrations, standard schedules, performance charts, recommended installation procedures and instructions, operating and maintenance procedures, diagrams, and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work."

Add the following to the end of paragraph 3.12.5:

"All submissions shall be in accordance with Section 01300 Submissions."

Add the following to the end of paragraph 3.12.7:

"Contractor shall be responsible for verification of field dimensions and conditions and shall furnish such information to the Architect when requested. Before Contractor proceeds with the Work in question, the Contractor should field verify all dimensions. In case of doubt about dimensions, he should notify the Architect immediately for

instructions."

Add the following new Paragraphs to 3.12:

3.12.11 Immediately after signing of the Contract by the Owner and Contractor, the Contractor must submit a complete list of shop drawings from all trades and specify the approximate dates on which they will be submitted for approval.

F. **Article 4 - Architect**

4.2 Administration of the Contract:

Modify 4.2.3 as follows:

Omit "…or any other persons performing portions of the work," and substitute "… or any other persons in a contractual relationship with the Contractor performing portions of the Work."

Add the following Subparagraphs to 4.2.4:

4.2.4.1 Any direct communications between the Owner and the Contractor that affect the performance or administration of the Contract shall be made or confirmed in writing, with copies to the Architect, and any such communications that represent a modification of the Contract requirements shall be documented appropriately.

4.2.4.2 Any communications between the Architect and the Contractor's subcontractors shall be confirmed in writing to the Contractor.

G. **Article 5 - Subcontractors**

5.2 Award of Subcontracts and Other Contracts for Portions of the Work:

Add the following Subparagraphs to 5.2.1:

5.2.1.1 Refer to Instructions to Bidders for requirements for delivery of "Contractor's Subcontractor List" to Architect's office after receipt of bids and before award of the Contract."

5.2.1.2 Subcontractors will not be acceptable unless, when requested by the Architect, evidence is furnished that the proposed subcontractor has satisfactorily completed similar subcontracts as contemplated under this Prime Contract and has the necessary experience, personnel, equipment, plant, and financial ability to complete the subcontract in accordance with the intent of the Contract Documents.

Delete Subparagraphs 5.2.2 and 5.2.3 in their entirety and substitute the following:

5.2.2 The Contractor shall within thirty (30) days after the Award of Contract, submit for approval a complete list of all subcontractors, and any one subcontractor listed who is not acceptable to the Architect or Owner shall be replaced with an acceptable subcontractor at no change in the contract price.

5.2.3 Approval of a subcontractor may be revoked or withdrawn, if, in the opinion

of the Architect, such subcontractor evidences an unwillingness or inability to perform his Work in strict accordance with the Contract Documents.

5.4 Contingent Assignment of Subcontracts:

Add the following Paragraph to 5.4:

5.4.4 All subcontracts over $5,000 shall be in writing with copies of written subcontract provided to the Owner upon request.

H. **Article 6 - Construction by Owner or By Separate Contractors**

6.1 Owner's Right to Perform Construction and to Award Separate Contracts:

Add the following Subparagraphs to 6.1.2:

6.1.2.1 Where the term "Contractor" or "Prime Contractor" is issued in the General Conditions, Supplementary Conditions, and other Contract Documents, it shall mean the Contractor identified in Division 1 who executed each separate Owner-Contractor Agreement.

6.1.2.2 Where the term "separate contractor" is used in this Article, it shall mean other contractors performing construction or operation on the site not included in the Project.

Add the following Subparagraph to 6.1.3:

6.1.3.1The Contractor shall provide for coordination of his activities with the activities of each Prime Contractor. This includes but is not limited to the Owners own forces or separate Contractors employed directly by the Owner.

6.2 Mutual Responsibility:

Add the following Subparagraphs to 6.2.2:

6.2.2.1 If part of the Contractor's Work depends for proper execution or results upon Work by another Prime Contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly report to the other Prime Contractor apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results. Failure of the Contractor to report shall constitute an acknowledgement that the other Prime Contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work, except as to defects not then reasonably discoverable.

6.2.2.2 Each Prime Contractor shall promptly correct discrepancies or defects in their Work identified by other Prime Contractors as affecting proper execution and results of the Work of the other Prime Contractor.

Add the following Subparagraph to 6.2.5:

6.2.5.1 Claims and other disputes and matters in questions between the Contractor and other Prime Contractors shall be subject to the provisions of Article 15.

Add the following new Subparagraphs:

6.2.6 All required cutting, patching, and restoring shall be neatly done by

mechanics skilled in their specific trades, to the satisfaction of the Architect.

6.2.7 The Contractor shall leave all Work of his trade WHOLE, PERFECT, AND COMPLETE at the final completion of the Work.

6.3 Owner's Right to Clean Up:

Modify Paragraph 6.3.1 as follows:

In the first sentence, delete the words "the Contractor" and add "the Prime Contractor."

I. **Article 7 - Changes in the Work**

7.3 Construction Change Directives:

7.3.7 In the first sentence, delete the words "as set forth in the Agreement or if no such amount is set forth in the Agreement, a reasonable amount" and replace with "in accordance with Clause 7.3.12 below."

Add the following Subparagraphs to 7.3:

7.3.11 Lump sum adjustment described in Subparagraph 7.3.3.1 above shall be substantiated by submitting to the Architect for evaluation evidence of actual costs for the following:

1. costs described in Subparagraph 7.3.6 above, including labor and other costs of subcontractors, itemized by trades, and

2. costs of power and consumable supplies for operation of power equipment.

7.3.12 In Subparagraph 7.3.7, the allowance for the combined overhead and profit included in the total cost to the Owner shall be based on a maximum fee of fifteen percent (15%) of the cost.

J. **Article 8 - Time**

8.2 Progress and Completion:

Add the following Subparagraph to 8.2.1

8.2.1 .1 The Contractor recognizes that the Project Schedule is of critical importance to the Owner. All aspects of construction must reflect a ‘time is of the essence’ construction strategy. The ‘Bid Schedules’ serve as a guide of critical milestone dates to the Project. Failure to meet intermediate milestone dates will jeopardize the overall Project Schedule.

If the Contractor’s performance of the Work evidences, to the Owner or Architect, that the completion day may be in jeopardy, this will mandate Contractor(s) to increase staff, work overtime, or use other means to recover time, at the costs of those Contractor(s) responsible for such delays. In addition, all costs due to delays in completion of the Work shall be borne by Contractor(s) responsible for delays.

Add the following Subparagraph to 8.2.2:

8.2.2.1 The Contractor shall not commence Work on the site until two certified copies of all insurance policies as indicated in Article 11, attesting that the required coverage is in force, have been received and accepted by the Owner.

Add the following Subparagraph to 8.2.3:

8.2.3.1 The Contractor shall cooperate with the Owner, Architect, Engineer, and other Contractors on the Project, making every reasonable effort to reduce the Contract Time.

8.3 Delays and Extensions of Time:

Delete Paragraph 8.3.1 and replace with the following:

8.3.1 "If the Contractor is delayed at/in its progress of the Work by one of the delays for which an extension of time is permitted and gives the Owners Representative written notice specifically describing the delay within 48 hours of its commencement, the date for the Substantial Completion of the Work will be extended by Change Order for such reasonable time as the Owner's Representative may determine. The failure to give such notice will constitute an irrevocable waiver of the Contractor's right to seek an extension for such delay. The only delays for which the Contractor will be entitled to an extension of the time for completion will be delays caused by the Architect, Construction Manager, or the Owner, physical damage to the Project over which the Contractor has no control, labor disputes beyond the control of the Contractor, and unusually severe weather conditions not reasonably anticipated (temperature, rain, or other precipitation within a range of twenty percent of normal amounts for the time of the year covered by the Agreement shall not be considered unusually severe weather conditions) or by fire, unavoidable casualties or by other causes beyond the Contractors reasonable control. Extensions of time will only be granted pursuant to the procedures for Change Orders set forth in the General Conditions. The Contractor agrees not to make claims for financial compensation for delays or acceleration in the performance of the Work resulting from acts or failure to act by the Owner, the Architect, Construction Manager, or the employees, agents, or representatives of the Owner, Construction Manager, or the Architect and agrees that such claim shall be fully compensated by an extension of time to complete the Work, regardless of when granted. Contractor delayed by Work of other Contractors shall make claims against delaying Contractor and not the Owner."

Add the following Subparagraphs to 8.3.1:

8.3.1.1 Extension of time, if requested by the Contractor, shall only be considered after the Contractor has made reasonable effort to recover the lost time.

8.3.1.2 An extension, or extensions, of time may be granted subject to the provisions of this article, but only after written application therefore by the Contractor in accordance with Paragraph 15.1.5.

8.3.1.3 An extension of time shall be only for the number of days of delay which the Architect may determine to be due solely to the causes set forth in the application for extension of time. The Contractor shall not be entitled to receive a separate extension of time for each one of several causes of delay operating concurrently; but if at all, only the actual period of delay as

determined by the Architect.

8.3.1.4 When the Contract Time has been extended, as provided under this Paragraph 8.3, such extension of time shall not be considered as justifying extra compensation to the Contractor for administrative costs or other similar reasons.

Delete paragraph 8.3.2 and replace as follows:

8.3.2 Claims relating to time shall be made in accordance with applicable provisions of this Agreement. A copy of any Claim for extension of time shall be delivered to the Owner, the Architect and the Construction Manager(if applicable), and the Contractor shall immediately take all steps reasonably possible to lessen the adverse impact of such delay to the Owner.

Delete paragraph 8.3.3 and replace as follows:

8.3.3 In no event shall the Contractor be entitled to monetary damages for delay under the Contract.

A new paragraph 8.3.4 shall be added as follows:

8.3.4 To the extent the Contractor is required to work during overtime hours, weekend, holidays or at other times which are not regularly scheduled, due to the fault of the Contractor, the Contractor shall be responsible for the costs incurred by the Owner, Architect, the Construction Manager (if applicable) and the others attributable to working during periods which have not been ordinarily scheduled. To the extent the Contractor elects to work during these periods to facilitate the schedule, the Owner may, at its sole option, allow the Contractor to do so without the Contractor incurring the additional costs referenced above.

K. **Article 9 - Payments and Completion**

9.3 Application for Payment:

9.3.1 In the second sentence, delete the words "if required."

Add the following Subparagraphs:

9.3.1.3 Until final completion and acceptance of Work in accordance with Paragraph 9.10, the Owner shall pay 95 percent of the amount of each progress payment due the Contractor.

9.3.1.4 In the event the bonds identified in Paragraph 11.4. become invalid, the Owner shall pay 90 percent of the amount to each progress payment due the Contractor.

9.3.1.5 The application for payment shall be accompanied by the following documentation:

a. A current contractor’s lien waiver.

b. Duly executed waivers of Public Improvement liens from all subcontractors and material suppliers representing satisfaction of

payment of all amounts requested by the Contractor on behalf of such entities in any previous application for payment.

c. Certified Payroll for all employees of the Contractor and employees of subcontractors performing Work on the Project.

d. For contracts of $250,000 and more, all Contractors and subcontractors must attach a copy of proof of completion of the OSHA 10 course to the first Certified Payroll submitted and on each succeeding payroll where any new or additional employee is first listed.

e. Such other information which the Owner and/or the Architect request the Contractor furnish in connection with its Application for Payment.

Add the following Subparagraphs to 9.3.2:

9.3.2.1 Procedures required by Owner shall include, but are not necessarily limited to, submission by the Contractor to the Architect of bills of sale and bills of lading for such materials and equipment, provision of opportunity for Architect's visual verification that such materials and equipment are, in fact, in storage, and, if stored off site, submission by the Contractor of verification that such materials are stored in a bonded warehouse.

9.3.2.2 All such materials and equipment, including materials and equipment stored on-site but not yet incorporated in the Work, upon which partial payments have been made shall become the property of the Owner, but the care and protection of such materials and equipment shall remain the responsibility of the Contractor until incorporation into the Work, including maintaining insurance coverage on a replacement cost basis without voluntary deductible.

9.3.2.3 Additionally, the Contractor must furnish the following information, where payment is requested for materials and equipment stored off the project site, as part of its Application for Payment:

1. Type of material must be specifically identified by the trade contractor.

2. Trade contractor must furnish an invoice from his supplier showing the total value of the material and/or equipment being stored off site.

3. Trade contractor must provide a Certificate of Insurance for the full value of the item plus 10 percent.

Add the following subparagraph to 9.3.3:

9.3.3.1 The Contractor shall keep the Owner and the Owner’s property (including funds or payment under the Project) free from all liens and claims, legal or equitable arising out Contractor’s work hereunder. If any such lien is filed with the Owner by anyone claiming by through or under the Contractor, the Contractor shall discharge the lien within 10 days of the filing thereof. The Contractor further expressly agrees to defend the Owner, at the Contractor’s sole expense, against any actions, lawsuits or proceedings brought against Owner as a result of liens filed against payments due the Contractor or the Work, the site of any of the Work, the Project site and any improvements

thereon, any portion of the property of the Owner. The Contractor hereby agrees to indemnify and hold Owner's harmless against any such liens or claims of lien and agrees to pay any judgment or lien resulting from any such actions, lawsuits or proceedings. The Owner agrees to release any payments withheld as a result of a duly field lien upon compliance by the Contractor with the applicable discharge or vacatur provisions of the Lien Law.

9.6 Progress Payments:

Add the following new paragraphs:

9.6.8 Unless otherwise specified in the agreement, the Owner will make payment in account of the Contract as provided therein as follows:

Any claims, liens, and judgements referred to in this section shall pertain to the project and shall be filed in accordance with the terms or the applicable contract and/or applicable laws. In the event that the terms of payment on a public Works project, as provided in this section, are pre-empted or superseded as a result of the provision of any federal statute, regulation, or rule, paragraph shall not apply.

9.6.9 In accordance with Part I, Section 106-b, General Municipal Law, the Contractor shall periodically, in accordance with the terms of the Contract, submit to the Architect a requisition for a progress payment for the Work performed and/or materials furnished to the date of the requisition less any amount previously paid to the Contractor. The Owner shall, in accordance with the terms of the Contract, approve and promptly pay the requisition for the progress payment less an amount necessary to satisfy any claims, liens, or judgements against the Contractor which have not been suitably discharged and less any retained amount as hereafter described. The Owner shall not retain in excess of five percent (5%) but not more than ten percent (10%) of each progress payment to the Contractor provided that there are no requirements by the Owner for the Contractor to provide a Performance Bond and Labor and Material Bond in the full amount of the Contract. The Owner shall pay, upon requisition from the Contractor, for materials pertinent to the Project which have been delivered to the site or off-site by the Contractor and/or subcontractor and suitably stored and secured as required by the Owner and the Contractor, provided the Owner may limit such payment to materials in short and/or critical supply and materials specially fabricated for the Project each as defined in the Contract. When the Work or major portions thereof as contemplated by the terms of the Contract are Substantially Complete, the Contractor shall submit to the Architect a requisition for payment of the remaining amount of the Contract balance. Upon receipt of such requisition, the Owner shall approve and promptly pay the remaining amount of the Contract balance less two (2) times the values of any remaining items to be completed and an amount necessary to satisfy any claims, liens, or judgements against the Contractor which have not been suitably discharged.

9.10 Final Completion and Final Payment:

Add the following Subparagraphs to 9.10.1:

9.10.1.1 "In case the Contractor neglects to carry out the provisions of this clause within a reasonable time after notice, the Owner may cause all defects to be

remedied and all repairs to be made without notice to the Contractor and deduct same from any amount so retained and recover the balance, if any, from the Contractor. The order of the Architect as to the conditions of the Work constructed under this Contract, the extent of the remedies applies, and of the repairs made, and of the cost thereof, shall be binding and conclusive upon the Contractor, his assigns, and sureties.

9.10.1.2 If the Work is not accepted by the Owner after final inspection and additional time is required to complete items identified during the final inspection, the date starting the one-year correction period described in Article 12 shall be set by the Architect at his discretion, but not later than the date of the final Certificate for Payment.

9.10.1.3 If the Architect is required to perform additional final inspections because the Work fails to comply with the certifications of the Contractor identified in Division 1, the amount of compensation paid to the Architect by the Owner for additional services shall be deducted from the final payment to the Contractor.

Add the following Subparagraphs to 9.10.2:

9.10.2.1 In addition to the submittals required in Subparagraph 9.10.2 above, the Contractor shall submit separate release or waivers of liens for each subcontractor, material supplier, and others with lien rights against the property of the Owner and shall submit a list of such parties.

9.10.2.2 Submittals required above shall be made in accordance with procedures described in Division 1.

Add the following additional Clauses to Paragraph 9.10.4:

".4 Claims for Indemnification;

.5 Claims about which the Owner has given the Contractor written notice;

.6 Claims arising after final payment."

L. **Article 10 - Protection of Persons and Property**

10.2 Safety of Persons and Property:

Add the following Subparagraph to 10.2.2:

10.2.2.1 The Contractor acknowledges that the Labor Law of the State of New York, and regulations adopted thereunder, place upon both the Owner and the Contractor certain duties and that liability for failure to comply therewith is imposed on both the Owner and the Contractor regardless of their respective fault. The Contractor hereby agrees that, as between the Owner and the Contractor, the Contractor is solely responsible for compliance with all such laws and regulations imposed for the protection of persons performing the Contract. The Contractor shall indemnify and hold harmless the Owner of and from any and all liability for violation of such laws and regulations and shall defend any claims or actions which may be brought against the Owner as the result thereof. In the event that the Contractor shall fail to refuse to defend any such action, the Contractor shall be liable to the Owner for all Costs of the Owner in defending such claim or action

and all costs of the Owner, including attorney's fee, in recovering such defense costs from the Contractor.

Add the following new Subparagraph to 10.2:

10.2.9 Title to all completed or partially completed Work at the job site and to all materials delivered to and stored at said job site which are intended to become a part of the completed Work covered by the Contract, shall be in the name of the Owner. Notwithstanding the foregoing, prior to the acceptance of the completed Work by the Owner, the Contractor shall be liable for all loss of, or damage to, said completed Work, partially completed Work, materials furnished by the Contractor, and materials or equipment furnished by others, the custody of which has been given to the Contractor arising from any cause other than a cause against which the Owner herein undertakes to carry insurance. In the event of loss or damage from cause other than those against which the Owner undertakes to carry insurance, the Contractor shall replace or repair the said Work materials at his own cost and expense, to the completed satisfaction of the Owner and Architect.

M. **Article 11 - Insurance and Bonds**

11.1 Contractor's Liability Insurance:

Add the following Subparagraph to 11.1.1:

11.1.1.1 Liability insurance shall include all major divisions of coverage and be on comprehensive basis including:

1. Premises Operations (including X, C, and U coverage as applicable).
2. Independent Contractor's Protective.
3. Products and Completed Operations.
4. Personal Injury Liability with Employment Exclusion deleted.
5. Contractual, including specified provisions for Contractor's obligation under Paragraph 3.18.
6. Owned, non-owned, and hired motor vehicle.
7. Broad Form Property Damage including Completed Operations.

Add the following Subparagraph to 11.1.2:

11.1.2.1 The insurance required by Subparagraph 11.1.1 shall be written for not less than limits indicated in Division 01, Specification Section 010200 or greater as required by Law.

Add the following Subparagraph to 11.1.3:

11.1.3.1 In addition to the Certificate of Insurance, the Contractor shall provide the Owner with copies of any endorsements subsequently issued amending coverage or limits.

11.3 Property Insurance:

Add the following to Paragraph 11.3.1.1:

"The form of policy for this coverage shall be Completed Value."

Delete Paragraph 11.3.1.4 in its entirety and replace with the following:

11.3.1.4 The Contractor shall provide insurance coverage for portions of the Work stored off the site, in transit, and stored on the site but not incorporated into the Work as full replacement cost basis without voluntary deductible.

Delete Paragraph 11.3.10 in its entirety and replace with the following:

11.3.10 The Owner as fiduciary shall have the power to adjust and settle a loss with insurers unless one of the parties in interest shall object in writing within five days after occurrence of loss to the Owner's exercise of this power.

11.4 Performance Bond and Payment Bond:

Delete Paragraph 11.4.1 and substitute the following:

11.4.1 The Contractor shall furnish, in duplicate, bonds covering faithful performance of the Contract and payment of obligations arising thereunder. Bonds shall be obtained from a surety satisfactory to the Owner, licensed to do business in the state where the Project is located. The amount of each bond shall be equal to 100 percent of the Contract Sum. The cost of the required bonds shall be included in the Contract Sum. Each bond shall be maintained throughout the duration of the Project and shall remain in effect for a period of not less than 2 years following final completion of the Work by the Contractor.

Add the following subparagraph to 11.4.1:

11.4.1.1 The Contractor shall deliver the required bonds to the Owner prior to beginning construction activity at the site, but no later than seven days after execution of the Contract, on A.I.A. Document A312, Performance Bond and Labor and Material Payment Bond.

N. **Article 14 - Termination or Suspension of the Contract**

14.1 Termination by the Contractor:

Add the following to 14.1.1:

.5 In accordance with Section 103.1, General Municipal Law, if any person when called to testify before a Grand Jury concerning any transaction or contract with the State of New York or a political subdivision thereof, or a public authority, or a public department, agency, or official of any of the foregoing, refuses to sign a waiver of immunity against subsequent criminal prosecution or refuses to answer any relevant questions concerning such transaction or contract; then any such person, or any firm, partnership, or corporation of which he is a member, partner, director, or official shall be disqualified for a period of five (5) years after such refusal from submitted bids to, receiving awards, or entering into any contract with, any municipal corporation or department or agency or official thereof.

If such person refuses to sign a waiver of immunity or to answer any relevant questions as aforesaid, then this Contract may be canceled or terminated by the Owner without the Owner incurring any penalty or damages by virtue of such cancellation or termination.

.6 In accordance with Section 109, General Municipal Law, the Contractor shall not assign, transfer, convey, sublet, or otherwise dispose of the Contract for the Work herein specified, or his right, title, or interest therein, or his power to execute the Contract, to any other person or corporation without the previous consent in writing of the Board of Education.

If the Contractor, without previous written consent of the Board of Education, shall assign, transfer, convey, sublet, or otherwise dispose of the Contract for the Work specified herein, or his power to execute the Contract, to any other person or corporation, the Board of Education shall be relieved of and discharged from any and all liability and obligations growing out of the Contract to the Contractor, and to the persons or corporation to which the Contract shall have been assigned, transferred, conveyed, sublet, or otherwise disposed of, and the Contractor, and his assignees, transferees, or sublessees shall forfeit and lose all monies theretofore earned under the Contract, except so much as may be required to pay his employees.

The above provisions of this paragraph shall not hinder, prevent, or affect any assignment by the Contractor for the benefit of his creditors made pursuant to the laws of the State of New York.

O. <u>Article 15 Claims and Disputes</u>:

Paragraph 15.1.2, Notice of Claims, Delete the last sentence in its entirety.

Add the following subparagraph to 15.1.4:

15.1.4.1 Delete all text after “grounds” in line 5 of this subparagraph and substitute the following text, “the Contractor’s Claim shall be made in writing within 21 days after the occurrence of the event giving rise to the Claim. Failure to do so shall be an irrevocable waiver of the Claim. Regardless of other provision in the Contract Documents to the contrary, the Contractor will not be entitled to damages or additional compensation from the Owner or Architect on account of delays caused by person, except as permitted under Paragraph 14.3.

Modify Paragraph 15.1.5.1 as follows:

Delete the text after “notice” in the first sentence and substitute the following text and sentence, “shall be given by the Contractor to the Architect within 7 days of its commencement. The failure to give such notice shall constitute an irrevocable waiver of the Claim.

Delete from the second sentence the following, “of cost and”

Delete the third sentence, “In the event of a continuing delay, only one claim is necessary.” in its entirety.

Add the following Subparagraphs to 15.1.5.1:

15.1.5.1.1 An application for extension of time must set forth in detail the nature of

each alleged cause of delay, the dates upon which such cause of delay began and ended, the number of days attributable to each of such causes, and the probable effect of such causes on the previously approved progress schedule.

15.15.1.1.2 Failure to strictly comply with these requirements may, at the discretion of the Owner, be deemed sufficient cause on the previously approved progress schedule.

Add the following Subparagraph to 15.1.5.2:

15.1.5.2.1 In planning his construction schedule within the agreed Contract Time, it shall be assumed that the Contractor has anticipated the amount of adverse weather conditions normal to the site of the Work for the season or seasons of the year involved. Only those weather delays attributable to other than normal weather conditions will be considered by the Architect.

Add the following Subparagraph to 15.1.5

15.1.5.3 The Owner shall not be liable to the Contractor and/or Subcontractor for financial Claims or monetary damages of any nature caused by or arising out of delays. The sole remedy against the Owner for delays shall be the allowance of additional time for completion of the Work, the amount of which shall be subject to the Claims procedure set forth herein. Except to the extent, if any, expressly prohibited by law, the Contractor expressly agrees not to make any hereby waives any Claim for damages for delay, including, but not limited to, those resulting from increase labor or material costs; directions given or not given by the Owner, Architect, including scheduling and coordination of the Work; the Architect's preparation of drawings and specifications or review of shop drawings and requests for instruction(s); or, on account of any delay, obstruction or hinderance for any cause whatsoever by the Owner, Architect, or any other contractor on this Project, whether or not foreseeable or anticipated. The Contractor agrees that its sole right and remedy therefore shall be an extension of time if appropriate. IT IS EMPHASIZED THAT NO MONETARY RECOVERY MAY BE OBTAINED BY THE CONTRACTOR FOR DELAY AGAINST THE OWNER, CONSTRUCTION MANAGER (when applicable), OR ARCHITECT BASED ON ANY REASON AND THAT THE CONTRACTOR'S SOLE REMEDY, IF APPROPRIATE, IS ADDITIONAL TIME.

Add the following Paragraph to 15.1:

15.1.7 Damage By Other Contractors

Add the following subparagraphs to 15.1.7

15.1.7.1 "The Contractor causing damage to the Work of another Contractor shall be responsible for the repair and replacement of such damaged Work. Back charges shall be made when corrections are not made promptly."

15.1.7.2 "The Owner reserves the right to pay the Contractor originating the back charge from monies due the Contractor who is responsible for the Work required by same and shall deduct it from the amount due the said responsible Contractor."

15.1.7.3 "Contractor originating back charges will determine the amount of the back charges in accordance with Article 7, Changes in the Work, of the General Conditions of the Contract, in order to obtain the Architect's approval."

15.1.7.4 "Contractors under direct Contract with the Owner will be expected to take care of back charges originating with Subcontractors under their employ under the terms and conditions as established in the General Conditions of the Contract, Article 5 and Article 6. Contractors under direct Contract with the Owner, and their Sureties, shall indemnify and save the Owner harmless from claims of this type, including paying for legal expenses necessary to remove or settle any liens or other legal claims against the Owner."

15.2 Initial Decision

Modify Paragraph 15.2.1 as follows:

Add the following text at the end of this Subparagraph:…With respect to Claims submitted more than one year after Final Payment is due, the decision by the Architect shall not be a condition precedent to litigation, and the Claim need not be submitted to the Architect.

Delete Paragraph 15.2.6.1 in its entirety and replace with the following:

15.2.6.1 When a written decision of the Architect states that (1)the decision is final but subject to mediation and (2) a demand for mediation of a Claim covered by such decision must be made within 30 days after the date on which the party making the demand receives the final written decision, then failure to demand mediation within said 30 days' period shall result in the Architect's decision becoming final and binding upon the Owner and Contractor. If the Architect renders a decision after mediation proceedings have been initiated, such decision may be entered as evidence, but shall not supersede mediation proceedings unless the decision is acceptable to all parties concerned.

Add the following Paragraph 15.2:

15.2.9 "Within 10 days of a written request, the Contractor will make available to the Owner or its representative books, records, or other documents in its possession or to which it has access relating to a claim and shall require its Subcontractors, regardless of tier, and materialmen to do likewise."

15.3 Mediation:

Delete the last sentence from Paragraph 15.3.2.

15.4 Arbitration:

Delete this Paragraph in its entirety.

Add the following new article in its entirety:

Article 16 - Governmental Stipulations

16.1 Non-Discrimination:

16.1.1 The parties to this Contract agree to incorporate into this Contract the mandatory language of Subsection 3.4 (a) of the Regulation promulgated by the Treasurer pursuant to P.L. 1975, c. 127, as amended and supplemented from time to time, and the Contractor or subcontractor agrees to comply fully with the terms, provisions, and obligations of said Subsection 3.4 (a) provided that said subsection shall be applied subject to the term of Subsection 3.4 (d) of said Regulations.

16.1.2 The parties to this Contract agree to incorporate into this Contract the mandatory language of Subsections 7.4 (a) and (b) of the Regulations promulgated by the Treasurer pursuant to P.L. 1975, c. 127, as amended and supplemented from time to time, and the Contract of subcontractor agrees to comply fully with the terms, provisions, and obligations of Subsection 7.4 (a) and (b).

16.2 Prevailing Wages:

16.2.1 The Wage rate which can be paid to Workmen employed in the performance of the Contract shall be no less than the rates of wages as promulgated by the Department of Labor and Industry of the State for the location and duration of this project.

Add the following new article in its entirety:

Article 17-Indemnification

17.1.1 The Contractor and its Subcontractors shall indemnify and hold harmless the Owner, the Architect and all their employees, agents or servants or any third parties from and against any and all claims, damages, losses, suits, obligations, fines, penalties, costs, charges and expenses, including but not limited to attorneys' fees, which may be imposed upon or incurred by or asserted against any of them by reason of any act or omission of such Contractor, or any of its Subcontractors, or any person or firm directly or indirectly employed by such Contractor, for the act(s) and/or omission(s) of any Contractor or Subcontractor in connection with the work of the Project.

17.1.2 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, the Architect, the Architect's consultants, and agents and employees of them from and against claims, damages, losses and expenses, including but not limited to, attorneys' fees arising out of or resulting from performance of its work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction, of tangible property including loss of use resulting therefrom, but only to the extent caused in whole or in part by negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this paragraph 17.1.2. The Contractor's indemnity obligations under this Paragraph 17.1.2 shall, but not by way of limitation, specifically include all claims and judgments which may be made against the Owner, the Construction Manager, the Architect, the Architect's consultants and agents and employees of any of them under any applicable statute, rule or

regulation including the New York Statute, Occupational Safety and Hazardous Act, and the Federal Occupational Safety and Hazardous Act. In claims against any person or entity indemnified under this paragraph 17.1.2 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under this paragraph 17.1.2 shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or a Subcontractor under workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts.

17.1.3 The Contractor shall indemnify and hold harmless: (1) the Owner, its consultants, employees, officers and agents; and (2) the Architect and its consultants, employees, officers and agents, against any actions, lawsuits or proceedings or claims of liens brought against each or any of them as a result of liens filed against the Contractor's project funds, including all the cost and expense of said liens, and including but not limited to attorneys' fees incurred by each or any of them.

17.1.4 The Contractor shall indemnify and hold harmless the Owner and the Architect of and from any and all liability for violation of any laws and regulations applicable to the Contractor's work and shall defend any claims or actions which may be brought against the Owner as the result thereof. In the event that the Contractor shall fail to refuse to defend any such action, the Contractor shall be liable to the Owner for all costs in defending such claim or action and all costs of the Owner, including attorney's fees, in recovering such defense costs from the Contractor.

17.1.5 The Contractor shall indemnify and hold harmless the Owner and the Architect of and from any and all liability for claims made by third parties, including subcontractors, in connection with this Agreement and shall defend any claims or actions which may be brought against the Owner as the result thereof. In the event that the Contractor shall fail to refuse to defend any such action, the Contractor shall be liable to the Owner for all costs of the Owner in defending such claim or action and all costs of the Owner, including attorney's fees, in recovering such defense costs from the Contractor.

END OF SECTION

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Payment Bond

CONTRACTOR:
(Name, legal status and address)

SURETY:
(Name, legal status and principal place of business)

OWNER:
(Name, legal status and address)

CONSTRUCTION CONTRACT
Date:
Amount: $
Description:
(Name and location)

BOND
Date:
(Not earlier than Construction Contract Date)

Amount: $
Modifications to this Bond: ☐ None ☐ See Section 18

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:		Signature:	
Name and Title:		Name and Title:	

(Any additional signatures appear on the last page of this Payment Bond.)

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or **BROKER:**

OWNER'S REPRESENTATIVE:
(Architect, Engineer or other party:)

ADDITIONS AND DELETIONS:
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

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§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner to pay for labor, materials and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.

§ 2 If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies and holds harmless the Owner from claims, demands, liens or suits by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Section 13) of claims, demands, liens or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract and tendered defense of such claims, demands, liens or suits to the Contractor and the Surety.

§ 4 When the Owner has satisfied the conditions in Section 3, the Surety shall promptly and at the Surety's expense defend, indemnify and hold harmless the Owner against a duly tendered claim, demand, lien or suit.

§ 5 The Surety's obligations to a Claimant under this Bond shall arise after the following:

§ 5.1 Claimants, who do not have a direct contract with the Contractor,

.1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and

.2 have sent a Claim to the Surety (at the address described in Section 13).

§ 5.2 Claimants, who are employed by or have a direct contract with the Contractor, have sent a Claim to the Surety (at the address described in Section 13).

§ 6 If a notice of non-payment required by Section 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Section 5.1.1.

§ 7 When a Claimant has satisfied the conditions of Sections 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:

§ 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and

§ 7.2 Pay or arrange for payment of any undisputed amounts.

§ 7.3 The Surety's failure to discharge its obligations under Section 7.1 or Section 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Section 7.1 or Section 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

§ 8 The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Section 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

§ 9 Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

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§ 10 The Surety shall not be liable to the Owner, Claimants or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to, or give notice on behalf of, Claimants or otherwise have any obligations to Claimants under this Bond.

§ 11 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 12 No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Section 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 13 Notice and Claims to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.

§ 14 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 15 Upon request by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

§ 16 Definitions

§ 16.1 Claim. A written statement by the Claimant including at a minimum:

- **.1** the name of the Claimant;
- **.2** the name of the person for whom the labor was done, or materials or equipment furnished;
- **.3** a copy of the agreement or purchase order pursuant to which labor, materials or equipment was furnished for use in the performance of the Construction Contract;
- **.4** a brief description of the labor, materials or equipment furnished;
- **.5** the date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
- **.6** the total amount earned by the Claimant for labor, materials or equipment furnished as of the date of the Claim;
- **.7** the total amount of previous payments received by the Claimant; and
- **.8** the total amount due and unpaid to the Claimant for labor, materials or equipment furnished as of the date of the Claim.

§ 16.2 Claimant. An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.

§ 16.3 Construction Contract. The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

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§ 16.4 Owner Default. Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 16.5 Contract Documents. All the documents that comprise the agreement between the Owner and Contractor.

§ 17 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 18 Modifications to this bond are as follows:

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:	_____	Signature:	_____
Name and Title:		Name and Title:	
Address:		Address:	

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Performance Bond

CONTRACTOR:
(Name, legal status and address)

SURETY:
(Name, legal status and principal place of business)

OWNER:
(Name, legal status and address)

CONSTRUCTION CONTRACT
Date:
Amount: $
Description:
(Name and location)

BOND
Date:
(Not earlier than Construction Contract Date)

Amount: $
Modifications to this Bond: ☐ None ☐ See Section 16

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:		Signature:	
Name and Title:		Name and Title:	

(Any additional signatures appear on the last page of this Performance Bond.)

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or **BROKER:**

OWNER'S REPRESENTATIVE:
(Architect, Engineer or other party:)

ADDITIONS AND DELETIONS:
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

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§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

§ 2 If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Section 3.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after

.1 the Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Section 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;

.2 the Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and

.3 the Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

§ 4 Failure on the part of the Owner to comply with the notice requirement in Section 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

§ 5 When the Owner has satisfied the conditions of Section 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

§ 5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

§ 5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

§ 5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Section 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

§ 5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:

.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

§ 6 If the Surety does not proceed as provided in Section 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Section 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

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§ 7 If the Surety elects to act under Section 5.1, 5.2 or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication, for

.1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

.2 additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Section 5; and

.3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

§ 8 If the Surety elects to act under Section 5.1, 5.3 or 5.4, the Surety's liability is limited to the amount of this Bond.

§ 9 The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors and assigns.

§ 10 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 11 Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 12 Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

§ 13 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 14 Definitions

§ 14.1 Balance of the Contract Price. The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

§ 14.2 Construction Contract. The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

§ 14.3 Contractor Default. Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

§ 14.4 Owner Default. Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 14.5 Contract Documents. All the documents that comprise the agreement between the Owner and Contractor.

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§ 15 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 16 Modifications to this bond are as follows:

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL		**SURETY**	
Company:	*(Corporate Seal)*	Company:	*(Corporate Seal)*
Signature:		Signature:	
Name and Title:		Name and Title:	
Address:		Address:	

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Application and Certificate for Payment Instructions

The following AIA Document G702 or G732 and G703 shall be utilized.

The General Conditions and Supplemental Conditions (if any) state required accompanying documents.

Applications and Certificates for Payment shall be assembled and transmitted as follows:

- Provide four original Applications and Certificates for Payment if there is a Construction Manager, three originals if not. One original and photocopies are unacceptable.
- If there is a Construction Manager, utilize the Construction Manager-edition AIA Application and Certificate for Payment, and the Construction Manager must have signed all originals before transmitting them to BBS.
- Lien Releases and Affidavits are required for every Application and Certificate for Payment except the first.
- Certified Payroll is required for every Application and Certificate for Payment that includes any amount of labor.
- The first Application and Certificate for Payment will not be processed until acceptable Bonds and Insurances are submitted and approved.
- The first Application and Certificate for Payment that includes any amount of labor, and thus Certified Payroll, must contain OSHA 10 cards. OSHA 10 cards must also be provided on subsequent Applications and Certificates for Payment where any new or additional worker is employed.
- The four or three original Applications and Certificates for Payment shall be complete and separate packages; all attachments must be affixed to every original application.

The Architect/Engineer and/or Construction Manager will not disassemble, rearrange, or reproduce any Application and Certificate for Payment, or portion thereof, to bring them into compliance. Incomplete or improperly arranged Applications and Certificates for Payment will be rejected and returned to the Contractor.

AIA® Document G702™ – 1992

Application and Certificate for Payment

TO OWNER:

PROJECT:

APPLICATION NO: 001
PERIOD TO:
CONTRACT FOR:
CONTRACT DATE:
PROJECT NOS: / /

Distribution to:
OWNER:
ARCHITECT:
CONTRACTOR:
FIELD:
OTHER:

FROM CONTRACTOR:

VIA ARCHITECT:

CONTRACTOR'S APPLICATION FOR PAYMENT

Application is made for payment, as shown below, in connection with the Contract.
Continuation Sheet, AIA Document G703, is attached.

1. ORIGINAL CONTRACT SUM		$
2. NET CHANGE BY CHANGE ORDERS		$ 0.00
3. CONTRACT SUM TO DATE (Line 1 ± 2)		$ 0.00
4. TOTAL COMPLETED & STORED TO DATE (Column G on G703)		$
5. RETAINAGE:		
a. 0 % of Completed Work (Column D + E on G703)	$ 0.00	
b. 0 % of Stored Material (Column F on G703)	$ 0.00	
Total Retainage (Lines 5a + 5b or Total in Column I of G703)		$ 0.00
6. TOTAL EARNED LESS RETAINAGE (Line 4 Less Line 5 Total)		$ 0.00
7. LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificate)		$
8. CURRENT PAYMENT DUE		$ 0.00
9. BALANCE TO FINISH, INCLUDING RETAINAGE (Line 3 less Line 6)	$ 0.00	

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by Owner	$	$
Total approved this Month	$	$
TOTALS	$ 0.00	$ 0.00
NET CHANGES by Change Order	$ 0.00	

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is now due.

CONTRACTOR:

By: _____ Date: _____

State of:

County of:

Subscribed and sworn to before me this day of

Notary Public:

My Commission expires:

ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED ..... $ _____

(Attach explanation if amount certified differs from the amount applied. Initial all figures on this Application and on the Continuation Sheet that are changed to conform with the amount certified.)

ARCHITECT:

By: _____ Date: _____

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

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AIA® Document G703™ – 1992

Continuation Sheet

AIA Document, G702™–1992, Application and Certification for Payment, or G736™–2009, Project Application and Project Certificate for Payment, Construction Manager as Adviser Edition, containing Contractor's signed certification is attached.
In tabulations below, amounts are in US dollars.
Use Column I on Contracts where variable retainage for line items may apply.

APPLICATION NO:
APPLICATION DATE:
PERIOD TO:
ARCHITECT'S PROJECT NO:

A	B	C	D	E	F	G		H	I
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	WORK COMPLETED FROM PREVIOUS APPLICATION (D + E)	WORK COMPLETED THIS PERIOD	MATERIALS PRESENTLY STORED (NOT IN D OR E)	TOTAL COMPLETED AND STORED TO DATE (D+E+F)	% (G ÷ C)	BALANCE TO FINISH (C - G)	RETAINAGE (IF VARIABLE RATE)
						0.00	0.00 %	0.00	
						0.00	0.00 %	0.00	
						0.00	0.00 %	0.00	
						0.00	0.00 %	0.00	
						0.00	0.00 %	0.00	
						0.00	0.00 %	0.00	
						0.00	0.00 %	0.00	
						0.00	0.00 %	0.00	
						0.00	0.00 %	0.00	
						0.00	0.00 %	0.00	
						0.00	0.00 %	0.00	
						0.00	0.00 %	0.00	
						0.00	0.00 %	0.00	
						0.00	0.00 %	0.00	
						0.00	0.00 %	0.00	
						0.00	0.00 %	0.00	
						0.00	0.00 %	0.00	
						0.00	0.00 %	0.00	
						0.00	0.00 %	0.00	
						0.00	0.00 %	0.00	
	GRAND TOTAL	$0.00	$0.00	$0.00	$0.00	$0.00	0.00 %	$0.00	$0.00

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AGENCY CUSTOMER ID: _____

NEW YORK CONSTRUCTION CERTIFICATE OF LIABILITY INSURANCE ADDENDUM

DATE (MM/DD/YYYY)

THIS ADDENDUM SUMMARIZES SOME OF THE POLICY PROVISIONS IN THE REFERENCED INSURANCE POLICIES AND IS ISSUED AS A MATTER OF INFORMATION ONLY; IT CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. ALL TERMS, EXCLUSIONS AND CONDITIONS IN THE ACTUAL POLICY SHOULD BE CONSULTED FOR A MORE DETAILED ANALYSIS OF COVERAGE, AS THIS ADDENDUM DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES.

AGENCY		NAMED INSURED(S)	
POLICY NUMBER	EFFECTIVE DATE	CARRIER	NAIC CODE

ADDENDUM INFORMATION **CERTIFICATE NUMBER:** **REVISION NUMBER:**

A. Insurer

☐ Admitted / authorized

☐ Excess line or free trade zone

B. General Liability (GL) policy form

☐ ISO / ISO modified

☐ Other

C. Specific operations excluded or restricted (GL policy)

☐ Location: _____

☐ Type of construction: _____

☐ Building height: _____

☐ Classifications [see attached declarations / endorsement]

☐ Designated work [see attached endorsement]

D. Additional insured endorsement (GL policy)

☐ CG 20 10 ☐ CG 20 26 ☐ CG 20 32 ☐ CG 20 33 ☐ CG 20 37 ☐ CG 20 38

☐ Other: #: _____ Title: _____

E. According to the terms of this GL policy, the additional insured has primary and noncontributory coverage

☐ Yes ☐ No and ☐ no other option is available with this insurer

F. Additional insured will receive advance notice if insurer cancels (GL policy)

☐ Yes ☐ No and ☐ no other option is available with this insurer

G. Blanket contractual liability located in the "insured contract" definition (Section V, Number 9, Item f. in the ISO CGL policy) is removed or restricted

☐ Yes and ☐ no other option is available with this insurer ☐ No changes made

H. "Insured contract" exception to the employers liability exclusion is removed or modified (GL policy)

☐ Yes and ☐ no other option is available with this insurer ☐ No changes made

I. GL policy (including endorsements) does not cover the additional insured for claims involving injury to employees of the named insured or subcontractors (not workers' compensation)

☐ Yes and ☐ no other option is available with this insurer ☐ No changes made

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J. Earth movement, excavation or explosion / collapse / underground property damage is excluded or restricted (GL policy)

☐ Yes and ☐ no other option is available with this insurer ☐ No changes made

K. Insured vs. insured suits (cross liability in the ISO CGL policy) are excluded or restricted (other than named insured vs. named insured)

☐ Yes and ☐ no other option is available with this insurer ☐ No changes made

L. Property damage to work performed by subcontractors (exception to the "damage to your work" exclusion in the ISO CGL policy) is excluded or restricted

☐ Yes and ☐ no other option is available with this insurer ☐ No changes made

M. Excess / umbrella policy is primary and non-contributory for additional insureds

☐ Yes, by specific policy provision ☐ Yes, by endorsement ☐ No and ☐ no other option is available with this insurer

_____ _____

AUTHORIZED REPRESENTATIVE SIGNATURE DATE (MM/DD/YYYY)

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
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 shown in the Declarations;

whichever is less.

This endorsement shall not increase the applicable Limits of Insurance shown in the Declarations.

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THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

ADDITIONAL INSURED – OWNERS, LESSEES OR CONTRACTORS – AUTOMATIC STATUS FOR OTHER PARTIES WHEN REQUIRED IN WRITTEN CONSTRUCTION AGREEMENT

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

A. **Section II – Who Is An Insured** is amended to include as an additional insured:

1. Any person or organization for whom you are performing operations when you and such person or organization have agreed in writing in a contract or agreement that such person or organization be added as an additional insured on your policy; and

2. Any other person or organization you are required to add as an additional insured under the contract or agreement described in Paragraph **1.** above.

Such person(s) or organization(s) is an additional insured only with respect to liability for "bodily injury", "property damage" or "personal and advertising injury" caused, in whole or in part, by:

a. Your acts or omissions; or

b. The acts or omissions of those acting on your behalf;

in the performance of your ongoing operations for the additional insured.

However, the insurance afforded to such additional insured described above:

a. Only applies to the extent permitted by law; and

b. Will not be broader than that which you are required by the contract or agreement to provide for such additional insured.

A person's or organization's status as an additional insured under this endorsement ends when your operations for the person or organization described in Paragraph **1.** above are completed.

B. With respect to the insurance afforded to these additional insureds, the following additional exclusions apply:

This insurance does not apply to:

1. "Bodily injury", "property damage" or "personal and advertising injury" arising out of the rendering of, or the failure to render, any professional architectural, engineering or surveying services, including:

a. The preparing, approving, or failing to prepare or approve, maps, shop drawings, opinions, reports, surveys, field orders, change orders or drawings and specifications; or

b. Supervisory, inspection, architectural or engineering activities.

This exclusion applies even if the claims against any insured allege negligence or other wrongdoing in the supervision, hiring, employment, training or monitoring of others by that insured, if the "occurrence" which caused the "bodily injury" or "property damage", or the offense which caused the "personal and advertising injury", involved the rendering of, or the failure to render, any professional architectural, engineering or surveying services.

2. "Bodily injury" or "property damage" occurring after:

a. 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

SAMPLE

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b. 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.

C. With respect to the insurance afforded to these additional insureds, the following is added to **Section III – Limits Of Insurance:**

The most we will pay on behalf of the additional insured is the amount of insurance:

1. Required by the contract or agreement described in Paragraph **A.1.;** or

2. Available under the applicable Limits of Insurance shown in the Declarations;

whichever is less.

This endorsement shall not increase the applicable Limits of Insurance shown in the Declarations.

SAMPLE

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BBS ARCHITECTS
LANDSCAPE ARCHITECTS
ENGINEERS

FREDERICK W. SEEBA, PE, MANAGING PARTNER
LAWRENCE SALVESEN, AIA, PARTNER
KEVIN J. WALSH, AIA, PARTNER
KENNETH G. SCHUPNER, AIA, PARTNER
JOSEPH B. RETTIG, AIA, PARTNER
GARY W. SCHIEDE, AIA, PARTNER
ROGER P. SMITH, AIA, FOUNDING PRINCIPAL

Date: _____

Owner: _____

Project: _____

Contractor: _____

Dear Sir/Madam:

Reference is made to your contract with _____ for the above referenced Project. By signing below, you hereby acknowledge and agree, that for valuable consideration, the receipt of which is acknowledged, you covenant and agree that BBS Architects, Landscape Architects & Engineers PC, shall be added as an "additional insured" to your casualty and commercial liability insurance policies required under the Contract, including all primary and excess policies, limits, and terms and conditions contained therein, and further agree that an insurance certificate and endorsement confirming that this entity was added as an "additional insured" on such policies of insurance shall be provided by you prior to the commencement of work on the Project.

In addition, you further covenant and agree to hold harmless, indemnify and defend BBS Architects, Landscape Architects, and Engineers, PC to the same extent that you are required to hold harmless, indemnify and defend the Owner under the Contract, however, Contractor is not responsible for defense and indemnity for claims, demands or suits caused solely by Architect's professional negligence.

Acknowledged and agreed to by:

_____
Name

_____
Signature

_____
Contractor

Rev. 08-06-24

AIA® Document G705™ – 2001

List of Subcontractors

PROJECT: *(Name and address)*

DATE:

TO ARCHITECT: *(Name and address)*
BBS Architects, Landscape Architects & Engineers, PC
244 E Main St
Patchogue, NY 11772

ARCHITECT'S PROJECT NUMBER:

FROM CONTRACTOR: *(Name and address)*

CONTRACTOR'S PROJECT NUMBER:

(List Subcontractors and others proposed to be employed on the above Project as required by the bidding documents.)

Work/Firm Name	Address/Phone	Superintendent

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AIA® Document G706™ – 1994

Contractor's Affidavit of Payment of Debts and Claims

PROJECT: *(Name and address)*	**ARCHITECT'S PROJECT NUMBER:**	OWNER: ☐
		ARCHITECT: ☐
	CONTRACT FOR:	CONTRACTOR: ☐
TO OWNER: *(Name and address)*	**CONTRACT DATED:**	SURETY: ☐
		OTHER: ☐

STATE OF:
COUNTY OF:

The undersigned hereby certifies that, except as listed below, payment has been made in full and all obligations have otherwise been satisfied for all materials and equipment furnished, for all work, labor, and services performed, and for all known indebtedness and claims against the Contractor for damages arising in any manner in connection with the performance of the Contract referenced above for which the Owner or Owner's property might in any way be held responsible or encumbered.

EXCEPTIONS:

SUPPORTING DOCUMENTS ATTACHED HERETO:

1. Consent of Surety to Final Payment. Whenever Surety is involved, Consent of Surety is required. AIA Document G707, Consent of Surety, may be used for this purpose

Indicate Attachment ☐ Yes ☒ No

The following supporting documents should be attached hereto if required by the Owner:

1. Contractor's Release or Waiver of Liens, conditional upon receipt of final payment.

2. Separate Releases or Waivers of Liens from Subcontractors and material and equipment suppliers, to the extent required by the Owner, accompanied by a list thereof.

3. Contractor's Affidavit of Release of Liens (AIA Document G706A).

CONTRACTOR: *(Name and address)*

BY: _____
(Signature of authorized representative)

_____
(Printed name and title)

Subscribed and sworn to before me on this date:

Notary Public:
My Commission Expires:

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AIA® Document G706A™ – 1994

Contractor's Affidavit of Release of Liens

PROJECT: *(Name and address)*	**ARCHITECT'S PROJECT NUMBER:**	OWNER: ☐
		ARCHITECT: ☐
		CONTRACTOR: ☐
	CONTRACT FOR:	SURETY: ☐
TO OWNER: *(Name and address)*	**CONTRACT DATED:**	OTHER: ☐

STATE OF:
COUNTY OF:

The undersigned hereby certifies that to the best of the undersigned's knowledge, information and belief, except as listed below, the Releases or Waivers of Lien attached hereto include the Contractor, all Subcontractors, all suppliers of materials and equipment, and all performers of Work, labor or services who have or may have liens or encumbrances or the right to assert liens or encumbrances against any property of the Owner arising in any manner out of the performance of the Contract referenced above.

EXCEPTIONS:

SUPPORTING DOCUMENTS ATTACHED HERETO:

1. Contractor's Release or Waiver of Liens, conditional upon receipt of final payment.

2. Separate Releases or Waivers of Liens from Subcontractors and material and equipment suppliers, to the extent required by the Owner, accompanied by a list thereof.

CONTRACTOR: *(Name and address)*

BY:

(Signature of authorized representative)

(Printed name and title)

Subscribed and sworn to before me on this date:

Notary Public:
My Commission Expires:

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AIA® Document G707™ – 1994

Consent Of Surety to Final Payment

PROJECT: *(Name and address)*	**ARCHITECT'S PROJECT NUMBER:**	OWNER: ☐
	CONTRACT FOR:	ARCHITECT: ☐
TO OWNER: *(Name and address)*	**CONTRACT DATED:**	CONTRACTOR: ☐
		SURETY: ☐
		OTHER: ☐

In accordance with the provisions of the Contract between the Owner and the Contractor as indicated above, the
(Insert name and address of Surety)

, SURETY,

on bond of
(Insert name and address of Contractor)

, CONTRACTOR,

hereby approves of the final payment to the Contractor, and agrees that final payment to the Contractor shall not relieve the Surety of any of its obligations to
(Insert name and address of Owner)

, OWNER,

as set forth in said Surety's bond.

IN WITNESS WHEREOF, the Surety has hereunto set its hand on this date:
(Insert in writing the month followed by the numeric date and year.)

_____
(Surety)

_____
(Signature of authorized representative)

Attest:
(Seal):

_____
(Printed name and title)

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Consent of Surety to Reduction in or Partial Release of Retainage

PROJECT: *(Name and address)*	**ARCHITECT'S PROJECT NUMBER:**	OWNER: ☐
	CONTRACT FOR:	ARCHITECT: ☐
TO OWNER: *(Name and address)*	**CONTRACT DATED:**	CONTRACTOR: ☐
		SURETY: ☐
		OTHER: ☐

In accordance with the provisions of the Contract between the Owner and the Contractor as indicated above, the
(Insert name and address of Surety)

, SURETY,

on bond of
(Insert name and address of Contractor)

, CONTRACTOR,

hereby approves the reduction in or partial release of retainage to the Contractor as follows:

The Surety agrees that such reduction in or partial release of retainage to the Contractor shall not relieve the Surety of any of its obligations to
(Insert name and address of Owner)

, OWNER,

as set forth in said Surety's bond.

IN WITNESS WHEREOF, the Surety has hereunto set its hand on this date:
(Insert in writing the month followed by the numeric date and year.)

_____
(Surety)

_____
(Signature of authorized representative)

Attest:
(Seal):

_____
(Printed name and title)

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Kathy Hochul, Governor

Roberta Reardon, Commissioner

Blind Brook-Rye UFSD

John Prentice
244 E. Main Street
Patchogue NY 11772

Schedule Year	2024 through 2025
Date Requested	03/27/2025
PRC#	2025003724

Location	District Wide (HSMS & RSS)
Project ID#	24-353
Project Type	HVAC Replacement & Site Drainage Improvements

PREVAILING WAGE SCHEDULE FOR ARTICLE 8 PUBLIC WORK PROJECT

Attached is the current schedule(s) of the prevailing wage rates and prevailing hourly supplements for the project referenced above. A unique Prevailing Rate Case Number (PRC#) has been assigned to the schedule(s) for your project.

The schedule is effective from July 2024 through June 2025. All updates, corrections, posted on the 1st business day of each month, and future copies of the annual determination are available on the Department's website www.labor.ny.gov. Updated PDF copies of your schedule can be accessed by entering your assigned PRC# at the proper location on the website.

It is the responsibility of the contracting agency or its agent to annex and make part, the attached schedule, to the specifications for this project, when it is advertised for bids and /or to forward said schedules to the successful bidder(s), immediately upon receipt, in order to insure the proper payment of wages.

Please refer to the "General Provisions of Laws Covering Workers on Public Work Contracts" provided with this schedule, for the specific details relating to other responsibilities of the Department of Jurisdiction.

Upon completion or cancellation of this project, enter the required information and mail **OR** fax this form to the office shown at the bottom of this notice, **OR** fill out the electronic version via the NYSDOL website.

NOTICE OF COMPLETION / CANCELLATION OF PROJECT

Date Completed: _____ Date Cancelled: _____

Name & Title of Representative: _____

Phone: (518) 457-5589 Fax: (518) 485-1870
W. Averell Harriman State Office Campus, Bldg. 12, Room 130, Albany, NY 12240

General Provisions of Laws Covering Workers on Article 8 Public Work Contracts

Introduction

The Labor Law requires public work contractors and subcontractors to pay laborers, workers, or mechanics employed in the performance of a public work contract not less than the prevailing rate of wage and supplements (fringe benefits) in the locality where the work is performed.

Responsibilities of the Department of Jurisdiction

A Department of Jurisdiction (Contracting Agency) includes a state department, agency, board or commission: a county, city, town or village; a school district, board of education or board of cooperative educational services; a sewer, water, fire, improvement and other district corporation; a public benefit corporation; and a public authority awarding a public work contract.

The Department of Jurisdiction (Contracting Agency) awarding a public work contract MUST obtain a Prevailing Rate Schedule listing the hourly rates of wages and supplements due the workers to be employed on a public work project. This schedule may be obtained by completing and forwarding a "Request for wage and Supplement Information" form (PW 39) to the Bureau of Public Work. The Prevailing Rate Schedule MUST be included in the specifications for the contract to be awarded and is deemed part of the public work contract.

Upon the awarding of the contract, the law requires that the Department of Jurisdiction (Contracting Agency) furnish the following information to the Bureau: the name and address of the contractor, the date the contract was let and the approximate dollar value of the contract. To facilitate compliance with this provision of the Labor Law, a copy of the Department's "Notice of Contract Award" form (PW 16) is provided with the original Prevailing Rate Schedule.

The Department of Jurisdiction (Contracting Agency) is required to notify the Bureau of the completion or cancellation of any public work project. The Department's PW 200 form is provided for that purpose.

Both the PW 16 and PW 200 forms are available for completion online.

Hours

No laborer, worker, or mechanic in the employ of a contractor or subcontractor engaged in the performance of any public work project shall be permitted to work more than eight hours in any day or more than five days in any week, except in cases of extraordinary emergency. The contractor and the Department of Jurisdiction (Contracting Agency) may apply to the Bureau of Public Work for a dispensation permitting workers to work additional hours or days per week on a particular public work project.

Wages and Supplements

The wages and supplements to be paid and/or provided to laborers, workers, and mechanics employed on a public work project shall be not less than those listed in the current Prevailing Rate Schedule for the locality where the work is performed. If a prime contractor on a public work project has not been provided with a Prevailing Rate Schedule, the contractor must notify the Department of Jurisdiction (Contracting Agency) who in turn must request an original Prevailing Rate Schedule form the Bureau of Public Work. Requests may be submitted by: mail to NYSDOL, Bureau of Public Work, State Office Bldg. Campus, Bldg. 12, Rm. 130, Albany, NY 12226; Fax to Bureau of Public Work (518) 485-1870; or electronically at the NYSDOL website www.labor.ny.gov.

Upon receiving the original schedule, the Department of Jurisdiction (Contracting Agency) is REQUIRED to provide complete copies to all prime contractors who in turn MUST, by law, provide copies of all applicable county schedules to each subcontractor and obtain from each subcontractor, an affidavit certifying such schedules were received. If the original schedule expired, the contractor may obtain a copy of the new annual determination from the NYSDOL website www.labor.ny.gov.

The Commissioner of Labor makes an annual determination of the prevailing rates. This determination is in effect from July 1st through June 30th of the following year. The annual determination is available on the NYSDOL website www.labor.ny.gov.

Payrolls and Payroll Records

Every contractor and subcontractor MUST keep original payrolls or transcripts subscribed and affirmed as true under penalty of perjury. As per Article 6 of the Labor law, contractors and subcontractors are required to establish, maintain, and preserve for not less than six (6) years, contemperaneous, true, and accurate payroll records. At a minimum, payrolls must show the following information for each person employed on a public work project: Name, Address, Last 4 Digits of Social Security Number, Classification(s) in which the worker was employed, Hourly wage rate(s) paid, Supplements paid or provided, and Daily and weekly number of hours worked in each classification.

The filing of payrolls to the Department of Jurisdiction is a condition of payment.Every contractor and subcontractor shall submit to the Department of Jurisdiction (Contracting Agency), within thirty (30) days after issuance of its first payroll and every thirty (30) days thereafter, a transcript of the original payrolls, subscribed and affirmed as true under penalty of perjury. The Department of Jurisdiction (Contracting Agency) shall collect, review for facial validity, and maintain such payrolls.

In addition, the Commissioner of Labor may require contractors to furnish, with ten (10) days of a request, payroll records sworn to as their validity and accuracy for public work and private work. Payroll records include, but are not limited to time cards, work description sheets, proof that supplements were provided, cancelled payroll checks and payrolls. Failure to provide the requested information within the allotted ten (10) days will result in the withholding of up to 25% of the contract, not to exceed $100,000.00. If the contractor or subcontractor does not maintain a place of business in New York State and the amount of the contract exceeds $25,000.00, payroll records and certifications must be kept on the project worksite.

The prime contractor is responsible for any underpayments of prevailing wages or supplements by any subcontractor.

All contractors or their subcontractors shall provide to their subcontractors a copy of the Prevailing Rate Schedule specified in the public work contract as well as any subsequently issued schedules. A failure to provide these schedules by a contractor or subcontractor is a violation of Article 8, Section 220-a of the Labor Law.

All subcontractors engaged by a public work project contractor or its subcontractor, upon receipt of the original schedule and any subsequently issued schedules, shall provide to such contractor a verified statement attesting that the subcontractor has received the Prevailing Rate Schedule and will pay or provide the applicable rates of wages and supplements specified therein. (See NYS Labor Laws, Article 8 . Section 220-a).

Determination of Prevailing Wage and Supplement Rate Updates Applicable to All Counties

The wages and supplements contained in the annual determination become effective July 1st whether or not the new determination has been received by a given contractor. Care should be taken to review the rates for obvious errors. Any corrections should be brought to the Department's attention immediately. It is the responsibility of the public work contractor to use the proper rates. If there is a question on the proper classification to be used, please call the district office located nearest the project. Any errors in the annual determination will be corrected and posted to the NYSDOL website on the first business day of each month. Contractors are responsible for paying these updated rates as well, retroactive to July 1st.

When you review the schedule for a particular occupation, your attention should be directed to the dates above the column of rates. These are the dates for which a given set of rates is effective. To the extent possible, the Department posts rates in its possession that cover periods of time beyond the July 1st to June 30th time frame covered by a particular annual determination. Rates that extend beyond that instant time period are informational ONLY and may be updated in future annual determinations that actually cover the then appropriate July 1st to June 30th time period.

Withholding of Payments

When a complaint is filed with the Commissioner of Labor alleging the failure of a contractor or subcontractor to pay or provide the prevailing wages or supplements, or when the Commissioner of Labor believes that unpaid wages or supplements may be due, payments on the public work contract shall be withheld from the prime contractor in a sufficient amount to satisfy the alleged unpaid wages and supplements, including interest and civil penalty, pending a final determination.

When the Bureau of Public Work finds that a contractor or subcontractor on a public work project failed to pay or provide the requisite prevailing wages or supplements, the Bureau is authorized by Sections 220-b and 235.2 of the Labor Law to so notify the financial officer of the Department of Jurisdiction (Contracting Agency) that awarded the public work contract. Such officer MUST then withhold or cause to be withheld from any payment due the prime contractor on account of such contract the amount indicated by the Bureau as sufficient to satisfy the unpaid wages and supplements, including interest and any civil penalty that may be assessed by the Commissioner of Labor. The withholding continues until there is a final determination of the underpayment by the Commissioner of Labor or by the court in the event a legal proceeding is instituted for review of the determination of the Commissioner of Labor.

The Department of Jurisdiction (Contracting Agency) shall comply with this order of the Commissioner of Labor or of the court with respect to the release of the funds so withheld.

Summary of Notice Posting Requirements

The current Prevailing Rate Schedule must be posted in a prominent and accessible place on the site of the public work project. The prevailing wage schedule must be encased in, or constructed of, materials capable of withstanding adverse weather conditions and be titled "PREVAILING RATE OF WAGES" in letters no smaller than two (2) inches by two (2) inches.

The "Public Work Project" notice must be posted at the beginning of the performance of every public work contract, on each job site.

Every employer providing workers. compensation insurance and disability benefits must post notices of such coverage in the format prescribed by the Workers. Compensation Board in a conspicuous place on the jobsite.

Every employer subject to the NYS Human Rights Law must conspicuously post at its offices, places of employment, or employment training centers, notices furnished by the State Division of Human Rights.

Employers liable for contributions under the Unemployment Insurance Law must conspicuously post on the jobsite notices furnished by the NYS Department of Labor.

Apprentices

Employees cannot be paid apprentice rates unless they are individually registered in a program registered with the NYS Commissioner of Labor. The allowable ratio of apprentices to journeyworkers in any craft classification can be no greater than the statewide building trade ratios promulgated by the Department of Labor and included with the Prevailing Rate Schedule. An employee listed on a payroll as an apprentice who is not registered as above or is performing work outside the classification of work for which the apprentice is indentured, must be paid the prevailing journeyworker's wage rate for the classification of work the employee is actually performing.

NYSDOL Labor Law, Article 8, Section 220-3, require that only apprentices individually registered with the NYS Department of Labor may be paid apprenticeship rates on a public work project. No other Federal or State Agency of office registers apprentices in New York State.

Persons wishing to verify the apprentice registration of any person must do so in writing by mail, to the NYSDOL Office of Employability Development / Apprenticeship Training, State Office Bldg. Campus, Bldg. 12, Albany, NY 12226 or by Fax to NYSDOL Apprenticeship Training (518) 457-7154. All requests for verification must include the name and social security number of the person for whom the information is requested.

The only conclusive proof of individual apprentice registration is written verification from the NYSDOL Apprenticeship Training Albany Central office. Neither Federal nor State Apprenticeship Training offices outside of Albany can provide conclusive registration information.

It should be noted that the existence of a registered apprenticeship program is not conclusive proof that any person is registered in that program. Furthermore, the existence or possession of wallet cards, identification cards, or copies of state forms is not conclusive proof of the registration of any person as an apprentice.

Interest and Penalties

In the event that an underpayment of wages and/or supplements is found:

- Interest shall be assessed at the rate then in effect as prescribed by the Superintendent of Banks pursuant to section 14-a of the Banking Law, per annum from the date of underpayment to the date restitution is made.
- A Civil Penalty may also be assessed, not to exceed 25% of the total of wages, supplements, and interest due.

Debarment

Any contractor or subcontractor and/or its successor shall be ineligible to submit a bid on or be awarded any public work contract or subcontract with any state, municipal corporation or public body for a period of five (5) years when:

- Two (2) willful determinations have been rendered against that contractor or subcontractor and/or its successor within any consecutive six (6) year period.
- There is any willful determination that involves the falsification of payroll records or the kickback of wages or supplements.

Criminal Sanctions

Willful violations of the Prevailing Wage Law (Article 8 of the Labor Law) may be a felony punishable by fine or imprisonment of up to 15 years, or both.

Discrimination

No employee or applicant for employment may be discriminated against on account of age, race, creed, color, national origin, sex, disability or marital status.

No contractor, subcontractor nor any person acting on its behalf, shall by reason of race, creed, color, disability, sex or national origin discriminate against any citizen of the State of New York who is qualified and available to perform the work to which the employment relates (NYS Labor Law, Article 8, Section 220-e(a)).

No contractor, subcontractor, nor any person acting on its behalf, shall in any manner, discriminate against or intimidate any employee on account of race, creed, color, disability, sex, or national origin (NYS Labor Law, Article 8, Section 220-e(b)).

The Human Rights Law also prohibits discrimination in employment because of age, marital status, or religion.

There may be deducted from the amount payable to the contractor under the contract a penalty of $50.00 for each calendar day during which such person was discriminated against or intimidated in violation of the provision of the contract (NYS Labor Law, Article 8, Section 220-e(c)).

The contract may be cancelled or terminated by the State or municipality. All monies due or to become due thereunder may be forfeited for a second or any subsequent violation of the terms or conditions of the anti-discrimination sections of the contract (NYS Labor Law, Article 8, Section 220-e(d)).

Every employer subject to the New York State Human Rights Law must conspicuously post at its offices, places of employment, or employment training centers notices furnished by the State Division of Human Rights.

Workers' Compensation

In accordance with Section 142 of the State Finance Law, the contractor shall maintain coverage during the life of the contract for the benefit of such employees as required by the provisions of the New York State Workers' Compensation Law.

A contractor who is awarded a public work contract must provide proof of workers' compensation coverage prior to being allowed to begin work.

The insurance policy must be issued by a company authorized to provide workers' compensation coverage in New York State. Proof of coverage must be on form C-105.2 (Certificate of Workers' Compensation Insurance) and must name this agency as a certificate holder.

If New York State coverage is added to an existing out-of-state policy, it can only be added to a policy from a company authorized to write workers' compensation coverage in this state. The coverage must be listed under item 3A of the information page.

The contractor must maintain proof that subcontractors doing work covered under this contract secured and maintained a workers' compensation policy for all employees working in New York State.

Every employer providing worker's compensation insurance and disability benefits must post notices of such coverage in the format prescribed by the Workers' Compensation Board in a conspicuous place on the jobsite.

Unemployment Insurance

Employers liable for contributions under the Unemployment Insurance Law must conspicuously post on the jobsite notices furnished by the New York State Department of Labor.

Kathy Hochul, Governor

Roberta Reardon, Commissioner

Blind Brook-Rye UFSD

John Prentice
244 E. Main Street
Patchogue NY 11772

Schedule Year 2024 through 2025
Date Requested 03/27/2025
PRC# 2025003724

Location District Wide (HSMS & RSS)
Project ID# 24-353
Project Type HVAC Replacement & Site Drainage Improvements

Notice of Contract Award

New York State Labor Law, Article 8, Section 220.3a requires that certain information regarding the awarding of public work contracts, be furnished to the Commissioner of Labor. One "Notice of Contract Award" (PW 16, which may be photocopied), **MUST** be completed for **EACH** prime contractor on the above referenced project.

Upon notifying the successful bidder(s) of this contract, enter the required information and mail **OR** fax this form to the office shown at the bottom of this notice, **OR** fill out the electronic version via the NYSDOL website.

Contractor Information
All information must be supplied

Federal Employer Identification Number: _____

Name: _____

Address: _____

_____

City: _____ State: _____ Zip: _____

Amount of Contract: $_____

Approximate Starting Date: ____/____/____

Approximate Completion Date: ____/____/____

Contract Type:
[ ] (01) General Construction
[ ] (02) Heating/Ventilation
[ ] (03) Electrical
[ ] (04) Plumbing
[ ] (05) Other : _____

Phone: (518) 457-5589 Fax: (518) 485-1870
W. Averell Harriman State Office Campus, Bldg. 12, Room 130, Albany, NY 12226

Social Security Numbers on Certified Payrolls:

The Department of Labor is cognizant of the concerns of the potential for misuse or inadvertent disclosure of social security numbers. Identity theft is a growing problem and we are sympathetic to contractors' concern regarding inclusion of this information on payrolls if another identifier will suffice.

For these reasons, the substitution of the use of the last four digits of the social security number on certified payrolls submitted to contracting agencies on public work projects is now acceptable to the Department of Labor. This change does not affect the Department's ability to request and receive the entire social security number from employers during its public work/ prevailing wage investigations.

Construction Industry Fair Play Act: Required Posting for Labor Law Article 25-B § 861-d

Construction industry employers must post the "Construction Industry Fair Play Act" notice in a prominent and accessible place on the job site. Failure to post the notice can result in penalties of up to $1,500 for a first offense and up to $5,000 for a second offense. The posting is included as part of this wage schedule. Additional copies may be obtained from the NYS DOL website, https://dol.ny.gov/public-work-and-prevailing-wage
If you have any questions concerning the Fair Play Act, please call the State Labor Department toll-free at 1-866-435-1499 or email us at: dol.misclassified@labor.ny.gov .

Worker Notification: (Labor Law §220, paragraph a of subdivision 3-a)

Effective June 23, 2020

This provision is an addition to the existing wage rate law, Labor Law §220, paragraph a of subdivision 3-a. It requires contractors and subcontractors to provide written notice to all laborers, workers or mechanics of the *prevailing wage and supplement rate* for their particular job classification *on each pay stub**. It also requires contractors and subcontractors to *post a notice* at the beginning of the performance of every public work contract *on each job site* that includes the telephone number and address for the Department of Labor and a statement informing laborers, workers or mechanics of their right to contact the Department of Labor if he/she is not receiving the proper prevailing rate of wages and/or supplements for his/her job classification. The required notification will be provided with each wage schedule, may be downloaded from our website *www.labor.ny.gov* or be made available upon request by contacting the Bureau of Public Work at 518-457-5589. *In the event the required information will not fit on the pay stub, an accompanying sheet or attachment of the information will suffice.

(12.20)

To all State Departments, Agency Heads and Public Benefit Corporations
IMPORTANT NOTICE REGARDING PUBLIC WORK ENFORCEMENT FUND

Budget Policy & Reporting Manual

B-610

Public Work Enforcement Fund

effective date December 7, 2005

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1. Purpose and Scope:

This Item describes the Public Work Enforcement Fund (the Fund, PWEF) and its relevance to State agencies and public benefit corporations engaged in construction or reconstruction contracts, maintenance and repair, and announces the recently-enacted increase to the percentage of the dollar value of such contracts that must be deposited into the Fund. This item also describes the roles of the following entities with respect to the Fund:

- New York State Department of Labor (DOL),
- The Office of the State of Comptroller (OSC), and
- State agencies and public benefit corporations.

2. Background and Statutory References:

DOL uses the Fund to enforce the State's Labor Law as it relates to contracts for construction or reconstruction, maintenance and repair, as defined in subdivision two of Section 220 of the Labor Law. State agencies and public benefit corporations participating in such contracts are required to make payments to the Fund.

Chapter 511 of the Laws of 1995 (as amended by Chapter 513 of the Laws of 1997, Chapter 655 of the Laws of 1999, Chapter 376 of the Laws of 2003 and Chapter 407 of the Laws of 2005) established the Fund.

3. Procedures and Agency Responsibilities:

The Fund is supported by transfers and deposits based on the value of contracts for construction and reconstruction, maintenance and repair, as defined in subdivision two of Section 220 of the Labor Law, into which all State agencies and public benefit corporations enter.

Chapter 407 of the Laws of 2005 increased the amount required to be provided to this fund to .10 of one-percent of the total cost of each such contract, to be calculated at the time agencies or public benefit corporations enter into a new contract or if a contract is amended. The provisions of this bill became effective August 2, 2005.

To all State Departments, Agency Heads and Public Benefit Corporations
IMPORTANT NOTICE REGARDING PUBLIC WORK ENFORCEMENT FUND

OSC will report to DOL on all construction-related ("D") contracts approved during the month, including contract amendments, and then DOL will bill agencies the appropriate assessment monthly. An agency may then make a determination if any of the billed contracts are exempt and so note on the bill submitted back to DOL. For any instance where an agency is unsure if a contract is or is not exempt, they can call the Bureau of Public Work at the number noted below for a determination. Payment by check or journal voucher is due to DOL within thirty days from the date of the billing. DOL will verify the amounts and forward them to OSC for processing.

For those contracts which are not approved or administered by the Comptroller, monthly reports and payments for deposit into the Public Work Enforcement Fund must be provided to the Administrative Finance Bureau at the DOL within 30 days of the end of each month or on a payment schedule mutually agreed upon with DOL.

Reports should contain the following information:

- Name and billing address of State agency or public benefit corporation;
- State agency or public benefit corporation contact and phone number;
- Name and address of contractor receiving the award;
- Contract number and effective dates;
- Contract amount and PWEF assessment charge (if contract amount has been amended, reflect increase or decrease to original contract and the adjustment in the PWEF charge); and
- Brief description of the work to be performed under each contract.

Checks and Journal Vouchers, payable to the "New York State Department of Labor" should be sent to:

Department of Labor
Administrative Finance Bureau-PWEF Unit
Building 12, Room 464
State Office Campus
Albany, NY 12226

Any questions regarding billing should be directed to NYSDOL's Administrative Finance Bureau-PWEF Unit at (518) 457-3624 and any questions regarding Public Work Contracts should be directed to the Bureau of Public Work at (518) 457-5589.

NEW YORK STATE OF OPPORTUNITY. Department of Labor

Required Notice under Article 25-B of the Labor Law

Attention All Employees, Contractors and Subcontractors: You are Covered by the Construction Industry Fair Play Act

The law says that you are an employee unless:

- You are free from direction and control in performing your job, **and**
- You perform work that is not part of the usual work done by the business that hired you, **and**
- You have an independently established business.

Your employer cannot consider you to be an independent contractor unless all three of these facts apply to your work.

It is against the law for an employer to misclassify employees as independent contractors or pay employees off the books.

Employee Rights: If you are an employee, you are entitled to state and federal worker protections. These include:

- Unemployment Insurance benefits, if you are unemployed through no fault of your own, able to work, and otherwise qualified,
- Workers' compensation benefits for on-the-job injuries,
- Payment for wages earned, minimum wage, and overtime (under certain conditions),
- Prevailing wages on public work projects,
- The provisions of the National Labor Relations Act, and
- A safe work environment.

It is a violation of this law for employers to retaliate against anyone who asserts their rights under the law. Retaliation subjects an employer to civil penalties, a private lawsuit or both.

Independent Contractors: If you are an independent contractor**, you must pay all taxes and Unemployment Insurance contributions required by New York State and Federal Law.**

Penalties for paying workers off the books or improperly treating employees as independent contractors:

• **Civil Penalty**	First offense: Up to $2,500 per employee Subsequent offense(s): Up to $5,000 per employee
• **Criminal Penalty**	First offense: Misdemeanor - up to 30 days in jail, up to a $25,000 fine and debarment from performing public work for up to one year. Subsequent offense(s): Misdemeanor - up to 60 days in jail or up to a $50,000 fine and debarment from performing public work for up to 5 years.

If you have questions about your employment status or believe that your employer may have violated your rights and you want to file a complaint, call the Department of Labor at (866) 435-1499 or send an email to dol.misclassified@labor.ny.gov. All complaints of fraud and violations are taken seriously. You can remain anonymous.

Employer Name:

IA 999 (09/16)

WE ARE YOUR DOL

NEW YORK STATE Department of Labor

New York State Department of Labor
Bureau of Public Work

Attention Employees

THIS IS A:

PUBLIC WORK PROJECT

If you are employed on this project as a **worker, laborer, or mechanic** you are entitled to receive the **prevailing wage and supplements rate** for the classification at which you are working.

Your pay stub and wage notice received upon hire must clearly state your wage rate and supplement rate.

Chapter 629 of the Labor Laws of 2007:

These wages are set by law and must be posted at the work site. They can also be found at: https://dol.ny.gov/bureau-public-work

If you feel that you have not received proper wages or benefits, please call our nearest office.*

Albany	(518) 457-2744	Patchogue	(631) 687-4882
Binghamton	(607) 721-8005	Rochester	(585) 258-4505
Buffalo	(716) 847-7159	Syracuse	(315) 428-4056
Garden City	(516) 228-3915	Utica	(315) 793-2314
New York City	(212) 932-2419	White Plains	(914) 997-9507
Newburgh	(845) 568-5287		

* For New York City government agency construction projects, please contact the Office of the NYC Comptroller at (212) 669-4443, or www.comptroller.nyc.gov – click on Bureau of Labor Law.

Contractor Name: _____

Project Location: _____

Requirements for OSHA 10 Compliance

Article 8 §220-h requires that when the advertised specifications, for every contract for public work, is $250,000.00 or more the contract must contain a provision requiring that every worker employed in the performance of a public work contract shall be certified as having completed an OSHA 10 safety training course. The clear intent of this provision is to require that all employees of public work contractors, required to be paid prevailing rates, receive such training “prior to the performing any work on the project.”

The Bureau will enforce the statute as follows:

All contractors and sub contractors must attach a copy of proof of completion of the OSHA 10 course to the first certified payroll submitted to the contracting agency and on each succeeding payroll where any new or additional employee is first listed.

Proof of completion may include but is not limited to:

- Copies of bona fide course completion card (*Note: Completion cards do not have an expiration date.)*
- Training roster, attendance record of other documentation from the certified trainer pending the issuance of the card.
- Other valid proof

**A certification by the employer attesting that all employees have completed such a course is not sufficient proof that the course has been completed.

Any questions regarding this statute may be directed to the New York State Department of Labor, Bureau of Public Work at 518-457-5589.

WICKS

Public work projects are subject to the Wicks Law requiring separate specifications and bidding for the plumbing, heating and electrical work, when the total project's threshold is $3 million in Bronx, Kings, New York, Queens and, Richmond counties; $1.5 million in Nassau, Suffolk and Westchester counties; and $500,000 in all other counties.

For projects below the monetary threshold, bidders must submit a sealed list naming each subcontractor for the plumbing, HVAC and electrical and the amount to be paid to each. The list may not be changed unless the public owner finds a legitimate construction need, including a change in specifications or costs or the use of a Project Labor Agreement (PLA), and must be open to public inspection.

Allows the state and local agencies and authorities to waive the Wicks Law and use a PLA if it will provide the best work at the lowest possible price. If a PLA is used, all contractors shall participate in apprentice training programs in the trades of work it employs that have been approved by the Department of Labor (DOL) for not less than three years. They shall also have at least one graduate in the last three years and use affirmative efforts to retain minority apprentices. PLA's would be exempt from Wicks, but deemed to be public work subject to prevailing wage enforcement.

The Commissioner of Labor shall have the power to enforce separate specification requirement s on projects, and may issue stop-bid orders against public owners for non-compliance.

Other new monetary thresholds, and similar sealed bidding for non-Wicks projects, would apply to certain public authorities including municipal housing authorities, NYC Construction Fund, Yonkers Educational Construction Fund, NYC Municipal Water Finance Authority, Buffalo Municipal Water Finance Authority, Westchester County Health Care Association, Nassau County Health Care Corp., Clifton-Fine Health Care Corp., Erie County Medical Center Corp., NYC Solid Waste Management Facilities, and the Dormitory Authority.

Contractors must pay subcontractors within a 7 days period.

(07.19)

Introduction to the Prevailing Rate Schedule

Information About Prevailing Rate Schedule

This information is provided to assist you in the interpretation of particular requirements for each classification of worker contained in the attached Schedule of Prevailing Rates.

Classification

It is the duty of the Commissioner of Labor to make the proper classification of workers taking into account whether the work is heavy and highway, building, sewer and water, tunnel work, or residential, and to make a determination of wages and supplements to be paid or provided. It is the responsibility of the public work contractor to use the proper rate. If there is a question on the proper classification to be used, please call the district office located nearest the project. District office locations and phone numbers are listed below.

Prevailing Wage Schedules are issued separately for "General Construction Projects" and "Residential Construction Projects" on a county-by-county basis.

General Construction Rates apply to projects such as: Buildings, Heavy & Highway, and Tunnel and Water & Sewer rates.

Residential Construction Rates generally apply to construction, reconstruction, repair, alteration, or demolition of one family, two family, row housing, or rental type units intended for residential use.

Some rates listed in the Residential Construction Rate Schedule have a very limited applicability listed along with the rate. Rates for occupations or locations not shown on the residential schedule must be obtained from the General Construction Rate Schedule. Please contact the local Bureau of Public Work office before using Residential Rate Schedules, to ensure that the project meets the required criteria.

Payrolls and Payroll Records

Contractors and subcontractors are required to establish, maintain, and preserve for not less that six (6) years, contemporaneous, true, and accurate payroll records.

Every contractor and subcontractor shall submit to the Department of Jurisdiction (Contracting Agency), within thirty (30) days after issuance of its first payroll and every thirty (30) days thereafter, a transcript of the original payrolls, subscribed and affirmed as true under penalty of perjury.

Paid Holidays

Paid Holidays are days for which an eligible employee receives a regular day's pay, but is not required to perform work. If an employee works on a day listed as a paid holiday, this remuneration is in addition to payment of the required prevailing rate for the work actually performed.

Overtime

At a minimum, all work performed on a public work project in excess of eight hours in any one day or more than five days in any workweek is overtime. However, the specific overtime requirements for each trade or occupation on a public work project may differ. Specific overtime requirements for each trade or occupation are contained in the prevailing rate schedules.

Overtime holiday pay is the premium pay that is required for work performed on specified holidays. It is only required where the employee actually performs work on such holidays.

The applicable holidays are listed under HOLIDAYS: OVERTIME. The required rate of pay for these covered holidays can be found in the OVERTIME PAY section listings for each classification.

Supplemental Benefits

Particular attention should be given to the supplemental benefit requirements. Although in most cases the payment or provision of supplements is straight time for all hours worked, some classifications require the payment or provision of supplements, or a portion of the supplements, to be paid or provided at a premium rate for premium hours worked. Supplements may also be required to be paid or provided on paid holidays, regardless of whether the day is worked. The Overtime Codes and Notes listed on the particular wage classification will indicate these conditions as required.

Effective Dates

When you review the schedule for a particular occupation, your attention should be directed to the dates above the column of rates. These are the dates for which a given set of rates is effective. The rate listed is valid until the next effective rate change or until the new annual determination which takes effect on July 1 of each year. All contractors and subcontractors are required to pay the current prevailing rates of wages and supplements. If you have any questions please contact the Bureau of Public Work or visit the New York State Department of Labor website (www.labor.ny.gov) for current wage rate information.

Apprentice Training Ratios

The following are the allowable ratios of registered Apprentices to Journey-workers.

For example, the ratio 1:1,1:3 indicates the allowable initial ratio is one Apprentice to one Journeyworker. The Journeyworker must be in place on the project before an Apprentice is allowed. Then three additional Journeyworkers are needed before a second Apprentice is allowed. The last ratio repeats indefinitely. Therefore, three more Journeyworkers must be present before a third Apprentice can be hired, and so on.

Please call Apprentice Training Central Office at (518) 457-6820 if you have any questions.

Title (Trade)	Ratio
Boilermaker (Construction)	1:1,1:4
Boilermaker (Shop)	1:1,1:3
Carpenter (Bldg.,H&H, Pile Driver/Dockbuilder)	1:1,1:4
Carpenter (Residential)	1:1,1:3
Electrical (Outside) Lineman	1:1,1:2
Electrician (Inside)	1:1,1:3
Elevator/Escalator Construction & Modernizer	1:1,1:2
Glazier	1:1,1:3
Insulation & Asbestos Worker	1:1,1:3
Iron Worker	1:1,1:4
Laborer	1:1,1:3
Mason	1:1,1:4
Millwright	1:1,1:4
Op Engineer	1:1,1:5
Painter	1:1,1:3
Plumber & Steamfitter	1:1,1:3
Roofer	1:1,1:2
Sheet Metal Worker	1:1,1:3
Sprinkler Fitter	1:1,1:2

If you have any questions concerning the attached schedule or would like additional information, please contact the nearest BUREAU of PUBLIC WORK District Office or write to:

New York State Department of Labor
Bureau of Public Work
State Office Campus, Bldg. 12
Albany, NY 12226

District Office Locations:	Telephone #	FAX #
Bureau of Public Work - Albany	518-457-2744	518-485-0240
Bureau of Public Work - Binghamton	607-721-8005	607-721-8004
Bureau of Public Work - Buffalo	716-847-7159	716-847-7650
Bureau of Public Work - Garden City	516-228-3915	516-794-3518
Bureau of Public Work - Newburgh	845-568-5287	845-568-5332
Bureau of Public Work - New York City	212-932-2419	212-775-3579
Bureau of Public Work - Patchogue	631-687-4882	631-687-4902
Bureau of Public Work - Rochester	585-258-4505	585-258-4708
Bureau of Public Work - Syracuse	315-428-4056	315-428-4671
Bureau of Public Work - Utica	315-793-2314	315-793-2514
Bureau of Public Work - White Plains	914-997-9507	914-997-9523
Bureau of Public Work - Central Office	518-457-5589	518-485-1870

Westchester County General Construction

Boilermaker — 03/01/2025

JOB DESCRIPTION Boilermaker **DISTRICT** 4

ENTIRE COUNTIES
Bronx, Dutchess, Kings, Nassau, New York, Orange, Putnam, Queens, Richmond, Rockland, Suffolk, Sullivan, Ulster, Westchester

WAGES

Per Hour:	07/01/2024	01/01/2025
Boilermaker	$ 67.38	$ 68.88
Repairs & Renovations	67.38	68.88

Repairs & Renovation: Includes Repairing, Renovating replacement of parts to an existing unit(s).

SUPPLEMENTAL BENEFITS
Per Hour:

Boilermaker Repair & Renovations	33.5% of hourly Wage Paid + $ 26.85	33.5% of Hourly Wage Paid + $26.85

NOTE: "Hourly Wage Paid" shall include any and all premium(s) pay.

Repairs & Renovation Includes replacement of parts and repairs & renovation of existing unit.

OVERTIME PAY
See (*B, O, **U) on OVERTIME PAGE
Note:* Includes 9th & 10th hours, double for 11th or more.
** Labor Day ONLY, if worked.

Repairs & Renovation see (B,E,Q) on OT Page

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 11, 12, 15, 25, 26, 29) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wage per hour:
(1/2) Year Terms at the following percentage of Boilermaker's Wage

1st	2nd	3rd	4th	5th	6th	7th
65%	70%	75%	80%	85%	90%	95%

Supplemental Benefits Per Hour:

	33.5% of Hourly Wage Paid Plus Amount Below	33.5% of Hourly Wage Paid Plus Amount Below
1st Term	$ 20.36	$ 20.36
2nd Term	21.28	21.28
3rd Term	22.22	22.22
4th Term	23.12	23.12
5th Term	24.07	24.07
6th Term	25.00	25.00
7th Term	25.93	25.93

NOTE: "Hourly Wage Paid" shall include any and all premium(s)

4-5

Carpenter — 03/01/2025

JOB DESCRIPTION Carpenter **DISTRICT** 8

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Putnam, Queens, Richmond, Rockland, Suffolk, Westchester

WAGES
Per hour: 07/01/2024

Piledriver $ 60.59
+ 10.00*

Dockbuilder $ 60.59
+ 10.00*

*This portion of the benefit is NOT subject to the SAME PREMIUM as shown for overtime.

SUPPLEMENTAL BENEFITS
Per hour:

Journeyworker $ 45.79

OVERTIME PAY
See (B, E2, O) on OVERTIME PAGE

HOLIDAY
Paid: See (1) on HOLIDAY PAGE.

Paid: for 1st & 2nd yr.
Apprentices See (5,6,11,13,25)

Overtime: See (5,6,11,13,25) on HOLIDAY PAGE.

REGISTERED APPRENTICES
Wages per hour
(1)year terms:

1st	2nd	3rd	4th
$26.98	$32.58	$40.96	$49.35
+ 5.50*	+ 5.50*	+ 5.50*	+ 5.50*

*This portion of the benefit is NOT subject to the SAME PREMIUM as shown for overtime.

Supplemental benefits per hour:

All Terms: $ 32.34

8-1556 Db

Carpenter — 03/01/2025

JOB DESCRIPTION Carpenter **DISTRICT** 8

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Rockland, Suffolk, Westchester

WAGES
Per hour: 07/01/2024

Carpet/Resilient
Floor Coverer $ 55.05
+ 8.25*

*This portion of the benefit is NOT subject to the SAME PREMIUM as shown for overtime.

INCLUDES HANDLING & INSTALLATION OF ARTIFICIAL TURF AND SIMILAR TURF INDOORS/OUTDOORS.

SUPPLEMENTAL BENEFITS
Per hour:
$ 39.45

OVERTIME PAY
See (B, E, Q) on OVERTIME PAGE

HOLIDAY
Paid: See (18, 19) on HOLIDAY PAGE.

Paid for 1st & 2nd yr.
Apprentices See (5,6,11,13,16,18,19,25)
Overtime: See (5,6,11,13,16,18,19,25) on HOLIDAY PAGE.

REGISTERED APPRENTICES
Wage per hour - (1) year terms:

1st	2nd	3rd	4th
$ 25.20	$ 28.20	$ 32.45	$ 40.33

+ 1.85*	+ 2.35*	+ 2.85*	+ 3.85*

*This portion of the benefit is NOT subject to the SAME PREMIUM as shown for overtime.

Supplemental benefits per hour:

1st	2nd	3rd	4th
$ 15.22	$ 16.22	$ 19.32	$ 20.32

8-2287

Carpenter — 03/01/2025

JOB DESCRIPTION Carpenter **DISTRICT** 8

ENTIRE COUNTIES
Bronx, Dutchess, Kings, Nassau, New York, Orange, Putnam, Queens, Richmond, Rockland, Suffolk, Westchester

WAGES
Per Hour: 07/01/2024

Marine Construction:

Marine Diver	$ 75.46
	+ 10.00*
Marine Tender	$ 55.00
	+ 10.00*

*This portion of the benefit is NOT subject to the SAME PREMIUM as shown for overtime

SUPPLEMENTAL BENEFITS
Per Hour:

Journeyworker	$ 45.65

OVERTIME PAY
See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY
Paid: See (18, 19) on HOLIDAY PAGE
Overtime: See (5, 6, 11, 13, 16, 18, 19, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wages per hour:
One (1) year terms.

1st year	$ 26.98
	+ 5.50*
2nd year	32.58
	+ 5.50*
3rd year	40.96
	+ 5.50*
4th year	49.35
	+ 5.50*

*This portion of the benefit is NOT subject to the SAME PREMIUM as shown for overtime.

Supplemental Benefits
Per Hour:

All terms	$ 32.20

8-1456MC

Carpenter — 03/01/2025

JOB DESCRIPTION Carpenter **DISTRICT** 8

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Putnam, Queens, Richmond, Rockland, Suffolk, Westchester

WAGES
Per hour: 07/01/2024

Building
Millwright $ 59.35
+ 13.12*

*This portion of the benefit is NOT subject to the SAME PREMIUM as shown for overtime.

SUPPLEMENTAL BENEFITS
Per hour:

Millwright $ 45.41

OVERTIME PAY
See (B, E, Q) on OVERTIME PAGE

HOLIDAY
Paid: See (18, 19) on HOLIDAY PAGE
Paid: See (18,19) on HOLIDAY PAGE.

Overtime See (5,6,8,11,13,18,19,25) on HOLIDAY PAGE.

REGISTERED APPRENTICES
Wages per hour:
One (1) year terms:

1st.	2nd.	3rd.	4th.
$ 32.16	$ 37.61	$ 43.06	$ 53.96
+ 7.08*	+ 8.25*	+ 9.42*	+ 11.76*

*This portion of the benefit is NOT subject to the SAME PREMIUM as shown for overtime.

Supplemental benefits per hour:
One (1) year terms:

1st.	2nd.	3rd.	4th.
$ 30.56	$ 33.09	$ 36.27	$ 40.69

8-740.1

Carpenter **03/01/2025**

JOB DESCRIPTION Carpenter **DISTRICT** 8

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES
Per Hour:
07/01/2024

Timberman $ 55.59
+ 10.26*

*This portion of the benefit is NOT subject to the SAME PREMIUM as shown for overtime.

SUPPLEMENTAL BENEFITS
Per Hour:
07/01/2024

$ 44.96

OVERTIME PAY
See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY
Overtime: See (5, 6, 11, 13, 25) on HOLIDAY PAGE
Paid: See (1) on HOLIDAY PAGE.

Paid: for 1st & 2nd yr.
Apprentices See (5,6,11,13,25)

Overtime: See (5,6,11,13,25) on HOLIDAY PAGE.

REGISTERED APPRENTICES
Wages per hour:
One (1) year terms:

1st	2nd	3rd	4th

$24.96	$30.07	$37.72	$45.38
+ 5.55*	+ 5.55*	+ 5.55*	+ 5.55*

*This portion of the benefit is NOT subject to the SAME PREMIUM as shown for overtime.

Supplemental benefits per hour:
All terms $ 31.95

8-1556 Tm

Carpenter 03/01/2025

JOB DESCRIPTION Carpenter **DISTRICT** 8

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Rockland, Westchester

PARTIAL COUNTIES
Orange: South of but including the following, Waterloo Mills, Slate Hill, New Hampton, Goshen, Blooming Grove, Mountainville, east to the Hudson River.
Putnam: South of but including the following, Cold Spring, TompkinsCorner, Mahopac, Croton Falls, east to Connecticut border.
Suffolk: West of Port Jefferson and Patchogue Road to Route 112 to the Atlantic Ocean.

WAGES
Per hour: 07/01/2024

Core Drilling:
Driller $ 46.25
+ 3.25*

Driller Helper $ 36.28
+ 3.25*

Note: Hazardous Waste Pay Differential:
For Level C, an additional 15% above wage rate per hour
For Level B, an additional 15% above wage rate per hour
For Level A, an additional 15% above wage rate per hour
Note: When required to work on water: an additional $ 3.00 per hour.

*This portion of the benefit is NOT subject to the SAME PREMIUM as shown for overtime.

SUPPLEMENTAL BENEFITS

Per hour:

Driller and Helper $ 30.24

OVERTIME PAY
See (B, G, P) on OVERTIME PAGE

HOLIDAY
Paid: See (5, 6) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

8-1536-CoreDriller

Carpenter - Building / Heavy&Highway 03/01/2025

JOB DESCRIPTION Carpenter - Building / Heavy&Highway **DISTRICT** 11

ENTIRE COUNTIES
Putnam, Rockland, Westchester

WAGES
WAGES:(per hour)
Applies to CARPENTER BUILDING/HEAVY & HIGHWAY/TUNNEL:

	07/01/2024	07/01/2025 Additional	07/01/2026 Additional
Base Wage	$ 42.76 +$6.62*	$ 1.25**	$ 1.25**

*For all hours paid straight or premium.
**To be allocated at a later date.

SHIFT WORK

SHIFT DIFFERENTIAL: When it is mandated by a Government Agency irregular or off shift can be worked. The Carpenter shall receive an additional fifteen percent (15%) of wage plus applicable benefits.

SUPPLEMENTAL BENEFITS
Per hour:

Journeyworker $ 31.60

OVERTIME PAY
See (B, E, Q) on OVERTIME PAGE

HOLIDAY
BUILDING:
Paid: See (1) on HOLIDAY PAGE.
Overtime: See (5, 6, 16, 25) on HOLIDAY PAGE.
- Holidays that fall on Sunday will be observed Monday.

HEAVY&HIGHWAY/TUNNEL:
Paid: See (5, 6, 25) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE
- Holidays that fall on Sunday will be observed Monday
- Must be employed during the five (5) work days immediately preceding a holiday or during the five (5) work days following the paid holiday to receive holiday pay
- If Employee is entitled to a paid holiday, the Employee is paid the Holiday wage and supplemental benefits whether they work or not. If Employee works the Holiday, the Employee will receive holiday pay (including supplemental benefits), plus the applicable premium wage for working the Holiday. If Employee works in excess of 8 hours on Holiday, then benefits will be paid for any hours in excess of 8 hours.

REGISTERED APPRENTICES
1 year terms at the following wage rates:

1st	2nd	3rd	4th
$ 21.38	$ 25.66	$ 29.93	$ 34.21
+3.84*	+3.84*	+3.84*	+3.84*

*For all hours paid straight or premium

SUPPLEMENTAL BENEFITS per hour:

All terms $ 16.25

11-279.1B/HH

Electrician **03/01/2025**

JOB DESCRIPTION Electrician **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Kings, New York, Queens, Richmond, Westchester

WAGES
Per hour: 07/01/2024

Service Technician $ 37.40

Service and Maintenance on Alarm and Security Systems.

Maintenance, repair and /or replacement of defective (or damaged) equipment on, but not limited to, Burglar - Fire - Security - CCTV - Card Access - Life Safety Systems and associated devices. (Whether by service contract of T&M by customer request.)

SUPPLEMENTAL BENEFITS
Per hour:
Journeyworker: $ 21.85

OVERTIME PAY
See (B, E, Q) on OVERTIME PAGE

HOLIDAY
Paid: See (5, 6, 11, 15, 16, 17, 25, 26) on HOLIDAY PAGE
Overtime: See (5, 6, 11, 15, 16, 17, 25, 26) on HOLIDAY PAGE

9-3H

Electrician **03/01/2025**

JOB DESCRIPTION Electrician **DISTRICT** 8

ENTIRE COUNTIES
Westchester

WAGES

Per hour:	07/01/2024	04/17/2025
*Electrician/A-Technician	$ 56.75	$ 58.75
Teledata	56.75	58.75

*All new installations of wiring, conduit, junction boxes and light fixtures for projects with a base bid of more than $325,000. For projects with a base bid of $325,000 or less, see Maintenance and Repair rates.

Note: On a job where employees are required to work on bridges over navigable waters, transmission towers, light poles, bosun chairs, swinging scaffolds , etc. 40 feet or more above the water or ground or under compressed air, or tunnel projects under construction or where assisted breathing apparatus is required, they will be paid at the rate of time and one-half for such work except on normal pole line or building construction work.

SUPPLEMENTAL BENEFITS

Per hour:		
Journeyworker	$ 59.39	$61.09

OVERTIME PAY
See (A, G, *J, P) on OVERTIME PAGE
*NOTE: Emergency work on Sunday and Holidays is at the time and one-half overtime rate.

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 11, 15, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES
(1) year terms at the following wage rates:

	07/01/2024	01/01/2025	04/17/2025
1st term	$ 16.00	$ 16.50	$16.50
2nd term	17.00	17.00	17.00
3rd term	19.00	19.00	19.00
4th term	21.00	21.00	21.00
MIJ 1-12 months	26.50	26.50	26.50
MIJ 13-18 months	30.00	30.00	30.00

Supplemental Benefits per hour:

	07/01/2024	01/01/2025	04/17/2025
1st term	$ 12.40	$ 12.40	$ 12.72
2nd term	15.07	15.07	15.89
3rd term	16.40	16.40	17.23
4th term	17.73	17.73	18.57
MIJ 1-12 months	15.72	15.72	15.89
MIJ 13-18 months	16.17	16.17	16.29

8-3/W

Electrician — 03/01/2025

JOB DESCRIPTION Electrician **DISTRICT** 8

ENTIRE COUNTIES
Westchester

WAGES
Per hour

	07/01/2024	04/17/2025
Electrician -M	$ 30.00	$ 30.00
H - Telephone	30.00	30.00

All work with a base bid amount of $325,000 or less. Including repairs and /or replacement of defective electrical and teledata equipment, 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.

*If the project exceeds $375,000 due to changes in the scope of work, an Electrician/A Technician must be part of the labor ratio.

SUPPLEMENTAL BENEFITS

	07/01/2024	04/17/2025
Electrician & H - Telephone	$ 16.17	$ 16.29

OVERTIME PAY
See (B, G, *J, P) on OVERTIME PAGE
*Note: Emergency work on Sunday and Holidays is at the time and one-half overtime rate.

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 11, 15, 16, 25) on HOLIDAY PAGE

8-3m

Elevator Constructor — 03/01/2025

JOB DESCRIPTION Elevator Constructor **DISTRICT** 4

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

PARTIAL COUNTIES
Rockland: Entire County except for the Township of Stony Point
Westchester: Entire County except for the Townships of Bedford, Lewisboro, Cortland, Mt. Kisco, North Salem, Pound Ridge, Somers and Yorktown.

WAGES
Per hour:

	07/01/2024	03/17/2025
Elevator Constructor	$ 80.35	$ 83.37
Modernization & Service/Repair	63.16	65.54

SUPPLEMENTAL BENEFITS
Per Hour:

Elevator Constructor	$ 46.367	$ 47.654
Modernization & Service/Repairs	45.217	46.470

OVERTIME PAY
Constructor See (D, M, T) on OVERTIME PAGE.

Modern/Service See (B, F, S) on OVERTIME PAGE.

HOLIDAY
Paid: See (5, 6, 8, 11, 15, 16, 25) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 11, 15, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES
WAGES PER HOUR:

6 MONTH TERMS:

1st Term*	2nd & 3rd Term*	4th & 5th Term	6th & 7th Term	8th & 9th Term
50%	50%	55%	65%	75%

* Note: 1st, 2nd, 3rd Terms are based on Average of the Constructor, the Modernization and the Service/Repair wage.
Terms 4 thru 9 Based on Journeyman's wage of classification Working in.

SUPPLEMENTAL BENEFITS:

	07/01/2024	03/17/2025
Elevator Constructor		
1st Term	$ 0.00	$ 0.00
2nd & 3rd Term	36.15	36.90
4th & 5th Term	37.19	37.99
6th & 7th Term	38.80	39.70
8th & 9th Term	40.41	41.40
Modernization & Service/Repair		
1st Term	$ 0.00	$ 0.00
2nd & 3rd Term	36.15	36.90
4th & 5th Term	37.19	37.99
6th & 7th Term	38.80	39.70

8th & 9th Term	40.41	41.40

4-1

Elevator Constructor — 03/01/2025

JOB DESCRIPTION Elevator Constructor **DISTRICT** 1

ENTIRE COUNTIES
Columbia, Dutchess, Greene, Orange, Putnam, Sullivan, Ulster

PARTIAL COUNTIES
Delaware: Towns of Andes, Bovina, Colchester, Davenport, Delhi, Harpersfield, Hemdon, Kortright, Meredith, Middletown, Roxbury, Hancock & Stamford
Rockland: Only the Township of Stony Point.
Westchester: Only the Townships of Bedford, Lewisboro, Cortland, Mt. Kisco, North Salem, Pound Ridge, Somers and Yorktown.

WAGES

Per Hour	07/01/2024	01/01/2025
Mechanic	$ 70.15	$ 73.07
Helper	70% of Mechanic Wage Rate	70% of Mechanic Wage Rate

SUPPLEMENTAL BENEFITS
Per hour

	07/01/2024	01/01/2025
Journeyworker/Helper	$ 37.885*	$ 38.435*

(*)Plus 6% of regular hourly if less than 5 years of service. Plus 8% of regular hourly rate if more than 5 years of service.

OVERTIME PAY
See (D, O) on OVERTIME PAGE

HOLIDAY
Paid: See (5, 6, 15, 16) on HOLIDAY PAGE
Overtime: See (5, 6, 15, 16) on HOLIDAY PAGE
Note: When a paid holiday falls on Saturday, it shall be observed on Friday. When a paid holiday falls on Sunday, it shall be observed on Monday.

REGISTERED APPRENTICES
Wages per hour:

0-6 mo*	6-12 mo	2nd yr	3rd yr	4th yr
50 %	55 %	65 %	70 %	80 %

(*)Plus 6% of the hourly rate, no additional supplemental benefits.

Supplemental Benefits per hour worked:

Same as Journeyperson/Helper

1-138

Glazier — 03/01/2025

JOB DESCRIPTION Glazier **DISTRICT** 8

ENTIRE COUNTIES
Bronx, Dutchess, Kings, Nassau, New York, Orange, Putnam, Queens, Richmond, Rockland, Suffolk, Sullivan, Ulster, Westchester

WAGES
Per hour:

	07/01/2024	05/01/2025 Additional
Glazier, Glass Tinting and Window Film	$ 63.28	$ 1.11***
Scaffolding, including swing scaffold	67.28	
*Mechanical Equipment	64.28	
**Repair & Maintenance	30.76	

*Mechanical equipment, scissor jacks, man lifts, booms & buckets 30' or more, but not pipe scaffolding.
**Repair & Maintenance- All repair & maintenance work on a particular building whenever performed, where the total cumulative Repair & Maintenance contract value is under $193,000.

***To be allocated at a later date.

SUPPLEMENTAL BENEFITS

Per hour:	7/01/2024
Glazier, Glass Tinting Window Film, Scaffolding and Mechanical Equipment	$ 42.13
Repair & Maintenance	24.62

OVERTIME PAY
See (B, E, Q, V) on OVERTIME PAGE
For 'Repair & Maintenance' see (B, B2, I, S) on overtime page.

HOLIDAY
Paid: See (5, 6, 16, 25) on HOLIDAY PAGE
Overtime: See (5, 6, 16, 25) on HOLIDAY PAGE
For 'Repair & Maintenance'
Paid: See(5, 6, 16, 25)
Overtime: See(5, 6, 16, 25)

REGISTERED APPRENTICES
Wage per hour:
(1) year terms at the following wage rates:

	7/01/2024
1st term	$ 22.34
2nd term	30.64
3rd term	40.87
4th term	50.14

Supplemental Benefits:
(Per hour)

1st term	$ 19.27
2nd term	27.34
3rd term	32.85
4th term	36.01

8-1087 (DC9 NYC)

Insulator - Heat & Frost — 03/01/2025

JOB DESCRIPTION Insulator - Heat & Frost **DISTRICT** 4

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

Per Hour:	07/01/2024
Insulators Heat & Frost	$ 71.01

SUPPLEMENTAL BENEFITS

Per Hour:	
Insulators Heat & Frost	$ 36.76

OVERTIME PAY
See (B, E, *Q, V) on OVERTIME PAGE
* Triple time for Labor Day (If worked)

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 11, 15, 16, 25, 26) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wages:
1 year terms.
Wages Per Hour:

1st	2nd	3rd	4th
$ 31.96	$ 39.06	$ 46.16	$ 53.26

Supplemental Benefits:

$ 16.56	$ 20.23	$ 23.91	$ 27.06

4-12

Insulator - Heat & Frost — 03/01/2025

JOB DESCRIPTION Insulator - Heat & Frost **DISTRICT** 8

ENTIRE COUNTIES
Dutchess, Orange, Putnam, Rockland, Westchester

WAGES

Per hour:	07/01/2024
Insulator	$ 60.85
Discomfort & Additional Training**	63.92
Fire Stop Work*	32.97

* Applies on all exclusive Fire Stop Work (When contract is for Fire Stop work only). No apprentices on these contracts only.

**Applies to work requiring; garb or equipment worn against the body not customarily worn by insulators; psychological evaluation ;special training, including but not limited to "Yellow Badge" radiation training

Note: Additional $0.50 per hour for work 30 feet or more above floor or ground level.

SUPPLEMENTAL BENEFITS

Per hour:	
Journeyworker	$ 38.25
Discomfort & Additional Training	40.32
Fire Stop Work:	
Journeyworker	19.48

OVERTIME PAY
See (B, E, E2, Q, *T) on OVERTIME PAGE

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Note: Last working day preceding Christmas and New Years day, workers shall work no later than 12:00 noon and shall receive 8 hrs pay.

Overtime: See (2*, 4, 6, 16, 25) on HOLIDAY PAGE.
*Note: Labor Day triple time if worked.

REGISTERED APPRENTICES
(1) year terms:

Insulator Apprentices:

1st	2nd	3rd	4th
$ 32.97	$ 38.54	$ 44.12	$ 49.70

Discomfort & Additional Training Apprentices:

1st	2nd	3rd	4th
$ 34.51	$ 40.38	$ 46.27	$ 52.16

Supplemental Benefits paid per hour:

Insulator Apprentices:	
1st term	$ 19.48
2nd term	23.23
3rd term	26.98
4th term	30.74

Discomfort & Additional Training Apprentices:	
1st term	$ 20.50
2nd term	24.47

3rd term	28.43
4th term	32.39

8-91

Ironworker **03/01/2025**

JOB DESCRIPTION Ironworker **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

Per Hour:	07/01/2024	01/01/2025 Additional
Stone Derrickmen Rigger	$ 75.40	$ 1.64*
Stone Handset Derrickman	72.55	1.11*

*To be allocated at a later date.

SUPPLEMENTAL BENEFITS
Per hour:

Stone Derrickmen Rigger	$ 45.52
Stone Handset Derrickman	44.76

OVERTIME PAY
See (B, D1, *E, Q, **V) on OVERTIME PAGE
*Time and one-half shall be paid for all work on Saturday up to eight (8) hours and double time shall be paid for all work thereafter.
** Benefits same premium as wages on Holidays only

HOLIDAY
Paid: See (18) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 25) on HOLIDAY PAGE
Work stops at schedule lunch break with full day's pay.

REGISTERED APPRENTICES
Wage per hour:

Stone Derrickmen Rigger:

	1st	2nd	3rd	4th
07/01/2024	$ 37.20	$ 53.28	$ 59.32	$ 65.36

Supplemental Benefits:
Per hour:

07/01/2024	23.27	34.39	34.39	34.39

Stone Handset:

1/2 year terms at the following hourly wage rate:

	1st	2nd	3rd	4th
07/01/2024	$ 35.78	$ 51.04	$ 56.79	$ 62.55

Supplemental Benefits:
Per hour:

07/01/2024	22.95	34.08	34.08	34.08

9-197D/R

Ironworker **03/01/2025**

JOB DESCRIPTION Ironworker **DISTRICT** 4

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

Per Hour:	07/01/2024	01/01/2025
Ornamental	$ 47.65	$ 47.90
Chain Link Fence	47.65	47.90

Guide Rail	47.65	47.90

SUPPLEMENTAL BENEFITS
Per hour:

Journeyworker:	$ 66.29	$ 67.29

OVERTIME PAY
See (B, B1, Q, V) on OVERTIME PAGE

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES
1 year terms

1st Term	$ 25.98	$ 26.45
2nd Term	28.45	28.97
3rd Term	30.80	31.36
4th Term	34.39	35.02

Supplemental Benefits per hour:

1st Term	$ 16.29	$ 16.29
2nd Term	18.29	18.29
3rd Term	19.29	19.29
4th Term	20.29	20.29

4-580-Or

Ironworker **03/01/2025**

JOB DESCRIPTION Ironworker **DISTRICT** 4

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES
PER HOUR:

	07/01/2024	01/01/2025
Ironworker:		
Structural	$ 57.20	$ 58.45
Bridges		
Machinery		

SUPPLEMENTAL BENEFITS
PER HOUR PAID:

Journeyman	$ 89.85	$ 91.35

OVERTIME PAY
See (B, B1, Q, *V) on OVERTIME PAGE
*NOTE: Benefits are calculated for every hour paid.

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 18, 19) on HOLIDAY PAGE

REGISTERED APPRENTICES
WAGES PER HOUR:

6 month terms at the following rate:

1st	$ 30.23	$ 30.36
2nd	30.83	30.96
3rd - 6th	31.44	31.57

Supplemental Benefits PER HOUR PAID:	62.47	63.48

4-40/361-Str

Ironworker **03/01/2025**

JOB DESCRIPTION Ironworker **DISTRICT** 4

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

PARTIAL COUNTIES
Rockland: Southern section - south of Convent Road and east of Blue Hills Road.

WAGES

Per hour:	07/01/2024
Reinforcing & Metal Lathing	$ 56.95
"Base" Wage	55.20 plus $ 1.75

"Base" Wage is used to calculate overtime hours only.

SUPPLEMENTAL BENEFITS

Per hour:	
Reinforcing & Metal Lathing	$ 44.63

OVERTIME PAY
See (B, E, Q, *X) on OVERTIME PAGE
*Only $23.50 per Hour for non worked hours

Supplemental Benefit Premiums for Overtime Hours worked:

Time & One Half	$ 51.13
Double Time	57.63

HOLIDAY

Paid:	See (1) on HOLIDAY PAGE
Overtime:	See (5, 6, 11, 13, *18, **19, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES
(1) year terms at the following wage rates:

Prior to 01/01/2020:

1st term	2nd term	3rd term	4th Term
Wage Per Hour:			
$ 22.55	$ 28.38	$ 34.68	$ 37.18
"Base" Wage			
$21.00	$26.80	$33.10	$35.60
plus $1.55	plus $1.58	plus $1.58	plus $1.58

"Base" Wage is used to calculate overtime hours ONLY.

SUPPLEMENTAL BENIFITS
Per Hour:

1st term	2nd term	3rd term	4th Term
$18.17	$21.34	$22.00	$22.50

After 01/01/2020:

1st term	2nd term	3rd term	4th Term
Wage Per Hour:			
$ 22.55	$ 23.60	$ 24.60	$ 25.65
"Base" Wage			
$21.00	$22.00	$23.00	$24.00
plus $1.55	plus $1.60	plus $1.60	plus $1.65

"Base" Wage is used to calculate overtime hours ONLY.

SUPPLEMENTAL BENIFITS
Per Hour:

1st term	2nd term	3rd term	4th Term
$18.40	$17.40	$16.45	$15.45

4-46Reinf

JOB DESCRIPTION Laborer - Building **DISTRICT** 8

ENTIRE COUNTIES
Putnam, Westchester

WAGES

Per hour	07/01/2024
Laborer	$ 37.95 plus $5.45**
Laborer/Asbestos & Hazardous Materials Removal	$ 39.60* plus $5.45**

* Abatement/Removal of:
- Lead based or lead containing paint on materials to be repainted is classified as Painter.
- Asbestos containing roofs and roofing material is classified as Roofer.

** This portion is not subject to overtime premium.

NOTE: Upgrade/Material condition work plan for work performed during non-outage under a wage formula of 90% wage/100% fringe benefits at nuclear power plants.

SUPPLEMENTAL BENEFITS

Per hour:	07/01/2024
Journeyworker	$ 31.95

OVERTIME PAY
See (B, E, E2, Q, *V) on OVERTIME PAGE
*Note: For Sundays and Holidays worked benefits are at the same premium as wages.

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES
LABORER ONLY
Hourly terms at the following wage:

Level A	Level B	Level C	Level D
0-1000	1001-2000	2001-3000	3001-4000
$ 28.08	$ 31.90	$ 35.72	$ 39.54

Supplemental Benefits per hour:

Apprentices	
All terms	$ 23.60

8-235/B

Laborer - Heavy&Highway **03/01/2025**

JOB DESCRIPTION Laborer - Heavy&Highway **DISTRICT** 8

ENTIRE COUNTIES
Putnam, Westchester

WAGES
PUTNAM: APPLIES TO ALL HEAVY & HIGHWAY WORK EXCLUDING HIGHWAYS, STREETS, AND BRIDGES

GROUP I: Blaster, Quarry Master, Curbs/Asphalt Screedman, Pipe Jacking and Boring Operations Operator, Qualified Dead Condition Pipe Fuser (B Mechanic)

GROUP II: Burner, Drillers(jumbo, joy, wagon, air track, hydraulic), Drill Operator, Self Contained Rotary Drill, Curbs, Raker, Bar Person, Concrete Finisher.

GROUP III: Pavement Breakers, Jeeper Operator, Jack Hammer, Pneumatic Tools (all), Gas Driller, Guniting, Railroad Spike Puller, Pipelayer, Chain Saw, Deck winches on scows, Power Buggy Operator, Power Wheelbarrow Operator, Bar Person Helper, Compressed Airlance, Water Jet Lance.

GROUP IV: Concrete Laborers, Asph. Worker, Rock Scaler, Vibrator Oper., Bit Grinder, Air Tamper, Pumps, Epoxy (adhesives, fillers and troweled on), Barco Rammer, Concrete Grinder, Crack Router Operator, Guide Rail-digging holes and placing concrete and demolition when not to be replaced, distribution of materials and tightening of bolts.

GROUP V: Drillers Helpers, Common Laborer, Mason Tenders, Signal Person, Pit Person, Truck Spotter, Powder Person, Landscape/Nursery Person, Dump Person, Temp. Heat.

GROUP VIA: Asbestos/Toxic Waste Laborer-All removal (Roads, Tunnels, Landfills, etc.) Confined space laborer, Bio-remediation, Phyto-remediation, Lead or Hazardous material, Abatement Laborer.

Wages:(per hour)	07/01/2024
GROUP I	$ 50.62*
GROUP II	49.27*
GROUP III	48.87*
GROUP IV	48.52*
GROUP V	48.17*
GROUP VIA	50.17*
Operator Qualified	
Gas Mechanic(A Mech)	60.62*
Flagperson	41.82*

*NOTE: To calculate overtime premiums, deduct $0.10 from above wages

SHIFT WORK
A shift premium will be paid on Public Work contracts for off-shift or irregular shift work when mandated by the NYS D.O.T. or other Governmental Agency contracts. Employees shall receive an additional 15% per hour above current rate for all regular and irregular shift work. Premium pay shall be calculated using the 15% per hour differential as base rate.

SUPPLEMENTAL BENEFITS
Per hour:
Journeyworker:
First 40 Hours
Per Hour $ 27.78
Over 40 Hours
Per Hour 21.03

OVERTIME PAY
See (B, E, P, R, S) on OVERTIME PAGE

HOLIDAY
Paid: See (5, 6, 8, 15, 25, 26) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 15, 25, 26) on HOLIDAY PAGE
NOTE: For Holiday Overtime: 5, 6 - Code 'S' applies
For Holiday Overtime: 8, 15, 25, 26 - Code 'R' applies

REGISTERED APPRENTICES

	1st term	2nd term	3rd term	4th term
	1-1000hrs	1001-2000hrs	2001-3000hrs	3001-4000hrs
07/01/2024	$ 28.07	$ 33.12	$ 37.94	$ 42.76

Supplemental Benefits per hour:

1st term	$ 3.85 - After 40 hours: $ 3.50
2nd term	$ 3.95 - After 40 hours: 3.50
3rd term	$ 4.45 - After 40 hours: 3.90
4th term	$ 5.00 - After 40 hours: 4.40

8-60H/H

Laborer - Tunnel 03/01/2025

JOB DESCRIPTION Laborer - Tunnel **DISTRICT** 11

ENTIRE COUNTIES
Columbia, Dutchess, Greene, Orange, Otsego, Putnam, Rockland, Sullivan, Ulster, Westchester

PARTIAL COUNTIES
Chenango: Townships of Columbus, Sherburne and New Berlin.
Delaware: Townships of Andes, Bovina, Middletown, Roxbury, Franklin, Hamden, Stamford, Delhi, Kortright, Harpersfield, Merideth and Davenport.

WAGES
Class 1: All support laborers/sandhogs working above the shaft or tunnel.

Class 2: All laborers/sandhogs working in the shaft or tunnel.

Class 4: Safety Miners

Class 5: Site work related to Shaft/Tunnel

WAGES: (per hour)

	07/01/2024	06/01/2025
Class 1	$ 57.05	$ 58.55
Class 2	59.20	60.70
Class 4	65.60	67.10
Class 5	49.90	51.40

Toxic and hazardous waste, lead abatement and asbestos abatement work will be paid an additional $ 3.00 an hour.

SHIFT WORK

SHIFT DIFFERENTIAL...On all Government mandated irregular shift work:

- Employee shall be paid at time and one half the regular rate Monday through Friday.
- Saturday shall be paid at 1.65 times the regular rate.
- Sunday shall be paid at 2.15 times the regular rate.

SUPPLEMENTAL BENEFITS

Per hour:

Benefit 1	$ 36.98	$ 38.23
Benefit 2	55.39	59.99
Benefit 3	74.58	76.73

Benefit 1 applies to straight time hours, paid holidays not worked.
Benefit 2 applies to over 8 hours in a day (M-F), irregular shift work hours worked, and Saturday hours worked.
Benefit 3 applies to Sunday and Holiday hours worked.

OVERTIME PAY

See (B, E, Q, X) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 6, 15, 25) on HOLIDAY PAGE
Overtime: See (5, 6, 15, 16, 25) on HOLIDAY PAGE

When a recognized Holidays falls on Saturday or Sunday, holidays falling on Saturday shall be recognized or observed on Friday and holidays falling on Sunday shall be recognized or observed on Monday. Employees ordered to work on the Saturday or Sunday of the holiday or on the recognized or the observed Friday or Monday for those holidays falling on Saturday or Sunday shall receive double time the established rate and benefits for the holiday.

REGISTERED APPRENTICES

FOR APPRENTICE RATES, refer to the appropriate Laborer Heavy & Highway wage rate contained in the wage schedule for the County and location where the work is to be performed.

11-17/60/235/754Tun

Lineman Electrician — 03/01/2025

JOB DESCRIPTION Lineman Electrician **DISTRICT** 6

ENTIRE COUNTIES

Westchester

WAGES

A Lineman/Technician shall perform all overhead aerial work. A Lineman/Technician on the ground will install all electrical panels, connect all grounds, install and connect all electrical conductors, assembly of all electrical materials, conduit, pipe or raceway; placing of fish wire; pulling of cables, wires or fiber optic cable through such raceways; splicing of conductors; dismantling of such structures, lines or equipment.

Crane Operators: Operation of any type of crane on line projects.
Crawler Backhoe: Operation of tracked excavator/crawler backhoe with 1/2 yard bucket or larger on line projects.
Digging Machine Operator: All other digging equipment and augering on line projects.

A Groundman/Truck Driver shall: Build and set concrete forms, handle steel mesh, set footer cages, transport concrete in a wheelbarrow, hand or machine concrete vibrator, finish concrete footers, mix mortar, grout pole bases, cover and maintain footers while curing in cold weather, operate jack hammer, operate hand pavement breaker, tamper, concrete and other motorized saws, as a drill helper, operate and maintain generators, water pumps, chainsaws, sand blasting, operate mulching and seeding machine, air tools, electric tools, gas tools, load and unload materials, hand shovel and/or broom, prepare and pour mastic and other fillers, assist digger operator equipment/operator in ground excavation and restoration, landscape work and painting. Only when assisting a lineman technician, a groundman/truck driver may assist in installing conduit, pipe, cables and equipment.

NOTE: Includes Teledata Work within ten (10) feet of High Voltage Transmission Lines. Also includes digging of holes for poles, anchors, footer, and foundations for electrical equipment.

Below rates apply to electrical overhead and underground distribution and maintenance work and overhead and underground transmission line work, electrical substations, switching structures, continuous pipe-type underground fluid or gas filled transmission conduit and cable installations, maintenance jobs or projects, railroad catenary installations and maintenance, third rail installations, the bonding of rails and the installation of fiber optic cable. Includes access matting for line work.

Per hour:	07/01/2024
Group A:	
Lineman, Tech, Welder	$ 61.91
Crane, Crawler Backhoe	61.91
Cable Splicer-Pipe Type	68.10
Cert. Welder-Pipe Type	65.01
Group B:	
Digging Mach Operator	55.72
Tractor Trailer Driver	52.62
Groundman, Truck Driver	49.53
Equipment Mechanic	49.53
Flagman	37.15

Additional $1.00 per hour for entire crew when a helicopter is used.

SHIFT WORK

THE FOLLOWING RATES WILL APPLY ON ALL CONTRACTING AGENCY MANDATED MULTIPLE SHIFTS OF AT LEAST FIVE (5) DAYS DURATION WORKED BETWEEN THE HOURS LISTED BELOW:

1ST SHIFT	8:00 AM TO 4:30 PM REGULAR RATE
2ND SHIFT	4:30 PM TO 1:00 AM REGULAR RATE PLUS 17.3%
3RD SHIFT	12:30 AM TO 9:00 AM REGULAR RATE PLUS 31.4%

SUPPLEMENTAL BENEFITS

Per hour worked (but also required on non-worked holidays):

	07/01/2024
Group A	$ 30.90 *plus 7% of the hourly wage paid
Group B	$ 26.90 *plus 7% of the hourly wage paid

*The 7% is based on the hourly wage paid, straight time or premium time.

OVERTIME PAY

See (B, E, Q, X) on OVERTIME PAGE. NOTE: Double time for emergency work designated by the Dept. of Jurisdiction.
WAGE CAP - Double the straight time hourly base wage shall be the maximum hourly wage compensation for any hour worked. Contractor is still responsible to pay the hourly benefit amount for each hour worked.

HOLIDAY

Paid	See (5, 6, 8, 13, 25) on HOLIDAY PAGE plus Governor of NYS Election Day.
Overtime	See (5, 6, 8, 13, 25) on HOLIDAY PAGE plus Governor of NYS Election Day.

NOTE: All paid holidays falling on Saturday shall be observed on the preceding Friday. All paid holidays falling on Sunday shall be observed on the following Monday. Supplements for holidays paid at straight time.

REGISTERED APPRENTICES

WAGES per hour: 1000 hour terms at the following percentage of the applicable Journeyworker's Lineman wage.

1st	2nd	3rd	4th	5th	6th	7th
60%	65%	70%	75%	80%	85%	90%

SUPPLEMENTAL BENEFITS per hour:

	07/01/2024

	$ 26.90 *plus 7% of the hourly wage paid

*The 7% is based on the hourly wage paid, straight time or premium time.

6-1249aWest

Lineman Electrician - Teledata — 03/01/2025

JOB DESCRIPTION Lineman Electrician - Teledata **DISTRICT** 6

ENTIRE COUNTIES
Albany, Allegany, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Dutchess, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Oswego, Otsego, Putnam, Rensselaer, Rockland, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Westchester, Wyoming, Yates

WAGES
Per hour:

For outside work, stopping at first point of attachment (demarcation).

	07/01/2024	01/01/2025
Cable Splicer	$ 39.24	$ 40.81
Installer, Repairman	$ 37.24	$ 38.73
Teledata Lineman	$ 37.24	$ 38.73
Tech., Equip. Operator	$ 37.24	$ 38.73
Groundman	$ 19.74	$ 20.53

NOTE: EXCLUDES Teledata work within ten (10) feet of High Voltage (600 volts and over) transmission lines. For this work please see LINEMAN.

SHIFT WORK
THE FOLLOWING RATES APPLY WHEN THE CONTRACTING AGENCY MANDATES MULTIPLE SHIFTS OF AT LEAST FIVE (5) DAYS DURATION ARE WORKED. WHEN TWO (2) OR THREE (3) SHIFTS ARE WORKED THE FOLLOWING RATES APPLY:

1ST SHIFT	REGULAR RATE
2ND SHIFT	REGULAR RATE PLUS 10%
3RD SHIFT	REGULAR RATE PLUS 15%

SUPPLEMENTAL BENEFITS

Per hour:	07/01/2024	01/01/2025
Journeyworker	$ 5.70 *plus 3% of the hour wage paid	$ 5.70 *plus 3% of the hour wage paid

*The 3% is based on the hourly wage paid, straight time rate or premium rate.

OVERTIME PAY
See (B, E, Q) on OVERTIME PAGE
WAGE CAP - Double the straight time hourly base wage shall be the maximum hourly wage compensation for any hour worked. Contractor is still responsible to pay the hourly benefit amount for each hour worked.

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 16) on HOLIDAY PAGE

6-1249LT - Teledata

Lineman Electrician - Traffic Signal, Lighting — 03/01/2025

JOB DESCRIPTION Lineman Electrician - Traffic Signal, Lighting **DISTRICT** 6

ENTIRE COUNTIES
Westchester

WAGES
Lineman/Technician shall perform all overhead aerial work. A Lineman/Technician on the ground will install all electrical panels, connect all grounds, install and connect all electrical conductors which includes, but is not limited to road loop wires; conduit and plastic or other type pipes that carry conductors, flex cables and connectors, and to oversee the encasement or burial of such conduits or pipes.

Crane Operators: Operation of any type of crane on Traffic Signal/Lighting projects.
Crawler Backhoe: Operation of tracked excavator/crawler backhoe with 1/2 yard bucket or larger on Traffic Signal/Lighting projects.
Digging Machine Operator: All other digging equipment and augering on Traffic Signal/Lighting projects.

A Groundman/Groundman Truck Driver shall: Build and set concrete forms, handle steel mesh, set footer cages, transport concrete in a wheelbarrow, hand or machine concrete vibrator, finish concrete footers, mix mortar, grout pole bases, cover and maintain footers while curing in cold weather, operate jack hammer, operate hand pavement breaker, tamper, concrete and other motorized saws, as a drill helper, operate and maintain generators, water pumps, chainsaws, sand blasting, operate mulching and seeding machine, air tools, electric tools, gas tools, load and unload materials, hand shovel and/or broom, prepare and pour mastic and other fillers, assist digger operator/equipment operator in ground excavation and restoration, landscape work and painting. Only when assisting a lineman technician, a groundman/truck driver may assist in installing conduit, pipe, cables and equipment.

A flagger's duties shall consist of traffic control only.

Per hour:	07/01/2024
Group A:	
Lineman, Technician	$ 55.95
Crane, Crawler Backhoe	55.95
Certified Welder	58.75
Group B:	
Digging Machine	50.36
Tractor Trailer Driver	47.56
Groundman, Truck Driver	44.76
Equipment Mechanic	44.76
Flagman	33.57

Above rates are applicable for installation, testing, operation, maintenance and repair on all Traffic Control (Signal) and Illumination (Lighting) projects, Traffic Monitoring Systems, and Road Weather Information Systems. Includes digging of holes for poles, anchors, footer foundations for electrical equipment; assembly of all electrical materials or raceway; placing of fish wire; pulling of cables, wires or fiber optic cable through such raceways; splicing of conductors; dismantling of such structures, lines or equipment.

SHIFT WORK
THE FOLLOWING RATES WILL APPLY ON ALL CONTRACTING AGENCY MANDATED MULTIPLE SHIFTS OF AT LEAST FIVE (5) DAYS DURATION WORKED BETWEEN THE HOURS LISTED BELOW:

1ST SHIFT	8:00 AM TO 4:30 PM REGULAR RATE
2ND SHIFT	4:30 PM TO 1:00 AM REGULAR RATE PLUS 17.3%
3RD SHIFT	12:30 AM TO 9:00 AM REGULAR RATE PLUS 31.4%

SUPPLEMENTAL BENEFITS
Per hour worked:

	07/01/2024
Group A	$ 30.90 *plus 7% of the hourly wage paid
Group B	$ 26.90 *plus 7% of the hourly wage paid

*The 7% is based on the hourly wage paid, straight time or premium time.

OVERTIME PAY
See (B, E, Q, X) on OVERTIME PAGE. *Note* Double time for emergency work designated by the Dept. of Jurisdiction.
WAGE CAP - Double the straight time hourly base wage shall be the maximum hourly wage compensation for any hour worked. Contractor is still responsible to pay the hourly benefit amount for each hour worked.

HOLIDAY
Paid: See (5, 6, 8, 13, 25) on HOLIDAY PAGE and Governor of NYS Election Day.
Overtime: See (5, 6, 8, 13, 25) on HOLIDAY PAGE and Governor of NYS Election Day.

NOTE: All paid holidays falling on Saturday shall be observed on the preceding Friday. All paid holidays falling on Sunday shall be observed on the following Monday. Supplements for holidays paid at straight time.

REGISTERED APPRENTICES
WAGES per hour: 1000 hour terms at the following percentage of the applicable Journeyworker's Lineman wage.

1st	2nd	3rd	4th	5th	6th	7th
60%	65%	70%	75%	80%	85%	90%

SUPPLEMENTAL BENEFITS per hour:

07/01/2024
$ 26.90 *plus 7% of the hourly wage paid

*The 7% is based on the hourly wage paid, straight time or premium time.

6-1249aWestLT

Mason - Building — 03/01/2025

JOB DESCRIPTION Mason - Building **DISTRICT** 9

ENTIRE COUNTIES
Nassau, Rockland, Suffolk, Westchester

WAGES

Per hour:	07/01/2024	12/02/2024
Tile Setters	$ 63.91	$ 64.16

SUPPLEMENTAL BENEFITS
Per Hour:

	$ 27.66* +8.50	$ 28.11* +8.51

* This portion of benefits subject to same premium rate as shown for overtime wages.

OVERTIME PAY
See (B, E, Q, V) on OVERTIME PAGE
Work beyond 10 hours on Saturday shall be paid at double the hourly wage rate.

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 11, 15, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wage per hour:

(750 hour) term at the following wage rate:
Term:

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
1-750	751-1500	1501-2250	2251-3000	3001-3750	3751-4500	4501-5250	5251-6000	6001-6750	6501-7000
07/01/2024									
$22.19	$27.21	$34.45	$39.46	$43.07	$46.58	$50.23	$55.24	$57.71	$62.00
12/02/24									
$22.29	$27.35	$34.36	$39.41	$43.05	$46.60	$50.29	$55.33	$57.84	$62.20

Supplemental Benefits per hour:

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
07/01/2024									
$12.55* +$.76	$12.55* +$.81	$15.36* +$.91	$15.36* +$.96	$16.36* +$1.43	$17.86* +$1.48	$18.86* +$1.91	$18.86* +$1.97	$18.86* +$4.57	$24.11* +$5.18
12/02/24									
$12.70* +$.76	$12.70* +$.81	$15.81* +$.91	$15.81* +$.96	$16.81* +$1.43	$18.31* +$1.48	$19.31* +$1.91	$19.31* +$1.97	$19.31* +$4.57	$24.56* +$5.18

* This portion of benefits subject to same premium rate as shown for overtime wages.

9-7/52A

Mason - Building 03/01/2025

JOB DESCRIPTION Mason - Building **DISTRICT** 11

ENTIRE COUNTIES
Putnam, Rockland, Westchester

PARTIAL COUNTIES
Orange: Only the Township of Tuxedo.

WAGES
Per hour:

	07/01/2024
Bricklayer	$ 47.44
Cement Mason	47.44
Plasterer/Stone Mason	47.44
Pointer/Caulker	47.44

Additional $1.00 per hour for power saw work
Additional $0.50 per hour for swing scaffold or staging work

SHIFT WORK
SHIFT WORK: When shift work or an irregular workday is mandated or required by state, federal, county, local or other governmental agency contracts, the following premiums apply:

Irregular workday requires 15% premium
Second shift an additional 15% of wage plus benefits to be paid
Third shift an additional 25% of wage plus benefits to be paid

SUPPLEMENTAL BENEFITS
Per hour:

Journeyman	$ 38.50

OVERTIME PAY
OVERTIME:

Cement Mason	See (B, E, Q, W) on OVERTIME PAGE.
All Others	See (B, E, Q) on OVERTIME PAGE.

HOLIDAY

Paid:	See (1) on HOLIDAY PAGE
Overtime:	See (5, 6, 16, 25) on HOLIDAY PAGE

Whenever any of the above holidays fall on Sunday, they will be observed on Monday. Whenever any of the above holidays fall on Saturday, they will be observed on Friday.

REGISTERED APPRENTICES
Wages per hour:

750 hour terms at the following percentage of Journeyman's wage

1st	2nd	3rd	4th	5th	6th	7th	8th
50%	55%	60%	65%	70%	75%	80%	85%

Supplemental Benefits per hour

750 hour terms at the following percentage of journeyman supplements

1st	2nd	3rd	4th	5th	6th	7th	8th
50%	55%	60%	65%	70%	75%	80%	85%

Apprentices indentured before June 1st, 2011 receive full journeyman benefits

11-5wp-b

Mason - Building 03/01/2025

JOB DESCRIPTION Mason - Building **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES
Building

	07/01/2024	01/01/2025

Wages per hour:

Mosaic & Terrazzo Mechanic	$ 60.98	$ 61.33
Mosaic & Terrazzo Finisher	58.96	59.72

SUPPLEMENTAL BENEFITS
Per hour:

Mosaic & Terrazzo Mechanic	$ 31.36* + $9.78	$ 31.46* + $10.39
Mosaic & Terrazzo Finisher	$ 31.36* + $9.77	$ 31.46* + $10.38

*This portion of benefits subject to same premium rate as shown for overtime wages.

OVERTIME PAY
See (A, E, Q) on OVERTIME PAGE
07/01/2024- Deduct $7.00 from hourly wages before calculating overtime.

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 11, 15, 16, 25) on HOLIDAY PAGE
Easter Sunday is an observed holiday.Holidays falling on a Saturday will be observed on that Saturday. Holidays falling on a Sunday will be celebrated on the Monday.

REGISTERED APPRENTICES
Wages Per hour:

	1st 0-1500	2nd 1501-3000	3rd 3001-3750	4th 3751-4500	5th 4501-5250	6th 5251-6000
07/01/2024	$ 25.19	$ 32.39	$ 38.18	$ 40.78	$ 49.00	$ 55.75
01/01/2025	25.36	32.60	39.95	41.09	49.37	56.15

Supplemental Benefits per hour:

07/01/2024	$7.12* + 3.43	$9.16* + 4.40	$17.22* + 5.87	$23.86* + 6.84	$24.86* + 7.83	$27.36* + 8.80
01/01/2025	$7.12* + 3.64	$9.16* + 4.67	$15.72* + 6.24	$23.86* + 7.27	$24.86* + 8.31	$27.36* + 9.35

*This portion of benefits subject to same premium rate as shown for overtime wages.

9-7/3

Mason - Building — 03/01/2025

JOB DESCRIPTION Mason - Building **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

Per hour:	07/01/2024	01/06/2025
Building-Marble Restoration:		
Marble, Stone & Terrazzo Polisher	$ 47.72	$ 47.93

SUPPLEMENTAL BENEFITS
Per Hour:
Journeyworker:

Building-Marble Restoration:		
Marble, Stone & Polisher	$ 31.50	$ 31.86

OVERTIME PAY
See (B, *E, Q, V) on OVERTIME PAGE
* On Saturdays, 8th hour and successive hours paid at double hourly rate.

HOLIDAY
Paid: See (1) on HOLIDAY PAGE

Overtime: See (5, 6, 8, 11, 15, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES
WAGES per hour:

900 hour term at the following wage:

	1st 1-900	2nd 901-1800	3rd 1801-2700	4th 2701
07/01/2024	$ 33.40	$ 38.18	$ 42.94	$ 47.72
01/06/2025	33.54	38.34	43.13	47.93
Supplemental Benefits Per Hour:				
07/01/2024	29.06	29.87	30.69	31.50
01/06/2025	29.59	30.34	31.11	31.86

9-7/24-MP

Mason - Building — 03/01/2025

JOB DESCRIPTION Mason - Building **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Dutchess, Kings, Nassau, New York, Orange, Putnam, Queens, Richmond, Rockland, Suffolk, Sullivan, Ulster, Westchester

WAGES
Per Hour:

	07/01/2024	01/06/2025
Marble Cutters & Setters	$ 63.92	$ 64.21

SUPPLEMENTAL BENEFITS
Per Hour:

Journeyworker	$ 40.05	$ 40.51

OVERTIME PAY
See (B, E, Q, V) on OVERTIME PAGE

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 11, 15, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wage Per Hour:

750 hour terms at the following wage

1st	2nd	3rd	4th	5th	6th	7th	8th
0-3000	3001-3750	3751-4500	4501-5250	5251-6000	6001-6750	6751-7500	7500+
07/01/2024							
$ 27.01	$ 40.52	$ 43.88	$ 47.26	$ 50.64	$ 54.32	$ 60.71	$ 63.92
01/06/2025							
$ 27.24	$ 40.84	$ 44.25	$ 47.63	$ 51.05	$ 54.58	$ 60.99	$ 64.21

Supplemental Benefits per hour:

1st	2nd	3rd	4th	5th	6th	7th	8th
07/01/2024							
$ 26.42	$ 29.76	$ 30.61	$ 31.44	$ 32.28	$ 37.55	$ 39.23	$ 40.05
01/06/2025							
$ 26.88	$ 30.14	$ 30.95	$ 31.78	$32.59	$38.07	$ 39.71	$ 40.51

9-7/4

Mason - Building — 03/01/2025

JOB DESCRIPTION Mason - Building **DISTRICT** 9

ENTIRE COUNTIES

Nassau, Rockland, Suffolk, Westchester

WAGES

Per hour:	07/01/2024	12/02/2024
Tile Finisher	$ 49.08	$ 49.21

*To be allocated at a later date.

SUPPLEMENTAL BENEFITS

Per Hour:

	$ 24.56*	$ 25.01*
	+ 8.32	+ 8.33

*This portion of benefits is subjected to same premium rate as shown for overtime wages

OVERTIME PAY

See (B, E, Q, *V) on OVERTIME PAGE
*Work beyond 10 hours on a Saturday shall be paid at double the hourly wage rate.

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 11, 15, 16, 25) on HOLIDAY PAGE

9-7/88A-tf

Mason - Building — 03/01/2025

JOB DESCRIPTION Mason - Building **DISTRICT** 9

ENTIRE COUNTIES

Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

Per hour:	07/01/2024	01/06/2025
Marble, Stone, Maintenance Finishers:	$ 27.72	$ 27.99

Note 1: An additional $2.00 per hour for time spent grinding floor using "60 grit" and below.
Note 2: Flaming equipment operator shall be paid an additional $25.00 per day.

SUPPLEMENTAL BENEFITS

Per Hour:

Marble, Stone Maintenance Finishers:	$ 15.74	$ 15.88

OVERTIME PAY

See (B, *E, Q, V) on OVERTIME PAGE
*Double hourly rate after 8 hours on Saturday

HOLIDAY

Paid: See (5, 6, 8, 11, 15, 25) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 11, 15, 25) on HOLIDAY PAGE
1st term apprentice gets paid for all observed holidays.

REGISTERED APPRENTICES

WAGES per hour:

	07/01/2024	01/06/2025
0-750	$ 22.32	$ 22.91
751-1500	23.04	23.59
1501-2250	23.75	24.26
2251-3000	24.48	24.95
3001-3750	25.56	25.96
3751-4500	27.00	27.32
4501+	27.72	27.99

Supplemental Benefits:
Per hour:

0-750	12.69	12.43
751-1500	13.10	12.89

1501-2250	13.51	13.35
2251-3000	13.91	13.80
3001-3750	14.52	14.50
3751-4500	15.33	15.41
4501+	15.74	15.88

9-7/24M-MF

Mason - Building / Heavy&Highway 03/01/2025

JOB DESCRIPTION Mason - Building / Heavy&Highway **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES
Per hour:

	07/01/2024	01/06/2025
Marble-Finisher	$ 49.99	$ 50.22

SUPPLEMENTAL BENEFITS
Journeyworker:
Per hour

Marble- Finisher	$ 37.39	$ 37.69

OVERTIME PAY
See (B, E, Q, V) on OVERTIME PAGE
Work beyond 8 hours on a Saturday shall be paid at double the rate.

HOLIDAY
Overtime: See (5, 6, 8, 11, 15, 16, 25) on HOLIDAY PAGE
When an observed holiday falls on a Sunday, it will be observed the next day.

9-7/20-MF

Mason - Heavy&Highway 03/01/2025

JOB DESCRIPTION Mason - Heavy&Highway **DISTRICT** 11

ENTIRE COUNTIES
Putnam, Rockland, Westchester

PARTIAL COUNTIES
Orange: Only the Township of Tuxedo.

WAGES
Per hour:

	07/01/2024
Bricklayer	$ 47.94
Cement Mason	47.94
Marble/Stone Mason	47.94
Plasterer	47.94
Pointer/Caulker	47.94

Additional $1.00 per hour for power saw work
Additional $0.50 per hour for swing scaffold or staging work

SHIFT WORK
When shift work or an irregular workday is mandated or required by state, federal, county, local or other governmental contracts, the following rates apply:

Irregular workday requires 15% premium
Second shift an additional 15% of wage plus benefits to be paid
Third shift an additional 25% of wage plus benefits to be paid

SUPPLEMENTAL BENEFITS
Per hour:

Journeyman	$ 38.50

OVERTIME PAY

Cement Mason	See (B, E, Q, W)
All Others	See (B, E, Q,)

HOLIDAY

Paid:	See (5, 6, 16, 25) on HOLIDAY PAGE
Overtime:	See (5, 6, 16, 25) on HOLIDAY PAGE

- Whenever any of the above holidays fall on Sunday, they will be observed on Monday. Whenever any of the above holidays fall on Saturday, they will be observed on Friday.
- Supplemental Benefits are not paid for paid Holiday
- If Holiday is worked, Supplemental Benefits are paid for hours worked.
- Whenever an Employee works within three (3) calendar days before a holiday, the Employee shall be paid for the Holiday.

REGISTERED APPRENTICES
Wages per hour:

750 hour terms at the following percentage of Journeyman's wage

1st	2nd	3rd	4th	5th	6th	7th	8th
50%	55%	60%	65%	70%	75%	80%	85%

Supplemental Benefits per hour

750 hour terms at the following percentage of journeyman supplements

1st	2nd	3rd	4th	5th	6th	7th	8th
50%	55%	60%	65%	70%	75%	80%	85%

Apprentices indentured before June 1st, 2011 receive full journeyman benefits

11-5WP-H/H

Operating Engineer - Building — 03/01/2025

JOB DESCRIPTION Operating Engineer - Building **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Kings, New York, Putnam, Queens, Richmond, Westchester

PARTIAL COUNTIES
Dutchess: that part of Dutchess County lying south of the North City Line of the City of Poughkeepsie.

WAGES
NOTE: Construction surveying
Party Chief--One who directs a survey party
Instrument Man--One who runs the instrument and assists Party Chief.
Rodman--One who holds the rod and assists the Survey Crew

Wages:(Per Hour)	07/01/2024
Building Construction:	
Party Chief	$ 79.99
Instrument Man	60.36
Rodman	40.45
Steel Erection:	
Party Chief	83.13
Instrument Man	64.21
Rodman	44.33
Heavy Construction-NYC counties only: (Foundation, Excavation.)	
Party Chief	88.06
Instrument man	65.66
Rodman	55.70

SUPPLEMENTAL BENEFITS

Per Hour:	07/01/2024
Building Construction	$ 28.63* +$ 7.65
Steel Erection	29.23* + 7.65
Heavy Construction	30.04* + 7.64

* This portion subject to SAME premium as wages

Non-Worked Holiday Supplemental Benefit:
21.83

OVERTIME PAY
See (A, B, E, Q) on OVERTIME PAGE
Code "A" applies to Building Construction and has double the rate after 7 hours on Saturdays.
Code "B" applies to Heavy Construction and Steel Erection and had double the rate after 8 hours on Saturdays.

HOLIDAY
Paid: See (5, 6, 9, 11, 15, 16, 25) on HOLIDAY PAGE
Overtime: See (5, 6, 9, 11, 15, 16, 25) on HOLIDAY PAGE

9-15Db

Operating Engineer - Building 03/01/2025

JOB DESCRIPTION Operating Engineer - Building **DISTRICT** 8

ENTIRE COUNTIES
Putnam, Westchester

PARTIAL COUNTIES
Dutchess: All the counties of Westchester and Putnam and the southern part of Dutchess County defined by the northern boundary line of the City of Poughkeepsie, then due east to Route 115, then north along Route 115 to Bedell Road, then east along Bedell Road to Van Wagner Road, then north along Van Wagner Road to Bower Road, then east along Bower Road to Route 44 and along Route 44 east to Route 343, then along Route 343 east to the northern boundary of Town of Dover Plains and east along the northern boundary of Town of Dover Plains to the border line of the State of Connecticut and bordered on the west by the middle of the Hudson River.

WAGES
GROUP I:
Cranes (All Types up to 49 tons), Boom Trucks, Cherry Pickers (All Types), Clamshell Crane, Derrick (Stone and Steel), Dragline, Franki Pile Rig or similar, High Lift (Lull or similar) with crane attachment and winch used for hoisting or lifting, Hydraulic Cranes, Pile Drivers, Potain and similar.

Cranes (All types 50-99 tons), Drill Rig Casa Grande (CAT or similar), Franki Pile Rig or similar, Hydraulic Cranes (All types including Crawler Cranes- No specific boom length).

Cranes (All types 100 tons and over), All Tower Cranes, All Climbing Cranes irrespective of manufacturer and regardless of how the same is rigged, Franki Pile Rig or similar, Conventional Cranes (All types including Crawler Cranes-No specific boom length), Hydraulic Cranes.

GROUP I-A: Barber Green Loader-Euclid Loader, Bulldozer, Carrier-Trailer Horse, Concrete Cleaning Decontamination Machine Operator, Concrete-Portable Hoist, Conway or Similar Mucking Machines, Elevator & Cage, Excavators all types, Front End Loaders, Gradall, Shovel, Backhoe, etc.(Crawler or Truck), Heavy Equipment Robotics Operator/Mechanic, Hoist Engineer-Material, Hoist Portable Mobile Unit, Hoist(Single, Double or Triple Drum), Horizontal Directional Drill Locator, Horizontal Directional Drill Operator and Jersey Spreader, Letourneau or Tournapull(Scrapers over 20 yards Struck), Lift Slab Console, etc., Lull HiLift or Similar, Master Environmental Maintenance Mechanics, Mucking Machines Operator/Mechanic or Similar Type, Overhead Crane, Pavement Breaker(Air Ram), Paver(Concrete), Post Hole Digger, Power House Plant, Road Boring Machine, Road Mix Machine, Ross Carrier and Similar Machines, Rubber tire double end backhoes and similar machines, Scoopmobile Tractor-Shovel Over 1.5 yards, Shovel (Tunnels), Spreader (Asphalt) Telephie(Cableway), Tractor Type Demolition Equipment, Trenching Machines-Vermeer Concrete Saw Trencher and Similar, Ultra High Pressure Waterjet Cutting Tool System, Vacuum Blasting Machine operator/mechanic, Winch Truck A Frame.

GROUP I-B: Compressor (Steel Erection), Mechanic (Outside All Types), Negative Air Machine (Asbestos Removal), Push Button (Buzz Box) Elevator.

GROUP II: Compactor Self-Propelled, Concrete Pump, Crane Operator in Training (Over 100 Tons), Grader, Machines Pulling Sheep's Foot Roller, Roller (4 ton and over), Scrapers (20 yards Struck and Under), Vibratory Rollers, Welder.

GROUP III-A: Asphalt Plant, Concrete Mixing Plants, Forklift (All power sources), Joy Drill or similar, Tractor Drilling Machine, Loader (1 1/2 yards and under), Portable Asphalt Plant, Portable Batch Plant, Portable Crusher, Skid Steer (Bobcat or similar), Stone Crusher, Well Drilling Machine, Well Point System.

GROUP III-B: Compressor Over 125 cu. Feet, Conveyor Belt Machine regardless of size, Compressor Plant, Ladder Hoist, Stud Machine.

GROUP IV-A: Batch Plant, Concrete Breaker, Concrete Spreader, Curb Cutter Machine, Finishing Machine-Concrete, Fine Grading Machine, Hepa Vac Clean Air Machine, Material Hopper(sand, stone, cement), Mulching Grass Spreader, Pump Gypsum etc, Pump-Plaster-Grout-Fireproofing. Roller(Under 4 Ton),Spreading and Fine Grading Machine, Steel Cutting Machine, Siphon Pump, Tar Joint Machine, Television Cameras for Water, Sewer, Gas etc. Turbo Jet Burner or Similar Equipment, Vibrator (1 to 5).

GROUP IV-B: Compressor (all types), Heater (All Types), Fire Watchman, Lighting Unit (Portable & Generator) Pump, Pump Station(Water, Sewer, Portable, Temporary), Welding Machine (Steel Erection & Excavation).

GROUP V: Mechanics Helper, Motorized Roller (walk behind), Stock Attendant, Welder's Helper, Maintenance Engineer Crane(75 ton and over).

Group VI-A: Welder Certified
GROUP VI-B: Utility Man, Warehouse Man.

WAGES: (per hour)

	07/01/2024
GROUP I	
Cranes- up to 49 tons	$ 67.43
Cranes- 50 tons to 99 tons	69.77
Cranes- 100 tons and over	79.64
GROUP I-A	59.04
GROUP I-B	54.41
GROUP II	56.97
GROUP III-A	54.88
GROUP III-B	52.25
GROUP IV-A	54.33
GROUP IV-B	45.94
GROUP V	49.53
Group VI-A	57.96
GROUP VI-B	
Utility Man	47.00
Warehouse Man	49.26

An additional 20% to wage when required to wear protective equipment on hazardous/toxic waste projects.
Engineers operating cranes with booms 100 feet but less than 149 feet in length will be paid an additional $2.00 per hour.
Engineers operating cranes with booms 149 feet or over in length will be paid an additional $3.00 per hour.
Loader operators over 5 cubic yard capacity additional .50 per hour.
Shovel operators over 4 cubic yard capacity additional $1.00 per hour.

SUPPLEMENTAL BENEFITS
Per hour:

Journeyworker	$ 32.32

OVERTIME PAY
See (B, E, Q, V) on OVERTIME PAGE

HOLIDAY
Paid: See (5, 6, 8, 15, 25, 26) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 15, 25, 26) on HOLIDAY PAGE

8-137B

Operating Engineer - Heavy&Highway 03/01/2025

JOB DESCRIPTION Operating Engineer - Heavy&Highway **DISTRICT** 8

ENTIRE COUNTIES
Putnam, Westchester

PARTIAL COUNTIES
Dutchess: All the counties of Westchester and Putnam and the southern part of Dutchess County defined by the northern boundary line of the City of Poughkeepsie, then due east to Route 115, then north along Route 115 to Bedell Road, then east along Bedell Road to Van Wagner Road, then north along Van Wagner Road to Bower Road, then east along Bower Road to Route 44 and along Route 44 east to Route 343, then along Route 343 east to the northern boundary of Town of Dover Plains and east along the northern boundary of Town of Dover Plains to the border line of the State of Connecticut and bordered on the west by the middle of the Hudson River.

WAGES
GROUP I: Boom Truck, Cherry Picker, Clamshell, Crane, (Crawler, Truck),
Dragline, Drill Rig (Casa Grande, Cat, or Similar), Floating Crane (Crane on Barges) under 100 tons, Gin Pole, Hoist Engineer-Concrete (Crane-Derrick-Mine Hoist), Knuckle Boom Crane, Rough Terrain Crane.

GROUP I-A: Auger (Truck or Truck Mounted), Boat Captain, Bulldozer-All Sizes, Central Mix Plant Operator, Chipper (all types), Close Circuit T.V., Combination Loader/Backhoe, Compactor with Blade, Concrete Finishing Machine, Gradall, Grader (Motor Grader), Elevator & Cage (Materials or Passenger), Excavator (and all attachments), Front End Loaders (1 1/2 yards and over), High Lift Lull and similar, Hoist (Single, Double, Triple Drum), Hoist Portable Mobile Unit, Hoist Engineer (Material), Jack and Bore Machine, Log Skidders, Mill Machines, Mucking Machines, Overhead Crane, Paver (concrete), Post Pounder (of any type), Push Cats, Road Reclaimer, Robot Hammer (Brokk or similar), Robotic Equipment (Scope of Engineer Schedule), Ross Carrier and similar, Scrapers (20 yard struck and over), Side Boom, Slip Form Machine, Spreader (Asphalt), Trenching Machines (Telephies-Vermeer Concrete Saw), Tractor Type Demolition Equipment, Vacuum Truck. Vibratory Roller(Riding) or Roller used in mainline paving operations.

GROUP I-B: Asphalt Mobile Conveyor/Transfer Machine, Road Paver (Asphalt).

GROUP II-A: Ballast Regulators, Compactor Self Propelled, Fusion Machine, Rail Anchor Machines, Roller (4 ton and over), Scrapers (20 yard struck and under).

GROUP II-B: Mechanic (Outside) All Types, Shop Mechanic.

GROUP III: Air Tractor Drill, Asphalt Plant, Batch Plant, Boiler (High Pressure), Concrete Breaker (Track or Rubber Tire), Concrete Pump, Concrete Spreader, Excavator Drill, Farm Tractor, Forklift (all types), Gas Tapping (Live), Hydroseeder, Loader (1 1/2 yards and under), Locomotive (all sizes), Machine Pulling Sheeps Foot Roller, Portable Asphalt Plant, Portable Batch Plant, Portable Crusher (Apprentice), Powerhouse Plant, Roller (under 4 ton), Sheer Excavator, Skid Steer/Bobcat, Stone Crusher, Sweeper (with seat), Well Drilling Machine.

GROUP IV: Service Person (Grease Truck), Deckhand.

GROUP IV-B: Conveyor Belt Machine (Truck Mounted), Heater (all types), Lighting Unit (Portable), Maintenance Engineer (For Crane Only), Mechanics Helper, Pump (Fireproofing), Pumps-Pump Station/Water/Sewer/Gypsum/Plaster, etc., Pump Truck (Sewer Jet or Similar), Welders Helper, Welding Machine (Steel Erection), Well Point System.

GROUP V: All Tower Cranes-All Climbing Cranes and all cranes of 100-ton capacity or greater (3900 Manitowac or similar) irrespective of manufacturer and regardless of how the same is rigged, Hoist Engineer (Steel), Engineer-Pile Driver, Jersey Spreader, Pavement Breaker/Post Hole Digger.

WAGES: Per hour:	07/01/2024
Group I	$ 68.63
Group I-A	60.42
Group I-B	63.70
Group II-A	57.84
Group II-B	59.67
Group III	56.81
Group IV	51.57
Group IV-B	44.19
Group V	
Engineer All Tower, Climbing and Cranes of 100 Tons	77.82
Hoist Engineer(Steel)	70.41
Engineer(Pile Driver)	75.13
Jersey Spreader, Pavement Breaker (Air Ram)Post Hole Digger	59.19

Engineers operating cranes with booms 100 feet but less than 149 feet in length will be paid an additional $2.00 per hour over the rate listed in the Wage Schedule. Engineers operating cranes with booms 149 feet or over in length will be paid an additional $3.00 per hour over the rate listed in the Wage Schedule. Loader and Excavator Operators: over 5 cubic yards capacity $0.50 per hour over the rate listed in the Wage Schedule. Shovel Operators: over 4 cubic yards capacity $1.00 per hour over the rate listed in the Wage Schedule.

SHIFT WORK
A 15% premium on all hours paid, including overtime hours for 2nd, 3rd shifts on all government mandated off-shift work

SUPPLEMENTAL BENEFITS
Per hour:
Journeyworker: $ 34.85 up to 40 Hours

After 40 hours $ 25.55* PLUS $ 1.25 on all hours worked

*This amount is subject to premium

OVERTIME PAY
See (B, E, P, *R, **U) on OVERTIME PAGE

HOLIDAY
Paid: See (5, 6, 8, 15, 25, 26) on HOLIDAY PAGE
Overtime..... See (5, 6, 8, 15, 25, 26) on OVERTIME PAGE

* For Holiday codes 8,15,25,26 code R applies
** For Holiday Codes 5 & 6 code U applies

Note: If employees are required to work on Easter Sunday they shall be paid at the rate of triple time.

REGISTERED APPRENTICES
(1)year terms at the following rate.

1st term	$ 30.21
2nd term	36.25
3rd term	42.30
4th term	48.34
Supplemental Benefits per hour:	
	26.85

8-137HH

Operating Engineer - Heavy&Highway — 03/01/2025

JOB DESCRIPTION Operating Engineer - Heavy&Highway **DISTRICT** 9

ENTIRE COUNTIES
Putnam, Westchester

PARTIAL COUNTIES
Dutchess: South of the North city line of Poughkeepsie

WAGES
Party Chief - One who directs a survey party
Instrument Man - One who runs the instrument and assists Party Chief
Rodman - One who holds the rod and in general, assists the Survey Crew
Categories cover GPS & Underground Surveying

Per Hour:	07/01/2024
Party Chief	$ 84.94
Instrument Man	63.15
Rodman	53.43

SUPPLEMENTAL BENEFITS

Per Hour:	07/01/2024
All Categories	
Straight Time:	$ 30.04* + $7.64
Premium:	
Time & 1/2	$ 45.06* + $7.64
Double Time	$ 60.08* + $7.64

Non-Worked Holiday Supplemental Benefits:
$ 21.83

OVERTIME PAY
See (B, *E, Q) on OVERTIME PAGE
* Doubletime paid on all hours in excess of 8 hours on Saturday

HOLIDAY
Paid: See (5, 6, 7, 11, 12) on HOLIDAY PAGE
Overtime: See (5, 6, 7, 11, 12) on HOLIDAY PAGE

9-15Dh

Operating Engineer - Heavy&Highway - Tunnel — 03/01/2025

JOB DESCRIPTION Operating Engineer - Heavy&Highway - Tunnel **DISTRICT** 8

ENTIRE COUNTIES
Putnam, Westchester

PARTIAL COUNTIES
Dutchess: All the counties of Westchester and Putnam and the southern part of Dutchess County defined by the northern boundary line of the City of Poughkeepsie, then due east to Route 115, then north along Route 115 to Bedell Road, then east along Bedell Road to Van Wagner Road, then north along Van Wagner Road to Bower Road, then east along Bower Road to Route 44 and along Route 44 east to Route 343, then along Route 343 east to the northern boundary of Town of Dover Plains and east along the northern boundary of Town of Dover Plains to the border line of the State of Connecticut and bordered on the west by the middle of the Hudson River.

WAGES

GROUP I: Boom Truck, Cherry Picker, Clamshell, Crane(Crawler, Truck), Dragline, Drill Rig Casa Grande(Cat or Similar), Floating Crane(Crane on Barge-Under 100 Tons), Hoist Engineer(Concrete/Crane-Derrick-Mine Hoist), Knuckle Boom Crane, Rough Terrain Crane.

GROUP I-A: Auger(Truck or Truck Mounted), Boat Captain, Bull Dozer-all sizes, Central Mix Plant Operator, Chipper-all types, Close Circuit T.V., Combination Loader/Backhoe, Compactor with Blade, Concrete Finishing Machine, Gradall, Grader(Motor Grader), Elevator & Cage(Materials or Passengers), Excavator(and all attachments), Front End Loaders(1 1/2 yards and over), High Lift Lull, Hoist(Single, Double, Triple Drum), Hoist Portable Mobile Unit, Hoist Engineer(Material), Jack and Bore Machine, Log Skidder, Milling Machine, Moveable Concrete Barrier Transfer & Transport Vehicle, Mucking Machines. Overhead Crane, Paver(Concrete), Post Pounder of any type, Push Cats, Road Reclaimer, Robot Hammer(Brokk or similar), Robotic Equipment(Scope of Engineer Schedule), Ross Carrier and similar machines, Scrapers(20 yards struck and over), Side Boom, Slip Form Machine, Spreader(Asphalt), Trenching Machines, Telephies-Vermeer Concrete Saw, Tractor type demolition equipment, Vacuum Truck, Vibratory Roller (Riding) used in mainline paving operations.

GROUP I-B: Asphalt Mobile Conveyor/Transfer Machine, Road Paver(Asphalt).

GROUP II-A: Ballast Regulators, Compactor(Self-propelled), Fusion Machine, Rail Anchor Machines, Roller(4 ton and over), Scrapers(20 yard struck and under).

GROUP II-B: Mechanic(outside)all types, Shop Mechanic.

GROUP III: Air Tractor Drill, Asphalt Plant, Batch Plant, Boiler(High Pressure), Concrete Breaker(Track or Rubber Tire), Concrete Pump, Concrete Spreader, Excavator Drill, Farm Tractor, Forklift(all types of power), Gas Tapping(Live), Hydroseeder, Loader(1 1/2 yards and under), Locomotive(all sizes), Machine Pulling Sheeps Foot Roller, Portable Asphalt Plant, Portable Batch Plant, Portable Crusher(Apprentice), Powerhouse Plant, Roller(under 4 ton), Sheer Excavator, Skidsteer/Bobcat, Stone Crusher, Sweeper(with seat), Well Drilling Machine.

GROUP IV-A: Service Person(Grease Truck), Deckhand.

GROUP IV-B: Conveyor Belt Machine(Truck Mounted), Heater(all types), Lighting Unit(Portable), Maintenance Engineer(for Crane only), Mechanics Helper, Pump(Fireproofing), Pumps-Pump Station/Water/Sewer/Gypsum/Plaster, etc., Pump Truck(Sewer Jet or similar), Welding Machine(Steel Erection), Welders Helper.

GROUP V-A: Engineer(all Tower Cranes, all Climbing Cranes & all Cranes of 100 ton capacity or greater),Hoist Engineer(Steel-Sub Structure), Engineer-Pile Driver, Jersey-Spreader, Pavement breaker, Post Hole Digger

WAGES: (per hour)

	07/01/2024
GROUP I	$ 68.63
GROUP I-A	60.42
GROUP I-B	63.70
GROUP II-A	57.84
GROUP II-B	59.67
GROUP III	56.81
GROUP IV-A	51.57
GROUP IV-B	44.19
GROUP V-A	
Engineer-Cranes	77.82
Engineer-Pile Driver	75.13
Hoist Engineer	70.41
Jersey Spreader/Post Hole Digger	59.19

An additional 20% to wage when required to wear protective equipment on hazardous/toxic waste projects. Operators required to use two buckets pouring concrete on other than road pavement shall receive $0.50 per hour over scale. Engineers operating cranes with booms 100 feet but less than 149 feet in length will be paid an additional $2.00 per hour. Engineers operating cranes with booms 149 feet or over in length will be paid an additional $3.00 per hour. Operators of shovels with a capacity over (4) cubic yards shall be paid an additional $1.00 per hour. Operators of loaders with a capacity over (5) cubic yards shall be paid an additional $0.50 per hour.

SHIFT WORK

A 15% premium on all hours paid, including overtime hours for 2nd, 3rd shifts on all government mandated off-shift work

SUPPLEMENTAL BENEFITS

Per hour:
Journeyworker:

$ 34.85 up to 40 hours

After 40 hours
$25.55 plus
$1.25 on all
hours worked

OVERTIME PAY
See (D, O, *U, V) on OVERTIME PAGE

HOLIDAY
Paid: See (5, 6, 8, 15, 25, 26) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 15, 25, 26) on HOLIDAY PAGE
* Note: For Holiday codes 5 & 6, code U applies. For Holiday codes 8, 15, 25, 26, code R applies.
Note: If employees are required to work on Easter Sunday, they shall be paid at the rate of triple time.

REGISTERED APPRENTICES
(1)year terms at the following rates:

1st term	$ 30.21
2nd term	36.25
3rd term	42.30
4th term	48.34

Supplemental Benefits per hour:

All terms	$ 26.85

8-137Tun

Operating Engineer - Marine Dredging 03/01/2025

JOB DESCRIPTION Operating Engineer - Marine Dredging **DISTRICT** 4

ENTIRE COUNTIES
Albany, Bronx, Cayuga, Clinton, Columbia, Dutchess, Essex, Franklin, Greene, Jefferson, Kings, Monroe, Nassau, New York, Orange, Oswego, Putnam, Queens, Rensselaer, Richmond, Rockland, St. Lawrence, Suffolk, Ulster, Washington, Wayne, Westchester

WAGES
These wages do not apply to Operating Engineers on land based construction projects. For those projects, please see the Operating Engineer Heavy/Highway Rates. The wage rates below for all equipment and operators are only for marine dredging work in navigable waters found in the counties listed above.

Per Hour:	07/01/2024
CLASS A1 Deck Captain, Leverman, Mechanical Dredge Operator, Licensed Tug Operator 1000HP or more.	$ 45.26
CLASS A2 Crane Operator (360 swing)	40.33
CLASS B Dozer, Front Loader Operator on Land	To conform to Operating Engineer Prevailing Wage in locality where work is being performed including benefits.
CLASS B1 Derrick Operator (180 swing) Spider/Spill Barge Operator Operator II, Fill Placer, Engineer Chief Mate, Electrician,Chief Welder, Maintenance Engineer,Licensed Boat, Crew Boat Operator	39.14
CLASS B2 Certified Welder	36.84
CLASS C1 Drag Barge Operator, Steward, Mate, Assistant Fill Placer	35.83
CLASS C2 Boat Operator	34.68

CLASS D Shoreman, Deckhand, Oiler, Rodman, Scowman, Cook, Messman, Porter/Janitor	28.81

SUPPLEMENTAL BENEFITS
Per Hour:
THE FOLLOWING SUPPLEMENTAL BENEFITS APPLY TO ALL CATEGORIES

All Classes A & B	$ 12.00 plus 7% of straight time wage, Overtime hours add $ 0.63
All Class C & D	$ 11.75 plus 7% of straight time wage, Overtime hours add $ 0.50

OVERTIME PAY
See (B2, F, R) on OVERTIME PAGE

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 15, 26) on HOLIDAY PAGE

4-25a-MarDredge

Operating Engineer - Survey Crew - Consulting Engineer — 03/01/2025

JOB DESCRIPTION Operating Engineer - Survey Crew - Consulting Engineer **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Putnam, Queens, Richmond, Suffolk, Westchester

PARTIAL COUNTIES
Dutchess: That part in Duchess County lying South of the North City line of Poughkeepsie.

WAGES
Feasibility and preliminary design surveying, any line and grade surveying for inspection or supervision of construction.

Per hour: 07/01/2024
Survey Classifications

Party Chief	$ 49.39
Instrument Man	40.96
Rodman	35.63

SUPPLEMENTAL BENEFITS
Per Hour:

All Crew Members: $ 23.75

OVERTIME PAY
OVERTIME:.... See (B, E*, Q, V) ON OVERTIME PAGE.
*Double-time paid on the 9th hour on Saturday.

HOLIDAY
Paid: See (5, 6, 7, 11, 16) on HOLIDAY PAGE
Overtime: See (5, 6, 7, 11, 16) on HOLIDAY PAGE

9-15dconsult

Painter — 03/01/2025

JOB DESCRIPTION Painter **DISTRICT** 8

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Putnam, Queens, Richmond, Suffolk, Westchester

WAGES

Per hour:	07/01/2024	05/01/2025 Additional
Brush	52.86*	$ 2.62**

Abatement/Removal of lead based or lead containing paint on materials to be repainted.	52.86*
Spray & Scaffold	$ 55.86*
Fire Escape	55.86*
Decorator	55.86*
Paperhanger/Wall Coverer	55.09*

*Subtract $ 0.10 to calculate premium rate.

** To be allocated at a later date.

SHIFT WORK
Counties of Bronx, Kings, Nassau, New York, Putnam, Queens, Richmond, Suffolk, and Westchester; Agency/Government mandated off-shift work to be paid at time and one-half the hourly wage.

SUPPLEMENTAL BENEFITS
Per hour:

Paperhanger	$ 36.73
All others	34.31
Premium	38.28**

**Applies only to "All others" category, not paperhanger journeyworker.

OVERTIME PAY
See (A, E, R) on OVERTIME PAGE

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES
One (1) year terms at the following wage rate.

Per hour:	07/01/2024
Appr 1st term...	$ 20.22*
Appr 2nd term...	25.93*
Appr 3rd term...	31.61*
Appr 4th term...	42.40*

*Subtract $ 0.10 to calculate premium rate.

Supplemental benefits:
Per Hour:

Appr 1st term...	$ 16.89
Appr 2nd term...	20.95
Appr 3rd term...	24.10
Appr 4th term...	30.57

8-NYDC9-B/S

Painter — 03/01/2025

JOB DESCRIPTION Painter **DISTRICT** 8

ENTIRE COUNTIES
Putnam, Suffolk, Westchester

PARTIAL COUNTIES
Nassau: All of Nassau except the areas described below: Atlantic Beach, Ceaderhurst, East Rockaway, Gibson, Hewlett, Hewlett Bay, Hewlett Neck, Hewlett Park, Inwood, Lawrence, Lido Beach, Long Beach, parts of Lynbrook, parts of Oceanside, parts of Valley Stream, and Woodmere. Starting on the South side of Sunrise Hwy in Valley Stream running east to Windsor and Rockaway Ave., Rockville Centre is the boundary line up to Lawson Blvd. turn right going west all the above territory. Starting at Union Turnpike and Lakeville Rd. going north to Northern Blvd. the west side of Lakeville road to Northern blvd. At Northern blvd. going east the district north of Northern blvd. to Port Washington Blvd. West of Port Washington blvd.to St.Francis Hospital then north of first traffic light to Port Washington and Sands Point, Manor HAven, Harbour Acres.

WAGES

Per hour:	07/01/2024	05/01/2025
Drywall Taper:	$ 52.86*	Additional
Scaffold:	$ 55.86*	$ 2.62**

*Subtract $ 0.10 to calculate premium rate.

** To be allocated a later date.

SHIFT WORK
Agency/Government mandated off-shift work to be paid at time and one-half hourly wage

SUPPLEMENTAL BENEFITS
Per hour:
Journeyman $ 34.31

OVERTIME PAY
See (A, E, R) on OVERTIME PAGE

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wages - Per Hour:

1500 hour terms at the following wage rate:

1st term	$ 20.22*
2nd term	25.93*
3rd term	31.61*
4th term	42.40*

*Subtract $ 0.10 to calculate premium rate.

Supplemental Benefits - Per hour:
One year term (1500 hours) at the following dollar amount.

1st year	$ 16.89
2nd year	20.95
3rd year	24.10
4th year	30.57

8-NYDCT9-DWT

Painter - Bridge & Structural Steel — 03/01/2025

JOB DESCRIPTION Painter - Bridge & Structural Steel **DISTRICT** 8

ENTIRE COUNTIES
Albany, Bronx, Clinton, Columbia, Dutchess, Essex, Franklin, Fulton, Greene, Hamilton, Kings, Montgomery, Nassau, New York, Orange, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Schoharie, Suffolk, Sullivan, Ulster, Warren, Washington, Westchester

WAGES
Per Hour:
STEEL:
Bridge Painting: 07/01/2024
$ 56.00
+ 10.35*

ADDITIONAL $7.00 per hour for POWER TOOL/SPRAY, whether straight time or overtime.

NOTE: All premium wages are to be calculated on base rate per hour only.

* For the period of May 1st to November 15th, this amount is payable up to 40 hours. For the period of Nov 16th to April 30th, this amount is payable up to 50 hours. EXCEPTION: First and last week of employment, and for the weeks of Memorial Day, Independence Day and Labor Day, where the amount is paid for the actual number of hours worked (50 hour cap).

NOTE: Generally, for Bridge Painting Contracts, ALL WORKERS on and off the bridge (including Flagmen) are to be paid Painter's Rate; the contract must be ONLY for Bridge Painting.

SHIFT WORK
When directly specified in public agency or authority contract documents for an employer to work a second shift and works the second shift with employees other than from the first shift, all employees who work the second shift will be paid 10% of the base wage shift differential in lieu of overtime for the first eight (8) hours worked after which the employees shall be paid at time and one half of the regular wage rate. When a single irregular work shift is mandated in the job specifications or by the contracting agency, wages shall be paid at time and one half for single shifts between the hours of 3pm-11pm or 11pm-7am.

SUPPLEMENTAL BENEFITS
Per Hour:

Journeyworker:

$ 12.43
+ 31.55*

* For the period of May 1st to November 15th, this amount is payable up to 40 hours. For the period of Nov 16th to April 30th, this amount is payable up to 50 hours. EXCEPTION: First and last week of employment, and for the weeks of Memorial Day, Independence Day and Labor Day, where the amount is paid for the actual number of hours worked (50 hour cap).

OVERTIME PAY
See (B, F, R) on OVERTIME PAGE

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (4, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wage - Per hour:
Apprentices: (1) year terms.

1st year	$ 22.40
	+ 4.14
2nd year	$ 33.60
	+ 6.21
3rd year	$ 44.80
	+ 8.28

Supplemental Benefits - Per hour:

1st year	$ 1.16
	+ 12.62
2nd year	$ 7.46
	+ 18.93
3rd year	$ 9.94
	+ 25.24

NOTE: All premium wages are to be calculated on base rate per hour only.

8-DC-9/806/155-BrSS

Painter - Line Striping — 03/01/2025

JOB DESCRIPTION Painter - Line Striping **DISTRICT** 8

ENTIRE COUNTIES
Albany, Clinton, Columbia, Dutchess, Essex, Franklin, Fulton, Greene, Hamilton, Montgomery, Nassau, Orange, Putnam, Rensselaer, Rockland, Saratoga, Schenectady, Schoharie, Suffolk, Sullivan, Ulster, Warren, Washington, Westchester

WAGES
Per hour:

Painter (Striping-Highway):	07/01/2024	04/01/2025	04/01/2026
Striping-Machine Operator*	$ 34.12	$ 35.49	$ 36.93
Linerman Thermoplastic	41.12	42.74	44.44

Note: * Includes but is not limited to: Positioning of cones and directing of traffic using hand held devices. Excludes the Driver/Operator of equipment used in the maintenance and protection of traffic safety.

SHIFT WORK
When directly specified in public agency or authority contract documents there shall be a 30% night shift premium pay differential for all work performed after 9:00pm and before 5:00am.

SUPPLEMENTAL BENEFITS
Per hour paid:
Journeyworker:

Striping Machine Operator:	$23.65	$ 24.30	$ 24.95
Linerman Thermoplastic:	23.65	24.30	24.95

OVERTIME PAY
See (B, B2, E2, F, S) on OVERTIME PAGE

HOLIDAY
Paid: See (5, 20) on HOLIDAY PAGE
Overtime: See (5, 20) on HOLIDAY PAGE

REGISTERED APPRENTICES
One (1) year terms at the following wage rates:

	07/01/2024	01/01/2025	04/01/2025	04/01/2026
1st Term:	$ 16.00	$ 16.50	$ 16.50	$ 16.50
2nd Term:	20.47	20.47	21.29	22.16
3rd Term:	27.30	27.30	28.39	29.54
Supplemental Benefits per hour:				
All terms:	$ 23.65	$ 23.65	$ 24.30	$ 24.95

8-1456-LS

Painter - Metal Polisher — 03/01/2025

JOB DESCRIPTION Painter - Metal Polisher **DISTRICT** 8

ENTIRE COUNTIES
Albany, Allegany, Bronx, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Dutchess, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Kings, Lewis, Livingston, Madison, Monroe, Montgomery, Nassau, New York, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Oswego, Otsego, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Suffolk, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Westchester, Wyoming, Yates

WAGES

	07/01/2024
Metal Polisher	$ 39.33
Metal Polisher*	40.43
Metal Polisher**	43.33

*Note: Applies on New Construction & complete renovation
** Note: Applies when working on scaffolds over 34 feet.

SUPPLEMENTAL BENEFITS

Per Hour:	07/01/2024
Journeyworker:	
All classification	$ 12.79

OVERTIME PAY
See (B, E, P, T) on OVERTIME PAGE

HOLIDAY
Paid: See (5, 6, 11, 15, 16, 25, 26) on HOLIDAY PAGE
Overtime: See (5, 6, 11, 15, 16, 25, 26) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wages per hour:
One (1) year term at the following wage rates:

	07/01/2024
1st year	$ 19.67
2nd year	21.63
3rd year	23.60
1st year*	$ 22.06
2nd year*	22.07
3rd year*	24.14
1st year**	$ 22.17
2nd year**	24.13
3rd year**	26.10

*Note: Applies on New Construction & complete renovation
** Note: Applies when working on scaffolds over 34 feet.

Supplemental benefits:
Per hour:

1st year	$ 8.69
2nd year	8.69
3rd year	8.69

8-8A/28A-MP

Plumber 03/01/2025

JOB DESCRIPTION Plumber **DISTRICT** 8

ENTIRE COUNTIES
Putnam, Westchester

WAGES
Per hour:

	07/01/2024
Plumber and Steamfitter	$ 63.76

SHIFT WORK
SHIFT WORK:
When directly specified in public agency or authority contract documents, shift work outside the regular hours of work shall be comprised of eight (8) hours per shift not including Saturday, Sundays and holidays. One half (1/2) hour shall be allowed for lunch after the first four (4) hours of each shift. Wage and Fringes for shift work shall be straight time plus a shift premium of twenty-five (25%) percent. A minimum of five days Monday through Friday must be worked to establish shift work.

SUPPLEMENTAL BENEFITS
Per hour:

Journeyworker	$ 43.61

OVERTIME PAY
See (B, E, E2, Q, V) on OVERTIME PAGE
OVERTIME:... See on OVERTIME PAGE.

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES
(1)year terms at the following wages:

1st Term	$ 23.75
2nd Term	27.23
3rd Term	31.47
4th Term	44.80
5th Term	48.05

Supplemental Benefits per hour:

1st term	$ 17.94
2nd term	20.05
3rd term	23.82
4th term	31.51
5th term	33.42

8-21.1-ST

Plumber - HVAC / Service 03/01/2025

JOB DESCRIPTION Plumber - HVAC / Service **DISTRICT** 8

ENTIRE COUNTIES
Dutchess, Putnam, Westchester

PARTIAL COUNTIES
Delaware: Only the townships of Middletown and Roxbury
Ulster: Entire County(including Wallkill and Shawangunk Prisons) except for remainder of Town of Shawangunk and Towns of Plattekill, Marlboro, and Wawarsing.

WAGES
Per hour: 07/01/2024

HVAC Service	$ 43.43

+ $ 4.47*

*This portion of the benefit is NOT subject to the SAME PREMIUM as shown for overtime.

SUPPLEMENTAL BENEFITS
Per hour:

Journeyworker HVAC Service
$ 30.39

OVERTIME PAY
See (B, F, R) on OVERTIME PAGE

HOLIDAY
Paid: See (5, 6, 16, 25) on HOLIDAY PAGE
Overtime: See (5, 6, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES
HVAC SERVICE
(1)year terms at the following wages:

1st yr.	2nd yr.	3rd yr.	4th yr.	5th yr.
$ 19.66	$ 23.32	$ 29.05	$ 35.73	$ 38.83
+$2.43*	+$2.76*	+$3.31*	+$3.96*	+$4.21*

*This portion of the benefit is NOT subject to the SAME PREMIUM as shown for overtime.

Supplemental Benefits per hour:

Apprentices	07/01/2024
1st term	$ 21.47
2nd term	23.05
3rd term	24.76
4th term	27.13
5th term	28.81

8-21.1&2-SF/Re/AC

Plumber - Jobbing & Alterations — 03/01/2025

JOB DESCRIPTION Plumber - Jobbing & Alterations **DISTRICT** 8

ENTIRE COUNTIES
Dutchess, Putnam, Westchester

PARTIAL COUNTIES
Ulster: Entire county (including Wallkill and Shawangunk Prisons in Town of Shawangunk) EXCEPT for remainder of Town of Shawangunk, and Towns of Plattekill, Marlboro, and Wawarsing.

WAGES
Per hour: 07/01/2024
Journeyworker: $ 49.63

Repairs, replacements and alteration work is any repair or replacement of a present plumbing system that does not change existing roughing or water supply lines.

SHIFT WORK
When directly specified in public agency or authority contract documents, shift work outside the regular hours of work shall be comprised of eight (8) hours per shift not including Saturday, Sundays and holidays. One half (1/2) hour shall be allowed for lunch after the first four (4) hours of each shift. Wage and Fringes for shift work shall be straight time plus a shift premium of twenty-five (25%) percent. A minimum of five days Monday through Friday must be worked to establish shift work.

SUPPLEMENTAL BENEFITS
Per hour:
Journeyworker
$ 36.44

OVERTIME PAY
See (B, *E, E2, Q, V) on OVERTIME PAGE
*When used as a make-up day, hours after 8 on Saturday shall be paid at time and one half.

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES
(1) year terms at the following wages:

1st year	$ 21.35
2nd year	23.73
3rd year	25.87
4th year	36.28
5th year	38.34

Supplemental Benefits per hour:

1st year	$ 12.11
2nd year	14.21
3rd year	18.38
4th year	24.86
5th year	26.96

8-21.3-J&A

Roofer — 03/01/2025

JOB DESCRIPTION Roofer **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Dutchess, Kings, New York, Orange, Putnam, Queens, Richmond, Rockland, Sullivan, Ulster, Westchester

WAGES
Per Hour: 07/01/2024

Roofer/Waterproofer $ 48.50
+ $7.00*

* This portion is not subjected to overtime premiums.

Note: Abatement/Removal of Asbestos containing roofs and roofing material is classified as Roofer.

SUPPLEMENTAL BENEFITS
Per Hour: $ 31.87

OVERTIME PAY
See (B, H) on OVERTIME PAGE
Note: An observed holiday that falls on a Sunday will be observed the following Monday.

HOLIDAY
Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES
(1) year term apprentices indentured prior to 01/01/2023

1st	2nd	3rd	4th
$ 16.97	$ 24.25	$ 29.10	$ 36.37
	+ 3.50*	+ 4.20*	+ 5.26*

Supplements:

1st	2nd	3rd	4th
$ 4.10	$ 16.17	$ 19.31	$ 24.02

* This portion is not subjected to overtime premiums.

(1) year term apprentices indentured after 01/01/2023

1st	2nd	3rd	4th	5th
$ 18.43	$ 21.82	$ 24.25	$ 29.10	$ 36.37
	+ 3.16*	+ 3.50*	+ 4.20*	+ 5.26

Supplements:

1st	2nd	3rd	4th	5th
$ 7.73	$ 14.59	$ 16.17	$ 19.31	$ 24.02

* This portion is not subjected to overtime premiums.

9-8R

Sheetmetal Worker — 03/01/2025

JOB DESCRIPTION Sheetmetal Worker **DISTRICT** 8

ENTIRE COUNTIES

Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster, Westchester

WAGES

	07/01/2024
SheetMetal Worker	$ 49.51
	+ 3.71*

*This portion of the benefit is NOT subject to the SAME PREMIUM as shown for overtime.

SHIFT WORK
For all NYS D.O.T. and other Governmental mandated off-shift work:
10% increase for additional shifts for a minimum of five (5) days

SUPPLEMENTAL BENEFITS
Journeyworker $ 46.20

OVERTIME PAY
OVERTIME:.. See (B, E, Q,) on OVERTIME PAGE.

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 15, 16, 23) on HOLIDAY PAGE

REGISTERED APPRENTICES

1st	2nd	3rd	4th	5th	6th	7th	8th
$ 20.20	$ 20.81	$ 23.12	$ 25.42	$ 27.74	$ 30.08	$ 32.86	$ 35.63
+ 1.48*	+ 1.67*	+ 1.86*	+ 2.04*	+ 2.23*	+ 2.41*	+ 2.60*	+ 2.78*

*This portion of the benefit is NOT subject to the SAME PREMIUM as shown for overtime.

Supplemental Benefits per hour:

Apprentices	
1st term	$ 18.07
2nd term	22.24
3rd term	24.71
4th term	27.21
5th term	29.67
6th term	32.12
7th term	34.12
8th term	36.15

Sheetmetal Worker — 03/01/2025

JOB DESCRIPTION Sheetmetal Worker **DISTRICT** 4

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Rockland, Suffolk, Westchester

WAGES
Per Hour:

	07/01/2024	08/01/2024
Sign Erector	$ 58.00	$ 60.00

NOTE: Structurally Supported Overhead Highway Signs(See STRUCTURAL IRON WORKER CLASS)

SUPPLEMENTAL BENEFITS

Per Hour:	07/01/2024	08/01/2024
Sign Erector	$ 57.12	$ 58.31

OVERTIME PAY
See (B, F, S) on OVERTIME PAGE

HOLIDAY
Paid: See (5, 6, 10, 11, 12, 16, 25) on HOLIDAY PAGE
Overtime: See (5, 6, 10, 11, 12, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES
Per Hour:
6 month Terms at the following percentage of Sign Erectors wage rate:

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
35%	40%	45%	50%	55%	60%	65%	70%	75%	80%

SUPPLEMENTAL BENEFITS
Per Hour:

	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
07/01/2024	$ 18.27	$ 20.75	$ 25.22	$ 25.70	$ 34.66	$ 37.74	$ 41.65	$ 44.78	$ 47.93	$ 51.04
08/01/2024	$ 18.65	$ 21.16	$ 23.69	$ 26.22	$35.39	$ 38.52	$ 42.55	$ 45.75	$ 48.96	$ 52.15

4-137-SE

Sprinkler Fitter — 03/01/2025

JOB DESCRIPTION Sprinkler Fitter **DISTRICT** 1

ENTIRE COUNTIES
Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster, Westchester

WAGES

Per hour	07/01/2024
Sprinkler Fitter	$ 53.34

SUPPLEMENTAL BENEFITS

Per hour	
Journeyworker	$ 30.77

OVERTIME PAY
See (B, E, Q) on OVERTIME PAGE

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE
Note: When a holiday falls on Sunday, the following Monday shall be considered a holiday and all work performed on either day shall be at the double time rate. When a holiday falls on Saturday, the preceding Friday shall be considered a holiday and all work performed on either day shall be at the double time rate.

REGISTERED APPRENTICES
Wages per hour

One Half Year terms at the following wage.

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
$ 25.89	$ 28.77	$ 31.39	$ 34.27	$ 37.14	$ 40.02	$ 42.90	$ 45.77	$ 48.65	$ 51.53

Supplemental Benefits per hour

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
$ 9.18	$ 9.18	$ 20.90	$ 20.90	$ 21.15	$ 21.15	$ 21.15	$ 21.15	$ 21.15	$ 21.15

1-669.2

Teamster - Building / Heavy&Highway — 03/01/2025

JOB DESCRIPTION Teamster - Building / Heavy&Highway **DISTRICT** 8

ENTIRE COUNTIES
Putnam, Westchester

WAGES
GROUP A: Straight Trucks (6-wheeler and 10-wheeler), A-frame, Winch, Dynamite Seeding, Mulching, Agitator, Water, Attenuator, Light Towers, Cement (all types), Suburban, Station Wagons, Cars, Pick Ups, any vehicle carrying materials of any kind.
GROUP AA: Tack Coat
GROUP B: Tractor & Trailers (all types).
GROUP BB: Tri-Axle,14 Wheeler
GROUP C: Low Boy (carrying equipment).
GROUP D: Fuel Trucks, Tire Trucks.
GROUP E: Off-road Equipment (over 40 tons): Athey Wagons, Belly Dumps, Articulated Dumps, Trailer Wagons.
GROUP F: Off-road Equipment (over 40 tons) Euclid, DJB.
GROUP G: Off-road Equipment (under 40 tons) Athey Wagons, Belly Articulated Dumps, Trailer Wagons.
GROUP H: Off-road Equipment(under 40 tons), Euclid.

GROUP HH: Off-road Equipment(under 40 tons) D.J.B.
GROUP I: Off-road Equipment(under 40 tons) Darts.
GROUP II: Off-road Equipment(under 40 tons) RXS.

WAGES:(per hour)

	07/01/2024
GROUP A	$ 47.86*
GROUP AA	50.86*
GROUP B	48.48*
GROUP BB	47.98*
GROUP C	50.61*
GROUP D	48.31*
GROUP E	48.86*
GROUP F	49.86*
GROUP G	48.61*
GROUP H	49.23*
GROUP HH	49.61*
GROUP I	49.36*
GROUP II	49.73*

* To calculate premium wage, subtract $ .10 from the hourly wage.

Note: Fuel truck operators on construction sites addit. $5.00 per day.
For work on hazardous/toxic waste site addit. 20% of hourly rate.

SHIFT WORK
When mandated by the contracting agency, DOT, or any governmental agency contracts shall receive a shift differential of fifteen (15%) above the wage rate.

SUPPLEMENTAL BENEFITS
Per hour:
Journeyworker

First 40 hours	$ 37.33
41st-45th hours	16.73
Over 45 hours	1.60

OVERTIME PAY
See (B, E, P, R) on OVERTIME PAGE

HOLIDAY
Paid: See (5, 6, 8, 15, 25) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 15, 25) on HOLIDAY PAGE

8-456

Welder 03/01/2025

JOB DESCRIPTION Welder **DISTRICT** 1

ENTIRE COUNTIES
Albany, Allegany, Bronx, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Dutchess, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Kings, Lewis, Livingston, Madison, Monroe, Montgomery, Nassau, New York, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Oswego, Otsego, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Suffolk, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Westchester, Wyoming, Yates

WAGES
Per hour 07/01/2024

Welder: To be paid the same rate of the mechanic performing the work.*

*EXCEPTION: If a specific welder certification is required, then the 'Certified Welder' rate in that trade tag will be paid.

OVERTIME PAY

HOLIDAY

1-As Per Trade

Overtime Codes

Following is an explanation of the code(s) listed in the OVERTIME section of each classification contained in the attached schedule. Additional requirements may also be listed in the HOLIDAY section.

NOTE: Supplemental Benefits are 'Per hour worked' (for each hour worked) unless otherwise noted

(AA)	Time and one half of the hourly rate after 7 and one half hours per day
(A)	Time and one half of the hourly rate after 7 hours per day
(B)	Time and one half of the hourly rate after 8 hours per day
(B1)	Time and one half of the hourly rate for the 9th & 10th hours week days and the 1st 8 hours on Saturday. Double the hourly rate for all additional hours
(B2)	Time and one half of the hourly rate after 40 hours per week
(B3)	Time and one half of the hourly rate after 40 straight hours per week
(C)	Double the hourly rate after 7 hours per day
(C1)	Double the hourly rate after 7 and one half hours per day
(D)	Double the hourly rate after 8 hours per day
(D1)	Double the hourly rate after 9 hours per day
(E)	Time and one half of the hourly rate on Saturday
(E1)	Time and one half 1st 4 hours on Saturday; Double the hourly rate all additional Saturday hours
(E2)	Saturday may be used as a make-up day at straight time when a day is lost during that week due to inclement weather
(E3)	Between November 1st and March 3rd Saturday may be used as a make-up day at straight time when a day is lost during that week due to inclement weather, provided a given employee has worked between 16 and 32 hours that week
(E4)	Saturday and Sunday may be used as a make-up day at straight time when a day is lost during that week due to inclement weather
(E5)	Double time after 8 hours on Saturdays
(F)	Time and one half of the hourly rate on Saturday and Sunday
(G)	Time and one half of the hourly rate on Saturday and Holidays
(H)	Time and one half of the hourly rate on Saturday, Sunday, and Holidays
(I)	Time and one half of the hourly rate on Sunday
(J)	Time and one half of the hourly rate on Sunday and Holidays
(K)	Time and one half of the hourly rate on Holidays
(L)	Double the hourly rate on Saturday
(M)	Double the hourly rate on Saturday and Sunday
(N)	Double the hourly rate on Saturday and Holidays
(O)	Double the hourly rate on Saturday, Sunday, and Holidays
(P)	Double the hourly rate on Sunday
(Q)	Double the hourly rate on Sunday and Holidays
(R)	Double the hourly rate on Holidays

(S)	Two and one half times the hourly rate for Holidays
(S1)	Two and one half times the hourly rate the first 8 hours on Sunday or Holidays One and one half times the hourly rate all additional hours.
(T)	Triple the hourly rate for Holidays
(U)	Four times the hourly rate for Holidays
(V)	Including benefits at SAME PREMIUM as shown for overtime
(W)	Time and one half for benefits on all overtime hours.
(X)	Benefits payable on Paid Holiday at straight time. If worked, additional benefit amount will be required for worked hours. (Refer to other codes listed.)

Holiday Codes

PAID Holidays:

Paid Holidays are days for which an eligible employee receives a regular day's pay, but is not required to perform work. If an employee works on a day listed as a paid holiday, this remuneration is in addition to payment of the required prevailing rate for the work actually performed.

OVERTIME Holiday Pay:

Overtime holiday pay is the premium pay that is required for work performed on specified holidays. It is only required where the employee actually performs work on such holidays. The applicable holidays are listed under HOLIDAYS: OVERTIME. The required rate of pay for these covered holidays can be found in the OVERTIME PAY section listings for each classification.

Following is an explanation of the code(s) listed in the HOLIDAY section of each classification contained in the attached schedule. The Holidays as listed below are to be paid at the wage rates at which the employee is normally classified.

(1)	None
(2)	Labor Day
(3)	Memorial Day and Labor Day
(4)	Memorial Day and July 4th
(5)	Memorial Day, July 4th, and Labor Day
(6)	New Year's, Thanksgiving, and Christmas
(7)	Lincoln's Birthday, Washington's Birthday, and Veterans Day
(8)	Good Friday
(9)	Lincoln's Birthday
(10)	Washington's Birthday
(11)	Columbus Day
(12)	Election Day
(13)	Presidential Election Day
(14)	1/2 Day on Presidential Election Day
(15)	Veterans Day
(16)	Day after Thanksgiving
(17)	July 4th
(18)	1/2 Day before Christmas
(19)	1/2 Day before New Years
(20)	Thanksgiving
(21)	New Year's Day
(22)	Christmas
(23)	Day before Christmas
(24)	Day before New Year's
(25)	Presidents' Day
(26)	Martin Luther King, Jr. Day
(27)	Memorial Day
(28)	Easter Sunday

(29) Juneteenth

New York State Department of Labor - Bureau of Public Work
State Office Building Campus
Building 12 - Room 130
Albany, New York 12226

REQUEST FOR WAGE AND SUPPLEMENT INFORMATION

As Required by Articles 8 and 9 of the NYS Labor Law

Fax (518) 485-1870 or mail this form for new schedules or for determination for additional occupations.

This Form Must Be Typed

Submitted By: (Check Only One) ☐ Contracting Agency ☐ Architect or Engineering Firm ☐ Public Work District Office Date:

A. Public Work Contract to be let by: (Enter Data Pertaining to Contracting/Public Agency)

1. Name and complete address ☐ (Check if new or change)

Telephone Fax

E-Mail:

2. NY State Units (see Item 5).

- ☐ 01 DOT
- ☐ 02 OGS
- ☐ 03 Dormitory Authority
- ☐ 04 State University Construction Fund
- ☐ 05 Mental Hygiene Facilities Corp.
- ☐ 06 OTHER N.Y. STATE UNIT
- ☐ 07 City
- ☐ 08 Local School District
- ☐ 09 Special Local District, i.e., Fire, Sewer, Water District
- ☐ 1O Village
- ☐ 11 Town
- ☐ 12 County
- ☐ 13 Other Non-N.Y. State (Describe)

3. SEND REPLY TO ☐ (check if new or change)
Name and complete address:

Telephone Fax

E-Mail:

4. SERVICE REQUIRED. Check appropriate box and provide project information.

☐ New Schedule of Wages and Supplements.

APPROXIMATE BID DATE :

☐ Additional Occupation and/or Redetermination

PRC NUMBER ISSUED PREVIOUSLY FOR THIS PROJECT :

OFFICE USE ONLY

B. PROJECT PARTICULARS

5. Project Title _____

Description of Work _____

_____

Contract Identification Number _____

Note: For NYS units, the OSC Contract No. _____

6. Location of Project:
Location on Site _____

Route No/Street Address _____

Village or City _____

Town _____

County _____

7. Nature of Project - Check One:

- ☐ 1. New Building
- ☐ 2. Addition to Existing Structure
- ☐ 3. Heavy and Highway Construction (New and Repair)
- ☐ 4. New Sewer or Waterline
- ☐ 5. Other New Construction (Explain)
- ☐ 6. Other Reconstruction, Maintenance, Repair or Alteration
- ☐ 7. Demolition
- ☐ 8. Building Service Contract

8. OCCUPATION FOR PROJECT :

- ☐ Construction (Building, Heavy Highway/Sewer/Water)
- ☐ Tunnel
- ☐ Residential
- ☐ Landscape Maintenance
- ☐ Elevator maintenance
- ☐ Exterminators, Fumigators
- ☐ Fire Safety Director, NYC Only
- ☐ Fuel Delivery
- ☐ Guards, Watchmen
- ☐ Janitors, Porters, Cleaners, Elevator Operators
- ☐ Moving furniture and equipment
- ☐ Trash and refuse removal
- ☐ Window cleaners
- ☐ Other (Describe)

9. Does this project comply with the Wicks Law involving separate bidding? YES ☐ NO ☐

10. Name and Title of Requester

Signature

SEE PAGE TWO FOR LAWS RELATING TO PUBLIC WORK CONTRACTS

NEW YORK STATE DEPARTMENT OF LABOR
Bureau of Public Work - Debarment List

LIST OF EMPLOYERS INELIGIBLE TO BID ON OR BE AWARDED ANY PUBLIC WORK CONTRACT

Under Article 8 and Article 9 of the NYS Labor Law, a contractor, sub-contractor and/or its successor shall be debarred and ineligible to submit a bid on or be awarded any public work or public building service contract/sub-contract with the state, any municipal corporation or public body for a period of five (5) years from the date of debarment when:

- Two (2) final determinations have been rendered within any consecutive six-year (6) period determining that such contractor, sub-contractor and/or its successor has WILLFULLY failed to pay the prevailing wage and/or supplements;
- One (1) final determination involves falsification of payroll records or the kickback of wages and/or supplements.

The agency issuing the determination and providing the information, is denoted under the heading 'Fiscal Officer'. DOL = New York State Department of Labor; NYC = New York City Comptroller's Office; AG = New York State Attorney General's Office; DA = County District Attorney's Office.

Debarment Database: To search for contractors, sub-contractors and/or their successors debarred from bidding or being awarded any public work contract or subcontract under NYS Labor Law Articles 8 and 9, or under NYS Workers' Compensation Law Section 141-b, access the database at this link: https://apps.labor.ny.gov/EDList/searchPage.do

For inquiries please call 518-457-5589.

NYSDOL Bureau of Public Work Debarment List 03/21/2025

Article 8

AGENCY	Fiscal Officer	FEIN	EMPLOYER NAME	EMPLOYER DBA NAME	ADDRESS	DEBARMENT START DATE	DEBARMENT END DATE
DOL	DOL	*****5754	0369 CONTRACTORS, LLC		515 WEST AVE UNIT PH 13NORWALK CT 06850	05/12/2021	05/12/2026
DOL	DOL	*****5784	A.J.M. TRUCKING, INC.		PO BOX 2064 MONROE NY 10950	02/12/2024	02/12/2029
DOL	DOL		AKHLAQ OULAKH		4307 28TH AVE ASTORIA NY 11103	10/11/2024	10/11/2029
DOL	NYC		ALL COUNTY SEWER & DRAIN, INC.		7 GREENFIELD DR WARWICK NY 10990	03/25/2022	03/25/2027
DOL	DOL	*****8387	AMERICAN PAVING & MASONRY, CORP.		8 FOREST AVE GLEN COVE NY 11542	05/24/2024	05/24/2029
DOL	DOL	*****8654	AMERICAN PAVING, INC.		8 FORREST AVE. GLEN COVE NY 11542	05/24/2024	05/24/2029
DOL	NYC		AMJED PARVEZ		401 HANOVER AVENUE STATEN ISLAND NY 10304	01/11/2021	01/11/2026
DOL	DOL		ANGELO F COKER		2610 SOUTH SALINA STREET SUITE 14SYRACUSE NY 13205	09/17/2020	09/17/2025
DOL	DOL		ANGELO GARCIA		515 WEST AVE UNIT PH 13NORWALK CT 06850	05/12/2021	05/12/2026
DOL	DOL		ANGELO STANCO		8 FOREST AVE. GLEN COVE NY 11542	05/24/2024	05/24/2029
DOL	DOL		ANGELO TONDO		449 WEST MOMBSHA ROAD MONROE NY 10950	06/06/2022	06/06/2027
DOL	DOL	*****4231	ANKER'S ELECTRIC SERVICE, INC.		10 SOUTH 5TH ST LOCUST VALLEY NY 11560	09/26/2022	09/26/2027
DOL	DOL		ANTHONY MONGELLI		PO BOX 2064 MONROE NY 10950	02/12/2024	02/12/2029
DOL	NYC		ARADCO CONSTRUCTION CORP		115-46 132RD ST SOUTH OZONE PARK NY 11420	09/17/2020	09/17/2025
DOL	NYC		AVM CONSTRUCTION CORP		117-72 123RD ST SOUTH OZONE PARK NY 11420	09/17/2020	09/17/2025
DOL	NYC		AZIDABEGUM		524 MCDONALD AVENUE BROOKLYN NY 11218	09/17/2020	09/17/2025
DOL	DOL	*****8421	B & B DRYWALL, INC		206 WARREN AVE APT 1WHITE PLAINS NY 10603	12/14/2021	12/14/2026
DOL	DOL		B&L RENOVATION CO.		618 OCEAN PARKWAY APT A6BROOKLYN NY 11230	09/17/2020	09/17/2025
DOL	NYC	*****2113	BHW CONTRACTING, INC.		401 HANOVER AVENUE STATEN ISLAND NY 10304	01/11/2021	01/11/2026
DOL	DOL	*****5078	BLACK RIVER TREE REMOVAL, LLC		29807 ANDREWS ROAD BLACK RIVER NY 13032	10/17/2023	10/17/2028
DOL	DOL		BRADLEY J SCHUKA		4 BROTHERS ROAD WAPPINGERS FALLS NY 12590	10/20/2020	10/20/2025
DOL	DOL	*****9383	C.C. PAVING AND EXCAVATING, INC.		2610 SOUTH SALINA ST SUITE 12SYRACUSE NY 13205	09/17/2020	09/17/2025
DOL	DOL	*****5161	CALADRI DEVELOPMENT CORP.		1223 PARK ST. PEEKSKILL NY 10566	05/17/2021	05/17/2026
DOL	DOL	*****3391	CALI ENTERPRISES, INC.		1223 PARK STREET PEEKSKILL NY 10566	05/17/2021	05/17/2026
DOL	DOL	*****4155	CASA BUILDERS, INC.	FRIEDLANDER CONSTRUCTION	64 N PUTT CONNERS ROAD NEW PALTZ NY 12561	05/10/2023	05/10/2028
DOL	AG	*****7247	CENTURY CONCRETE CORP		2375 RAYNOR ST RONKONKOMA NY 11779	08/04/2021	08/04/2026
DOL	DOL	*****0026	CHANTICLEER CONSTRUCTION LLC		4 BROTHERS ROAD WAPPINGERS FALLS NY 12590	10/20/2020	10/20/2025
DOL	NYC	*****2117	CHARAN ELECTRICAL ENTERPRISES		9-11 40TH AVENUE LONG ISLAND CITY NY 11101	09/26/2023	09/26/2028
DOL	DOL		CHRISTOPHER GRECO		26 NORTH MYRTLE AVENUE SPRING VALLEY NY 10956	02/18/2021	02/18/2026
DOL	DOL	*****2281	CORRAO TRUCKING, INC.		PO BOX 393 NANUET NY 10954	09/17/2024	09/17/2029
DOL	DOL		CRAIG JOHANSEN		10 SOUTH 5TH ST LOCUST VALLEY NY 11560	09/26/2022	09/26/2027
DOL	DOL	*****3228	CROSS-COUNTY LANDSCAPING AND TREE SERVICE, INC.	ROCKLAND TREE SERVICE	26 NORTH MYRTLE AVENUE SPRING VALLEY NY 10956	02/18/2021	02/18/2026
DOL	DOL	*****7619	DANCO CONSTRUCTION UNLIMITED INC.		485 RAFT AVENUE HOLBROOK NY 11741	10/19/2021	10/19/2026
DOL	DOL		DANIEL ROBERT MCNALLY		7 GREENFIELD DRIVE WARWICK NY 10990	03/25/2022	03/25/2027

DOL	DOL		DARIAN L COKER		2610 SOUTH SALINA ST SUITE 2CSYRACUSE NY 13205	09/17/2020	09/17/2025
DOL	DOL		DARWIN PEGUESE		6400 BALTIMORE NATIONAL SUITE 602CANTONSVILLE NY 21228	10/24/2024	10/24/2029
DOL	DOL		DAVID FRIEDLANDER		64 NORTH PUTT CORNERS RD NEW PALTZ NY 12561	05/10/2023	05/10/2028
DOL	DOL		DINA TAYLOR		64 N PUTT CONNERS RD NEW PALTZ NY 12561	05/10/2023	05/10/2028
DOL	AG		EDWIN HUTZLER		23 NORTH HOWELLS RD BELLPORT NY 11713	08/04/2021	08/04/2026
DOL	DA		EDWIN HUTZLER		2375 RAYNOR STREET RONKONKOMA NY 11779	08/04/2021	08/04/2026
DOL	DOL	*****0780	EMES HEATING & PLUMBING CONTR		5 EMES LANE MONSEY NY 10952	01/20/2002	01/20/3002
DOL	DOL		EMIL KISZKO		84 DIAMOND ST BROOKLYN NY 11222	07/18/2024	07/18/2029
DOL	DOL	*****3298	EMJACK CONSTRUCTION CORP.		84 DIAMOND ST BROOKLYN NY 11222	07/18/2024	07/18/2029
DOL	DOL	*****3298	EMJACK CONSTRUCTION LLC		4192 SIR ANDREW CIRCLE DOYLESTOWN PA 18902	07/18/2024	07/18/2029
DOL	DOL		EUGENIUSZ "GINO" KUCHAR		195 KINGSLAND AVE BROOKLYN NY 11222	12/22/2023	12/22/2028
DOL	DA		FREDERICK HUTZLER		2375 RAYNOR STREET RONKONKOMA NY 11779	08/04/2021	08/04/2026
DOL	DOL	*****2998	G.E.M. AMERICAN CONSTRUCTION CORP.		195 KINGSLAND AVE BROOKLYN NY 11222	12/22/2023	12/22/2028
DOL	NYC		GAYATRI MANGRU		21 DAREWOOD LANE VALLEY STREAM NY 11581	09/17/2020	09/17/2025
DOL	DA		GEORGE LUCEY		150 KINGS STREET BROOKLYN NY 11231	01/19/1998	01/19/2998
DOL	DA		GIOVANNA TRAVALJA		3735 9TH ST LONG ISLAND CITY NY 11101	01/05/2023	01/05/2028
DOL	DA		GIOVANNI NAPOLITANO		2501 BAYVIEW AVENUE WANTAGH NY 11793	02/21/2024	02/21/2029
DOL	DA	*****0213	GORILLA CONTRACTING GROUP, LLC		505 MANHATTAN AVE WEST BABYLON NY 11704	10/05/2023	10/05/2028
DOL	DA	*****4760	GTX CONSTRUCTION ASSOCIATES, CORP		2501 BAYVIEW AVE WANTAGH NY 11793	02/21/2024	02/21/2029
DOL	DOL		HERBERT CLEMEN		42 FOWLER AVENUE CORTLAND MANOR NY 10567	01/24/2023	01/24/2028
DOL	DOL		HERBERT CLEMEN		42 FOWLER AVENUE CORTLAND MANOR NY 10567	10/25/2022	10/25/2027
DOL	DOL	*****2397	ISLAND BREEZE MARINE, INC.		6400 BALTIMORE NATIONAL CANTONSVILLE MD 21228	10/24/2024	10/24/2029
DOL	DOL	*****9211	J. WASE CONSTRUCTION CORP.		8545 RT 9W ATHENS NY 12015	03/09/2021	03/09/2026
DOL	DOL		J.M.J CONSTRUCTION		151 OSTRANDER AVENUE SYRACUSE NY 13205	11/21/2022	11/21/2027
DOL	DOL		J.R. NELSON CONSTRUCTION		531 THIRD STREET ALBANY NY 12206	11/07/2023	11/07/2028
DOL	DOL		J.R. NELSON CONSTRUCTION		531 THIRD STREET ALBANY NY 12206	12/22/2022	12/22/2027
DOL	DOL		J.R. NELSON CONSTRUCTION		531 THIRD STREET ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL		J.R. NELSON, LLC		531 THIRD STREET ALBANY NY 12206	12/22/2022	12/22/2027
DOL	DOL		J.R. NELSON, LLC		531 THIRD STREET ALBANY NY 12206	11/07/2023	11/07/2028
DOL	DOL		J.R. NELSON, LLC		531 THIRD STREET ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL		J.R.N COMPANIES, LLC		531 THIRD STREET ALBANY NY 12206	12/12/2022	12/12/2027
DOL	DOL		J.R.N COMPANIES, LLC		531 THIRD STREET ALBANY NY 12206	11/07/2023	11/07/2028
DOL	DOL		J.R.N COMPANIES, LLC		531 THIRD STREET ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL	*****1147	J.R.N. CONSTRUCTION, LLC		531 THIRD ST ALBANY NY 12206	11/07/2023	11/07/2028
DOL	DOL	*****1147	J.R.N. CONSTRUCTION, LLC		531 THIRD ST ALBANY NY 12206	12/22/2022	12/22/2027
DOL	DOL	*****1147	J.R.N. CONSTRUCTION, LLC		531 THIRD ST ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL		JAMES J. BAKER		7901 GEE ROAD CANASTOTA NY 13032	08/17/2021	08/17/2026

DOL	DOL		JASON P. RACE		3469 STATE RT. 69 PERISH NY 13131	09/29/2021	09/29/2026
DOL	DOL		JASON P. RACE		3469 STATE RT. 69 PERISH NY 13131	02/09/2022	02/09/2027
DOL	DOL		JASON P. RACE		3469 STATE RT. 69 PERISH NY 13131	11/15/2022	11/15/2027
DOL	DOL		JASON P. RACE		3469 STATE RT. 69 PERISH NY 13131	03/01/2022	03/01/2027
DOL	DOL	*****7993	JBS DIRT, INC.		7901 GEE ROAD CANASTOTA NY 13032	08/17/2021	08/17/2026
DOL	DOL	*****2435	JEFFEL D. JOHNSON	JMJ7 AND SON	5553 CAIRNSTRAIL CLAY NY 13041	11/21/2022	11/21/2027
DOL	DOL		JEFFEL JOHNSON ELITE CARPENTER REMODEL AND CONSTRUCTION		C2 EVERGREEN CIRCLE LIVERPOOL NY 13090	11/21/2022	11/21/2027
DOL	DOL	*****2435	JEFFREY M. JOHNSON	JMJ7 AND SON	5553 CAIRNS TRAIL CLAY NY 13041	11/21/2022	11/21/2027
DOL	DOL		JIM PLAUGHER		17613 SANTE FE LINE ROAD WAYNEFIELD OH 45896	07/16/2021	07/16/2026
DOL	DOL		JMJ7 & SON CONSTRUCTION, LLC		5553 CAIRNS TRAIL LIVERPOOL NY 13041	11/21/2022	11/21/2027
DOL	DOL		JMJ7 AND SONS CONTRACTORS		5553 CAIRNS TRAIL CLAY NY 13041	11/21/2022	11/21/2027
DOL	DOL		JMJ7 CONTRACTORS		7014 13TH AVENUE BROOKLYN NY 11228	11/21/2022	11/21/2027
DOL	DOL		JMJ7 CONTRACTORS AND SONS		5553 CAIRNS TRAIL CLAY NY 13041	11/21/2022	11/21/2027
DOL	DOL		JMJ7 CONTRACTORS, LLC		5553 CAIRNS TRAIL CLAY NY 13041	11/21/2022	11/21/2027
DOL	DOL		JOHN MARKOVIC		47 MANDON TERRACE HAWTHORN NJ 07506	03/29/2021	03/29/2026
DOL	DOL		JOHN WASE		8545 RT 9W ATHENS NY 12015	03/09/2021	03/09/2026
DOL	DOL		JORGE RAMOS		8970 MIKE GARCIA DR MANASSAS VA 20109	07/16/2021	07/16/2026
DOL	DOL		JOSEPH K. SALERNO		1010 TILDEN AVE UTICA NY 13501	07/24/2023	07/24/2028
DOL	DOL		JOSEPH K. SALERNO II		1010 TILDEN AVE UTICA NY 13501	07/24/2023	07/24/2028
DOL	DOL	*****5116	JP RACE PAINTING, INC. T/A RACE PAINTING		3469 STATE RT. 69 PERISH NY 13131	02/09/2022	02/09/2027
DOL	DOL	*****5116	JP RACE PAINTING, INC. T/A RACE PAINTING		3469 STATE RT. 69 PERISH NY 13131	11/15/2022	11/15/2027
DOL	DOL	*****5116	JP RACE PAINTING, INC. T/A RACE PAINTING		3469 STATE RT. 69 PERISH NY 13131	09/29/2021	09/29/2026
DOL	DOL	*****5116	JP RACE PAINTING, INC. T/A RACE PAINTING		3469 STATE RT. 69 PERISH NY 13131	03/01/2022	03/01/2027
DOL	DOL	*****5116	JP RACE PAINTING, INC. T/A RACE PAINTING		3469 STATE RT. 69 PERISH NY 13131	03/01/2022	03/01/2027
DOL	DOL		JRN CONSTRUCTION CO, LLC		1024 BROADWAY ALBANY NY 12204	11/07/2023	11/07/2028
DOL	DOL	*****1147	JRN CONSTRUCTION, LLC		531 THIRD STREET ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL	*****1147	JRN CONSTRUCTION, LLC		531 THIRD STREET ALBANY NY 12206	12/22/2022	12/22/2027
DOL	DOL	*****1147	JRN CONSTRUCTION, LLC		531 THIRD STREET ALBANY NY 12206	11/07/2023	11/07/2028
DOL	DOL		JRN PAVING, LLC		531 THIRD STREET ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL		JRN PAVING, LLC		531 THIRD STREET ALBANY NY 12206	12/22/2022	12/22/2027
DOL	DOL		JRN PAVING, LLC		531 THIRD STREET ALBANY NY 12206	11/07/2023	11/07/2028
DOL	DOL		JULIUS AND GITA BEHREND		5 EMES LANE MONSEY NY 10952	11/20/2002	11/20/3002
DOL	DOL		KARIN MANGIN		796 PHELPS ROAD FRANKLIN LAKES NJ 07417	12/01/2020	12/01/2025
DOL	DOL		KATE E. CONNOR		7088 INTERSTATE ISLAND RD SYRACUSE NY 13209	03/31/2021	03/31/2026
DOL	DOL		KEAN INDUSTRIES, LLC		2345 RT. 52 SUITE 2NHOPEWELL JUNCTION NY 12533	12/18/2023	12/18/2028
DOL	DOL	*****2959	KELC DEVELOPMENT, INC		7088 INTERSTATE ISLAND RD SYRACUSE NY 13209	03/31/2021	03/31/2026

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DOL	DOL		KEVIN FUNEZ URBINA A/K/A KEVIN FUNEZ		1009 LYNDALE AVE TRENTON NJ 08629	12/16/2024	12/16/2029
DOL	DOL		KIMBERLY F. BAKER		7901 GEE ROAD CANASTOTA NY 13032	08/17/2021	08/17/2026
DOL	DOL	*****8760	KJ&J CONSTRUCTION, LLC		1009 LYNDALE AVE TRENTON NJ 08629	12/16/2024	12/16/2029
DOL	DOL		KMA GROUP II, INC.		29-10 38TH AVENUE LONG ISLAND CITY NY 11101	10/11/2023	10/11/2028
DOL	DOL	*****1833	KMA GROUP INC.		29-10 38TH AVENUE LONG ISLAND CITY NY 11101	10/11/2023	10/11/2028
DOL	DOL		KMA INSULATION, INC.		29-10 38TH AVENUE LONG ISLAND CITY NY 11101	10/11/2023	10/11/2028
DOL	DOL		KRIN HEINEMANN		2345 ROUTE 52, SUITE 2N HOPEWELL JUNCTION NY 12533	12/18/2023	12/18/2028
DOL	NYC		KULWANT S. DEOL		9-11 40TH AVENUE LONG ISLAND CITY NY 11101	09/26/2023	09/26/2028
DOL	DA	*****8816	LAKE CONSTRUCTION AND DEVELOPMENT CORPORATION		150 KINGS STREET BROOKLYN NY 11231	08/19/1998	08/19/2998
DOL	DOL		LEROY E. NELSON JR		531 THIRD ST ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL		LEROY E. NELSON JR		531 THIRD ST ALBANY NY 12206	12/22/2022	12/22/2027
DOL	DOL		LEROY E. NELSON JR		531 THIRD ST ALBANY NY 12206	11/07/2023	11/07/2028
DOL	DOL	*****3716	LIGHTNIN ELECTRIC INC.		3418 NORTHERN BLVD SUITE 5-27LONG ISLAND CITY NY 11101	12/13/2024	12/13/2029
DOL	AG	*****3291	LINTECH ELECTRIC, INC.		3006 TILDEN AVE BROOKLYN NY 11226	02/16/2022	02/16/2027
DOL	DOL		LOUIS A. CALICCHIA		1223 PARK ST. PEEKSKILL NY 10566	05/17/2021	05/17/2026
DOL	DOL	*****2196	MAINSTREAM SPECIALTIES, INC.		11 OLD TOWN RD SELKIRK NY 12158	02/02/2021	02/02/2026
DOL	DA		MANUEL P TOBIO		150 KINGS STREET BROOKLYN NY 14444	08/19/1998	08/19/2998
DOL	DA		MANUEL TOBIO		150 KINGS STREET BROOKLYN NY 11231	08/19/1998	08/19/2998
DOL	DOL		MAQSOOD AHMAD		618 OCEAN PKWY BROOKLYN NY 11230	09/17/2020	09/17/2025
DOL	DOL	*****1320	MJC MASON CONTRACTING, INC.		42 FOWLER AVENUE CORTLAND MANOR NY 10567	10/25/2022	10/25/2027
DOL	DOL	*****1320	MJC MASON CONTRACTING, INC.		42 FOWLER AVENUE CORTLAND MANOR NY 10567	01/24/2023	01/24/2028
DOL	NYC		MUHAMMED A. HASHEM		524 MCDONALD AVENUE BROOKLYN NY 11218	09/17/2020	09/17/2025
DOL	DOL	*****7790	NATIONAL BUILDING & RESTORATION CORP		1010 TILDEN AVE UTICA NY 13501	07/24/2023	07/24/2028
DOL	DOL	*****1797	NATIONAL CONSTRUCTION SERVICES, INC		1010 TILDEN AVE UTICA NY 13501	07/24/2023	07/24/2028
DOL	NYC		NAVIT SINGH		402 JERICHO TURNPIKE NEW HYDE PARK NY 11040	08/10/2022	08/10/2027
DOL	DOL		NELCO CONTRACTING, LLC		1024 BROADWAY ALBANY NY 12204	11/07/2023	11/07/2028
DOL	DA		NICHOLAS T. ANALITIS		505 MANHATTAN AVE WEST BABYLON NY 11704	10/05/2023	10/05/2028
DOL	DOL		NICHOLE E. FRASER A/K/A NICHOLE RACE		3469 STATE RT. 69 PERISH NY 13131	03/01/2022	03/01/2027
DOL	DOL		NICHOLE E. FRASER A/K/A NICHOLE RACE		3469 STATE RT. 69 PERISH NY 13131	11/15/2022	11/15/2027
DOL	DOL		NICHOLE E. FRASER A/K/A NICHOLE RACE		3469 STATE RT. 69 PERISH NY 13131	09/29/2021	09/29/2026
DOL	DOL		NICHOLE E. FRASER A/K/A NICHOLE RACE		3469 STATE RT. 69 PERISH NY 13131	02/09/2022	02/09/2027
DOL	DOL	*****7429	NICOLAE I. BARBIR	BESTUCCO CONSTRUCTION, INC.	444 SCHANTZ ROAD ALLENTOWN PA 18104	09/17/2020	09/17/2025
DOL	DOL		NIKOLA NTONI		3418 NORTHERN BLVD SUITE 5-27LONG ISLAND CITY NY 11101	12/13/2024	12/13/2029
DOL	NYC	*****5643	NYC LINE CONTRACTORS, INC.		402 JERICHO TURNPIKE NEW HYDE PARK NY 11040	08/10/2022	08/10/2027
DOL	DOL		PATRICK PENNACCHIO		2345 RT. 52 SUITE 2NHOPEWELL JUNCTION NY 12533	12/18/2023	12/18/2028

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DOL	DOL		PATRICK PENNACCHIO		2345 RT. 52 SUITE 2NHOPEWELL JUNCTION NY 12533	12/18/2023	12/18/2028
DOL	DOL		PAULINE CHAHALES		935 S LAKE BLVD MAHOPAC NY 10541	03/02/2021	03/02/2026
DOL	DOL		PETER STEVENS		11 OLD TOWN ROAD SELKIRK NY 12158	02/02/2021	02/02/2026
DOL	DOL		PETER STEVENS		8269 21ST ST BELLEROSE NY 11426	12/22/2022	12/22/2027
DOL	DOL	*****4168	PHANTOM CONSTRUCTION CORP.		95-27 116TH STREET QUEENS NY 11419	07/12/2024	07/12/2029
DOL	DOL	*****4168	PHANTOM CONSTRUCTION CORP.		95-27 116TH STREET QUEENS NY 11419	05/28/2024	05/28/2029
DOL	NYC		RASHEL CONSTRUCTION CORP		524 MCDONALD AVENUE BROOKLYN NY 11218	09/17/2020	09/17/2025
DOL	DOL	*****2633	RAW POWER ELECTRIC CORP.		3 PARK CIRCLE MIDDLETOWN NY 10940	07/11/2022	07/11/2027
DOL	DA	*****7559	REGAL CONTRACTING INC.		24 WOODBINE AVE NORTHPORT NY 11768	10/01/2020	10/01/2025
DOL	DOL		ROBBYE BISSESAR		89-51 SPRINGFIELD BLVD QUEENS VILLAGE NY 11427	01/11/2003	01/11/3003
DOL	DOL		ROMEO WARREN		161 ROBYN RD MONROE NY 10950	07/11/2022	07/11/2027
DOL	DOL	*****7172	RZ & AL INC.		198 RIDGE AVENUE VALLEY STREAM NY 11581	06/06/2022	06/06/2027
DOL	DOL		SAL FRESINA MASONRY CONTRACTORS, INC.		1935 TEALL AVENUE SYRACUSE NY 13206	07/16/2021	07/16/2026
DOL	DOL		SAL MASONRY CONTRACTORS, INC.		(SEE COMMENTS) SYRACUSE NY 13202	07/16/2021	07/16/2026
DOL	DOL	*****9874	SALFREE ENTERPRISES INC		P.O BOX 14 2821 GARDNER RDPOMPEI NY 13138	07/16/2021	07/16/2026
DOL	DOL		SALVATORE A FRESINA A/K/A SAM FRESINA		107 FACTORY AVE P.O BOX 11070SYRACUSE NY 13218	07/16/2021	07/16/2026
DOL	DOL		SAM FRESINA		107 FACTORY AVE P.O BOX 11070SYRACUSE NY 13218	07/16/2021	07/16/2026
DOL	DA	*****0476	SAMCO ELECTRIC CORP.		3735 9TH ST LONG ISLAND CITY NY 11101	01/05/2023	01/05/2028
DOL	DA		SILVANO TRAVALJA		3735 9TH ST LONG ISLAND CITY NY 11101	01/05/2023	01/05/2028
DOL	DOL	*****0440	SOLAR GUYS INC.		8970 MIKE GARCIA DR MANASSAS VA 20109	07/16/2021	07/16/2026
DOL	NYC		SOMATIE RAMSUNAHAI		115-46 132ND ST SOUTH OZONE PARK NY 11420	09/17/2020	09/17/2025
DOL	NYC	*****3661	SPANIER BUILDING MAINTENANCE CORP		200 OAK DRIVE SYOSSET NY 11791	03/14/2022	03/14/2027
DOL	DOL		STANADOS KALOGELAS		485 RAFT AVENUE HOLBROOK NY 11741	10/19/2021	10/19/2026
DOL	DOL	*****3496	STAR INTERNATIONAL INC		89-51 SPRINGFIELD BLVD QUEENS VILLAGE NY 11427	08/11/2003	08/11/3003
DOL	DOL	*****9528	STEEL-IT, LLC.		17613 SANTE FE LINE ROAD WAYNESFIELD OH 45896	07/16/2021	07/16/2026
DOL	DOL	*****3800	SUBURBAN RESTORATION CO. INC.		5-10 BANTA PLACE FAIR LAWN PLACE NJ 07410	03/29/2021	03/29/2026
DOL	DOL	*****9150	SURGE INC.		8269 21ST STREET BELLEROSE NY 11426	12/22/2022	12/22/2027
DOL	DOL		SYED MUHAMMAD S. JAFRI A/K/A SHARRUKH JAFRI		4307 28TH AVE ASTORIA NY 11103	10/11/2024	10/11/2029
DOL	DOL		SYED RAZA		198 RIDGE AVENUE NY 11581	06/06/2022	06/06/2027
DOL	DOL		TARLOK SINGH		95-27 116TH STREET QUEENS NY 11419	05/28/2024	05/28/2029
DOL	DOL		TARLOK SINGH		95-27 116TH STREET QUEENS NY 11419	07/12/2024	07/12/2029
DOL	DOL	*****9733	TERSAL CONSTRUCTION SERVICES INC		107 FACTORY AVE P.O BOX 11070SYRACUSE NY 13208	07/16/2021	07/16/2026
DOL	DOL		TERSAL CONTRACTORS, INC.		221 GARDNER RD P.O BOX 14POMPEI NY 13138	07/16/2021	07/16/2026
DOL	DOL		TERSAL DEVELOPMENT CORP.		1935 TEALL AVENUE SYRACUSE NY 13206	07/16/2021	07/16/2026

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DOL	DOL	*****5766	THE COKER CORPORATION	COKER CORPORATIO N	2610 SOUTH SALINA ST SUITE 14SYRACUSE NY 13205	09/17/2020	09/17/2025
DOL	DOL	*****2426	THE MATRUKH GROUP, INC.		4307 28TH AVE PO BOX 9082ASTORIA NY 11103	10/11/2024	10/11/2029
DOL	DOL		TIMOTHY PERCY		29807 ANDREWS ROAD BLACK RIVER NY 13612	10/17/2023	10/17/2028
DOL	DA	*****1050	TRI STATE CONSTRUCTION OF NY CORP.		50-39 175TH PLACE FRESH MEADOWS NY 11365	03/28/2022	03/28/2027
DOL	DA	*****4106	TRIPLE H CONCRETE CORP		2375 RAYNOR STREET RONKONKOMA NY 11779	08/04/2021	08/04/2026
DOL	DOL	*****8210	UPSTATE CONCRETE & MASONRY CONTRACTING CO INC		449 WEST MOMBSHA ROAD MONROE NY 10950	06/06/2022	06/06/2027
DOL	DOL	*****6418	VALHALLA CONSTRUCTION, LLC.		796 PHLEPS ROAD FRANKLIN LAKES NJ 07417	12/01/2020	12/01/2025
DOL	NYC	*****2426	VICKRAM MANGRU	VICK CONSTRUCTI ON	21 DAREWOOD LANE VALLEY STREAM NY 11581	09/17/2020	09/17/2025
DOL	NYC		VICKRAM MANGRU		21 DAREWOOD LANE VALLEY STREAM NY 11581	09/17/2020	09/17/2025
DOL	DOL		VINCENT CORRAO		PO BOX 393 NANUET NY 10954	09/17/2024	09/17/2029
DOL	DOL	*****8266	WILLIAM CHRIS MCCLENDON	MCCLENDON ASPHALT PAVING	1646 FALLS STREET NIAGARA FALLS NY 14303	05/01/2023	05/01/2028
DOL	DOL		WILLIAM CHRIS MCCLENDON		1646 FALLS STREET NIAGARA FALLS NY 14303	05/01/2023	05/01/2028
DOL	DOL		WILLIAM G. PROERFRIEDT		85 SPRUCEWOOD ROAD WEST BABYLON NY 11704	01/19/2021	01/19/2026
DOL	DOL	*****5924	WILLIAM G. PROPHY, LLC	WGP CONTRACTIN G, INC.	54 PENTAQUIT AVE BAYSHORE NY 11706	01/19/2021	01/19/2026
DOL	DOL		WILLIAM SCRIVENS		4192 SIR ANDREW CIRCLE DOYELSTOWN PA 18902	07/18/2024	07/18/2029
DOL	DOL		XENOFON EFTHIMIADIS		29-10 38TH AVENUE LONG ISLAND CITY NY 11101	10/11/2023	10/11/2028

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 010000 – GENERAL REQUIREMENTS

PART 1 – SCHEDULES AND REPORTS

CONTENTS:

1. Summary of the Work
2. Laws, Ordinances, Taxes, and Permits
3. Plan of Operations and Progress Schedule
4. Sequence of Work
5. Contractor's Examination
6. Notification of Owner and Architect
7. Access and Movement of Materials and Personnel
8. Job Meetings
9. Equal Opportunity
10. Wage Rates

1. SUMMARY OF THE WORK

A. All work as shown on the drawings and as specified herein.

2. LAWS, ORDINANCES, TAXES, AND PERMITS

A. Taxes and Permits:

1. Exempt from New York State Sales Tax.

2. Exempt from Federal Excise Tax.

3. Not subject to building permit fees.

B. Laws and Ordinances:

The Project is subject to and Contractor shall comply with:

1. New York State Wage Rate Requirements.

2. Federal Occupational Safety and Health Administration Standards.

3. Applicable local, state, and other governing safety regulations.

3. PLAN OF OPERATIONS AND PROGRESS SCHEDULES

A. In order to facilitate coordination and fitting, the Contractor shall prepare a "Plan of Operations and Progress Schedule" which shall show concisely the manner in which work will be started, prosecuted, and completed.

B. After approval of the above document, the Contractor shall be responsible for seeing that it is adhered to and for ascertaining that proper coordination is maintained between work of all Contracts.

4. SEQUENCE OF WORK

A. It is intended that the work under this Contract be executed without interruption of and with minimum interference with school operations.

B. Notify utility companies as required by local ordinance and State Law.

C. Ascertain location of utilities inside and outside of building before commencing demolition work of any kind.

D. Take precautions to protect the adjacent spaces and surfaces from flying or falling debris. Prevent dust and dirt from rising and clean any dust created by this work.

E. Contractor shall not employ any labor, materials, or means whose employment or utilization during the course of the work tend to or in any way cause or result in strikes, work stoppages, delays, suspension of work, or similar troubles by workmen under his employ, his Subcontractors, or any of the trades working in or about the premises where work of this Contract is being performed.

F. The work shall be done with due care; the Contractor will be held responsible for any damage which may be caused thereby to any part or parts of existing structures, site, or items designated to remain. Before proceeding with demolition work, ascertain need for and accomplish any required protection measures. Embedded anchorage and attachments shall be removed to permit proper patching. Contractor will be liable for damage caused to any parts of existing structure or work designated to remain.

G. Where removal work occurs or where new and old work join, the immediate adjacent surfaces or so much thereof as is required by the involved conditions shall be cut, removed, patched, repaired, or refinished, and left in as good a condition as existed prior to the commencing of the work. The materials and workmanship employed shall conform to that of the original work.

H. The Contractor shall establish and maintain a rate of work progress so as to insure completion of the construction operations within the time stipulated in the Agreement.

I. Where materials or construction are to be applied or attached to existing surfaces or construction and to have included in his bid all costs for preparatory work on such surfaces or construction as necessary to permit the proper execution of the required work.

J. Upon completion of all work under this Section, the Contractor shall remove all tools, materials, plant, apparatus, and rubbish of any sort. The premises shall be left clean, neat, and orderly to the entire satisfaction of the Architect.

5. CONTRACTOR'S EXAMINATION

A. Contractor shall take all field measurements as required and shall satisfy himself as to the nature of equipment and facilities required for and the conditions under which he will be obliged to carry out the execution of the work in every particular which might in any way affect the cost thereof. The submission of a Proposal will be construed as conclusive evidence that such an examination has been made, and no subsequent claims for additional costs of labor, materials, appliances, equipment, etc., or for difficulties encountered which could have been foreseen has such an examination been made, will be recognized.

6. NOTIFICATION OF OWNER AND ARCHITECT

A. Before starting any work relating to existing utilities or school services, the Contractor will be required to give 24 hours notice to the Architect and Owner and obtain their approval in writing before proceeding with such work.

B. All work involving active utility or school service shall be performed with the utmost dispatch and without discontinuance or disruption of such services except as and when approved by the Owner.

7. ACCESS AND MOVEMENT OF MATERIALS AND PERSONNEL

A. The direction of the Owner as to access to the existing building and the limits within which each Contractor shall control the movements of his personnel and materials shall be strictly followed. Generally, the movement of Contractor's personnel within the premises shall be restricted to the minimum necessary for the performance of required work. Under no circumstances shall Contractor's personnel at any time enter upon any portions of the building or premises where such entry is not strictly necessitated by the work required under this Contract. The Contractor shall rigidly enforce these restrictions; violation thereof shall be cause for dismissal of the offender.

B. Delivery of equipment and materials shall be confined to the limits designated, and storage shall be where directed by the Owner. Temporary enclosures necessary for such storage shall be provided by the Contractor and shall be removed when no longer required.

C. All work in the existing building shall be performed with the least possible annoyance to the occupants of the building.

8. JOB MEETINGS

A. Pre-Construction Conference: Upon receiving notice that he has been awarded the Construction Contract for the project, and within ten (10) days of such notice, the Contractor shall make an appointment to meet with the Architect and his representative(s), and shall also instruct his Subcontractors or their representatives to be made personally known to each other and to plan and initiate the most favorable course of the upcoming construction work.

B. Regular Job Meeting: The Contractor, Architect, and those Subcontractors whose presence is necessary, shall attend periodic meetings for the purpose of discussing the progress and execution of the work. These meetings shall be held at a time and place designated by the Owner’s Representative. The proceedings of these meetings will be recorded by the Owner’s Representative and a copy will be subsequently furnished the Contractor for his use. It will be the Contractor's responsibility to distribute copies, as may be required, to his Subcontractors.

9. EQUAL OPPORTUNITY (LABOR LAW SECTION 220-e)

A. The Contractor shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Contractor shall take affirmative action to insure that applicants are employed and that employees are treated during employment without regard to their race, color, religion, sex, or national origin. such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training including apprenticeship. The Contractor agrees to post, in conspicuous places available to employees and applicants for employment, notices to be provided setting forth the provisions of the non-discrimination clause.

B. The Contractor shall, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

C. The Contractor shall send to each labor union or representative of workers with which he has a collective bargaining agreement or other Contract or understanding a notice to be provided advising the said labor union or worker's representatives of the Contractor's commitments under this section and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

D. The Contractor shall comply with Executive Order 11246, Federal Equal Employment Opportunity, unless exempt, in accordance with Section 203 of this order.

10. WAGE RATES

A. The Labor Law of New York State provides, among other things, that it shall be the duty of the fiscal officer to make a determination of the schedule of wages to be paid to all laborers, workmen, and mechanics employed on public work projects including supplements for welfare, pension, retirement, vacation, and other benefits, in accordance with prevailing practice in the locality. The Contractor shall comply with all requirements of this law as it applies to this project and locality.

B. The rates of wages determined by the New York State Industrial Commissioner pursuant to the Labor Law are set forth as per the schedule contained within this Project Manual.

END OF SECTION

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 010100 – CONDITIONS OF THIS CONTRACT

A. Before attempting to deliver materials to the site, the Contractor shall inform the Owner's Representative so that arrangements can be made for places of entrance and inspection of materials being delivered.

B. The Contractor shall provide written guarantee of the complete installation to be free from defects in materials and workmanship in accordance with Section 017000. Any portion of the work judged inferior shall be replaced by the Contractor at no additional cost to the Owner.

C. The Contractor shall maintain operational exits, exit lights, danger signs, open trench markings, fire emergency equipment, night lights, and proper storage facilities for equipment and materials as directed through the length of the Contract.

D. The Contractor shall be totally responsible for general site clean up and removal of all materials and equipment related to this Contract at the end of the Contract.

E. The Contractor shall take over and maintain the site immediately after receiving the order to start work. Provide protection of property and utilities until work of the Contract is complete and accepted. The Contractor shall be responsible for the safety of any adjoining property, including paving, utility mains, pipes conduit, etc., and shall, at his own expense, protect and maintain same in at least as good a condition as that in which they were found.

F. All seeded areas, pavements, walks, curbs, and approaches shall be always kept clear and, if disturbed by this construction work, shall be repaired and restored with materials to match existing.

G. Before commencing any work, the Contractor shall verify all coverage, and conditions prevalent at the job sites. If no discrepancies are found, the contractor shall report all corrections in writing. If no corrections are brought to the attention of the School District and the Architect/Engineer before starting installation, the Contractor will be totally responsible for this installation providing complete coverage of the area designated.

H. Upon completion of the work, the Contractor shall furnish as-built drawings showing the exact locations of every new item.

I. It is assumed that Contractor's prices are based on scope of work complete and as confirmed by site(s) inspections prior to bidding.

J. Contractor shall be responsible for all incidental electric and plumbing work required to complete work under this Contract.

K. All repair and patching work shall be done in a professional manner. The Contractor shall take care to match new and existing surfaces and materials as closely as possible for a continuous finish where duplication is impossible.

L. Equivalents: Where, in these specifications, kinds, types, brands, or manufacturers of materials are named, they shall be regarded as the required standard of quality. Where two or more are named, these are presumed to be equal, and the Contractor may select one of those items. If the Contractor desires to use any kind, type, brand, or manufacturer of material other than those named in the specifications as the basis of the bid, the Contractor shall indicate in writing with the bid, within 72 hours after the bid, or prior to award of contract, what kind, type, brand, or manufacturer is included in the base bid for the specified items, and submit information describing in specific detail wherein it differs from the quality and performance required by the base specifications and such other

information as may be required by the Owner. The Contractor may, at any time, propose to use in the work an equivalent item in lieu of that specified with no change in the bid amount.

M. All prospective bidders shall be required to provide proof of demonstrated competence and experience in this type of work as outlined in these specifications, and each bidder must submit names and addresses of previous jobs completed by his firm, which involved the type of work outlined in the specifications. Bidders are required to complete the “Statement of Bidders Qualifications” form contained herein and submit it with their bids.

N. At least three letters of reference for this type of work completed in the last five years shall be provided upon request, with pertinent company names and addresses of the firms for which the work was done indicating type of work, scope of work, and complete work. The district has the right to verify these letters as well as examine other aspects of the bidder’s work record.

O. As is usual with capital project payments, the district will retain five percent of each payment issued on verified requisitions for payment submitted by the Contractor. This retainage total will be paid upon satisfactory completion of all the work.

P. The maximum gross weight of vehicles used shall not exceed 2,500 lbs. per wheel in the area of playgrounds and athletic fields. The equipment shall be equipped with flotation type tires. On the front lawns, the pounds per square inch exerted on the turf-grass shall not exceed 15 lbs. per square inch and on the back athletic area shall not exceed 32 lbs. per square inch.

Q. The Contractor shall be required to conform to all OSHA requirements regarding Lock-out/Tag-out procedures. This shall include, but not be limited to, disconnecting the power to any equipment to be serviced via a disconnect switch or breaker, locking out this power source, and tagging this lockout with appropriate wording as per OSHA requirements. This shall apply to any power source associated with this project.

R. Certificate of Occupancy: During construction, school district personnel shall monitor the occupied portion of any school building to assure that it complies with the minimum requirements necessary to maintain a Certificate of Occupancy.

S. Complaints: Boards of Education and BOCES shall follow procedures established under Section 155.4 (d) (7) for the investigation and disposition of complaints relating to health and safety received as a result of construction and maintenance activities.

T. Health and Safety Committee: Boards of Education and BOCES shall establish procedures for involvement of the health and safety committee to monitor safety during school construction projects.

U. Emergency Plan: The district emergency plan shall be updated to reflect any changes necessary to accommodate the construction process.

V. Fire Drills: Fire drills shall be held to familiarize students and staff with temporary exits and revised emergency procedures.

W. Notification: Boards of Education and BOCES shall establish procedures for notification of parents, staff, and the community in advance of a construction project of $10,000 or more.

X. Fire and Hazard Prevention: The following shall be strictly enforced:

1. During construction, daily inspection of district occupied areas shall be conducted by school district personnel to assure that construction materials, equipment, and debris do not block fire exist or emergency rescue windows.

2. Proper operation of fire extinguishers, fire alarm, and smoke/fire detection systems shall be maintained throughout the project.

Y. Radon: Districts shall take responsibility to be aware of the geological potential for high levels of radon and test and mitigate as appropriate.

Z. Post Construction Inspection: The school district or BOCES shall provide the opportunity for a walk-through inspection by the Health and Safety committee members to confirm that the area is ready for occupancy.

AA. In accordance with the applicable provisions of AHERA (40 CFR §763.84.d) all contractor's are notified that district's buildings do contain asbestos containing building materials (ACBM) and asbestos regulated areas. In addition to the work specified in these project documents, contractors are to review the district's Asbestos Management Plan (AMP) and applicable AHERA Reinspection/Surveillance report for the applicable buildings/work areas prior to performing any work in the school buildings. If your proposed work requires the handling or disturbance of any ACBM, assumed ACBM, any unlisted suspect ACBM, or requires entrance into any asbestos labeled/regulated areas you are required to contact the district's asbestos designated person at the facilities office prior to any work being performed. Any disturbance/handling of ACBM must be performed in accordance with the Asbestos section of these specifications.

Please advise your staff of this requirement and ensure that they sign the short-term worker notification sheet located in the custodian's office prior to the start of any work. If you need any assistance in reviewing the information in this report, please contact the owner or owner's representative.

BB. Some of the proposed work may require various contractors to enter crawlspace or pipe tunnel areas, and/or access plenum spaces associated with the existing ceiling and wall systems (typical throughout). Please be advised that these spaces contain asbestos containing and/or asbestos contaminated materials. The contractor is responsible for all compliance with applicable OSHA regulations pertaining to any occupational exposures to asbestos fibers.

Specifically, certain crawlspaces and pipe tunnels have been identified and placarded by the district as Regulated Areas in accordance with 29 CFR 1910 (OSHA). The contractor must perform the following entry/exit procedures for all Regulated Areas identified by the school district.

1. All persons entering the regulated area (i.e. crawlspace) shall don protective coveralls including shoe coverings, prior to entry.
2. Each person exiting the crawlspace shall, while still inside the crawlspace, remove the protective coveralls, immediately before stepping out of the crawlspace onto a walk-off pan/pad. All protective coveralls shall remain in the crawlspace for future disposal as asbestos contaminated waste.
3. All personnel shall ensure that the areas outside the crawlspace are visibly free of sand, dust, etc. subsequent to their exit.
4. The contractor shall notify the owners representative when work will be undertaken in these areas so that an independent monitoring firm can be available to monitor the activities within these spaces.

CC. If the contractor encounters damaged or inadvertently disturbs any ACBM, work should stop immediately, and the contractor notify the owner/owners representations. Any abatement/disturbance of these materials must be performed in accordance with the Asbestos section of these specifications.

END OF SECTION

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 010200 – INSURANCE REQUIREMENTS

CONTENTS:

1. General Requirements
2. Certificates of Insurance
3. Types of Coverage and Minimum Limits
4. Continuity

1. GENERAL REQUIREMENTS

A. In addition to the requirements specified under Article 11 of the General Conditions and the insurance required by law, the Contractor shall, before commencing work under this Contract and during the period of construction to the date of final acceptance by the Owner, purchase, effect, and maintain insurance coverage as described in this section.

B. No Subcontractor shall be permitted to undertake any portion of this Contract without first having presented to the Contractor certification attesting to similar coverages as are required of the Contractor under this section. Such certification shall be issued to and in a form acceptable to the Contractor.

C. Notwithstanding any terms, conditions or provisions, in any other writing between the parties, the Contractor agrees to effectuate the naming of the Owner, the Architect and the Construction Manager (when applicable) as Additional Insureds on the Contractor's insurance policies, with the exception of Workers' Compensation and NY State Disability.

D. Each policy naming the Owner, the Architect and the Construction Manager (when applicable) as additional insureds shall:

1. Be an insurance policy from an A.M. Best A- rated or better insurer, licensed and admitted to conduct business in New York State; and
2. State that the organizations coverage shall be primary and non-contributory coverage for the Owner, its Board of Education, employees and volunteers including a waiver of subrogation in favor of the Owner for all coverages including Workers Compensation.
3. Additional Insured status for General Liability coverage shall be provided by standard or other endorsements that extend coverage to the Owner, the Architect and the Construction Manager (when applicable) for both on-going operations (CG 20 38 or equivalent) and products and completed operations (CG 20 37 or equivalent), latest version. The decision to accept an endorsement rests solely with the Owner. A completed copy of the endorsements must be attached to the Certificate of Insurance to include General Liability, Auto Liability and Umbrella/Excess coverages. Contracts with subcontractors shall require them to provide the same additional insured coverages and documents.

2. CERTIFICATES OF INSURANCE

A. Certificates of Insurance shall be transmitted in duplicate to the Architect for forwarding to the Owner, and any Certificate found to be incomplete or not according to the proper form will be returned as being unsatisfactory. A letter of transmittal from each insurance company involved must be submitted certifying that the certificate is issued pursuant to their authorization.

B. The certificate of insurance must describe all services provided by the contractor (ie. roofing, carpentry or plumbing, etc.) that are covered by the liability policies.

C. At the Owner's request, the Contractor shall provide a copy of the declaration page of the liability and umbrella/excess policies with a list of endorsements and forms. If so requested, the Contractor will provide a copy of the policy endorsements and forms.

D. There will be no coverage restrictions and/or exclusions involving New York State Labor Law statutes or gravity related injuries.

E. No policies containing escape clauses or exclusions contrary to the Owners interests will be accepted.

F. A fully completed New York Construction Certificate of Liability Insurance Addendum (ACORD 855 2014/05) must be included with the certificates of insurance. For any "Yes" answers on Items G through L on this form - additional details must be provided in writing. Policy exclusions may not be accepted.

E. The Contractor agrees to indemnify the Owner for any applicable deductibles and self-insured retentions.

G. Certificates shall contain:

1. Name and address of the insured.
2. Job location and title of the Contract.
3. Policy number and expiration date.
4. Issuance date of Certificate.
5. Types of coverage included.
6. Limit of Liability for each type used.
7. Types of operations covered (Classifications).
8. Types of operations or of coverages specifically excluded.
9. Thirty (30) day cancellation or non-renewal notice.
10. Owner, Architect or Owner representatives as additional insured.
11. Hold Harmless Clause indemnifying Owner, Architect or Owner representatives.
12. Name of Insurance Company.

H. The delivery of Certificates of Insurance authorizes the Owner or Architect to make direct inquiry of and to receive direct response from the insurance carrier regarding questions arising during the performance of the Work which are pertinent to the coverages under the policies.

3. TYPES AND MINIMUM LIMITS OF COVERAGE

A. The Contractor will obtain and keep in full force and effect during the term of the Contract, at the Contractor's sole cost and expense, the following insurance:

B. Commercial General Liability Insurance
- $1,000,000 per occurrence/ $2,000,000 aggregate
- $2,000,000 Products and Completed Operations
- $1,000,000 Personal and Advertising Injury
- $100,000 Fire Damage
- $10,000 Medical Expense
- The general aggregate must apply on a per-project basis.

C. Automobile Liability
- $1,000,000 combined single limit for owned, hired and borrowed and non-owned motor vehicles.

D. Workers' Compensation and NYS Disability Insurance
   - Statutory Workers' Compensation (C-105.2 or U-26.3); and New York State Disability Insurance (DB-120.1) for all employees. Proof of coverage must be on the approved specific form, as required by the New York State Workers' Compensation Board. ACORD certificates are not acceptable. A person seeking an exemption must file a CE-200 form with New York State. The form can be completed and submitted directly to the Workers' Compensation Board online.

E. Builders Risk
   - Must be purchased and maintained by the Owner to include the interest of the Owner, Contractor, Subcontractors and Sub-Subcontractors jointly. The limit must reflect the total completed value – all material and labor costs, and provide coverage for fire, lightning, explosion, extended coverage, vandalism, malicious mischief, windstorm, hail and/or flood. Coverage will remain in effect until the Owner is the only entity that has an insurable interest in the property.

F. Umbrella/Excess Liability Insurance
   - Umbrella/Excess coverage must be on a follow-form basis or provide broader coverage over the General Liability and Auto Liability coverages.

   - $5 million each Occurrence and Aggregate for general construction work and no work at elevation (1 story or 10 feet) and project values less than or equal to $1,000,000.

   - $10 million each Occurrence and Aggregate for high-risk construction, work at elevation (>1 story or 10 feet) and project value greater than $1,000,000.

G. Asbestos/Lead Abatement/Pollution Liability Insurance
   - $2,000,000 per Occurrence/$2,000,000 Aggregate, including products and completed operations. Such insurance shall include coverage for the Contractors operations including, but not limited to, removal, replacement, enclosure, encapsulation and/or disposal of asbestos, or any other hazardous material, along with related pollution events, including coverage for third-party liability claims for bodily injury, property damage and clean-up costs. If a retroactive date is used, it shall pre-date the inception of the Contract.

   - If the Contractor is using motor vehicles for transporting hazardous materials, the Contractor must maintain pollution liability broadened coverage (ISO Endorsement CA 9948 or CA 01 12) as well as proof of MCS 90. Coverage shall fulfill all requirements of these specifications and shall extend for a period of three (3) years following acceptance by the Owner of the Certificate of Completion.

   - Testing Company Errors and Omission Insurance: $1,000,000 per Occurrence/$2,000,000 Aggregate for the testing and other professional acts of the Contractor under the Contract with the Owner.

H. Owners Contractors Protective (OCP) Insurance: The Contractor will obtain and keep in full force and effect during the term of this Contract, at the Contractor's sole cost and expense, Owners Contractors Protective (OCP) Insurance. The Owner will be the Named Insured on all OCP policies and there will be no additional insureds.

   1. For projects less than or equal to $1,000,000 and work on one (1) story (10 feet) only; $1 million per occurrence, $2 million aggregate with the Owner as the Named Insured.
   2. For projects greater than $1,000,000 and/or work over one (1) story (10 feet); $2 million per occurrence, $4 million aggregate with the Owner as the Named Insured.
   3. The OCP Policy must be with a NYS licensed and admitted carrier.

I. Contractor's Contingent Liability: The Contractor shall procure, pay for, and maintain such insurance as will protect the Contractor from his contingent liability for damages and for injury to the person or property of another which may arise from the operations of all Subcontracts under this Contract.

J. Contractor's and Employees' Equipment: The Contractor assumes responsibility for all injury to or destruction of the Contractor's materials, tools, machinery, equipment, appliances, shoring, scaffolding, false and form work, and personal property of Contractor's employees from whatever cause arises.

4. CONTINUITY

A. Contractor acknowledges that failure to obtain the foregoing insurance on behalf of the Owner constitutes a material breach of contract and subjects it to liability for damages, indemnification and all other legal remedies available to the Owner. The Contractor is to provide the Owner with a certificate of insurance, evidencing the above requirements have been met, prior to the commencement of work. The failure of the Owner to object to the contents of the certificate or the absence of same not be deemed a waiver of any rights held by the Owner.

B. Subcontrctors are subject to the same terms and conditions as stated herein and must submit to the Owner for approval prior to the start of any work.

C. In the event the General Contractor fails to obtain the required certificates of insurance from the Subcontractor and a claim is made or suffered, the General Contractor shall indemnify, defend and hold harmless the Owner, its Board, employees, volunteers, the Architect and the Construction Manager (when applicable) from any and all claims for which the required insurance would have provided coverage. This indemnity obligation is in addition to any other indemnity obligation provided in the contract.

D. The Contractor acknowledges that its failure to obtain or keep current the insurance coverage shall constitute a material breach of Contract and subjects the Contractor to liability for damages, including but not limited to direct, indirect, consequential, special and such other damages the Owner sustains as a result of such breach. In addition, the Contractor shall be responsible for the indemnification to the Owner and the Architect, of any and all costs associated with such lapse in coverage, including but not limited to reasonable attorney’s fees.

E. The Contractor assumes responsibility for all injury or destruction of the Contractor’s materials, tools, machinery, equipment, appliances, shoring, scaffolding, false and form work, and personal property of the Contractor’s employees from whatever cause arises. Any policy of insurance secured covering the Contractor or Subcontractors leased or hired by them and any policy of insurance covering the Contractor or Subcontractors against physical loss or damage to such property shall include an endorsement waiving the right of subrogation against the Owner for any loss or damage to such property.

F. The Owner in good faith may adjust and settle a loss with the Contractor’s insurance carrier.

G. The Owner and the Contractor waive all rights against each other and any of their Subcontractors, Sub-subcontractors, agents and employees for damages caused by fire or other perils to the extent of actual recovery of any insurance proceeds under any property insurance policy procured or other property insurance applicable to the Contractor’s Work.

H. Before commencement of its Work, the Contractor shall obtain and pay for such insurance as may be required to comply with its obligations pursuant to the Contract, including, but not limited to any indemnification and hold harmless provisions.

I. Review and acknowledgment of the Certificate of Insurance or other proof of insurance by the Owner or the Architect shall not relieve or decrease the liability of the Contractor hereunder.

J. If the terms of policies expire before the Contract is completed or during the period of completed operations coverage, and the Contractor fails to maintain continuance of such insurance, the Owner is entitled to provide protection for itself, to pay premiums therefor, and to charge the cost thereof to the Contractor.

K. In the event of loss by fire or other insured hazard during the term of the Contract, the Contractor shall cooperate with the Owner and Architect and the insurance adjusters in all procedure's incidental to the expeditious adjustment of the loss and shall during this period maintain progress of construction. The Contractor will not be relieved from his obligations for the proper execution of his Contract except that the time of completion may be extended for such number of days as may have been delayed by reason of such loss, as determined by the Architect.

END OF SECTION

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 010300 – GOVERNING LAWS

GOVERNING LAWS

This project is governed by, but not limited to, the following laws:

- General Municipal Law, § 101, regarding separate contracts when total project exceeds $1,500,000
- General Municipal Law, § 103-d, regarding non-collusive bidding clause.
- General Municipal Law, § 106-b, regarding payment of contractors and subcontractors.
- General Municipal Law, § 108, regarding Worker's Compensation Insurance.
- General Municipal Law, § 109, regarding non-assignment of public contract.
- Labor Law, § 220, subdivision 2, regarding 40-hour week, 8-hour day.
- Labor Law, § 220-d, regarding wage rates and supplements.
- Labor Law, § 220-e, regarding anti-discrimination.
- Labor Law, § 222-a, regarding elimination of dust hazard.

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 012100 – ALLOWANCES

1.01 WORK INCLUDED

A. The Contractor shall provide all labor, materials, equipment and services so as to perform all work of this section and related work indicated on the Construction Drawings and as specified herein, including, but not limited to, the following:

B. Inclusion of the Allowances herein.

C. In addition to the work indicated on the Construction Drawings and elsewhere in this Project Manual and specification, the Contractor shall perform additional work as may be ordered by the Owner's Representative, Owner, or Architect.

D. The following amounts are for any additional work as may be required or ordered by the Owner, Owner's Representative, or Architect or required due to field related conditions. Any additional work relative to these allowances will be authorized and instituted through the Change Order process. Any unused portion in whole or in part of the allowance shall be refunded to the Owner, also through the Change Order process.

E. The Contractor's costs for unloading and handling at the site, overhead, profit and other expenses contemplated for the stated allowance amounts shall be included in its contract sum and not in the allowances.

1.02 RELATED WORK

A. Refer to the related and associated divisions of the Project Manual and Specification for related additional or supplementary details and information.

1.03 CONTRACT DOCUMENTS

A. Applicable provision of the Conditions of the Contract shall govern all work under this section.

1.04 ALLOWANCES

A. The HVAC Contractor shall include in Base Bid 1 the sum of Fifty Thousand Dollars ($50,000).

END OF SECTION

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 012300 – ALTERNATES

1. GENERAL REQUIREMENTS

A. Each Contractor shall state in its Proposal the amount to be added or deducted from his Base Bid for the difference in cost between the work described under each Alternate and the corresponding work specified under the Base Bid.

B. Owner may determine the lowest bid by adding one base bid to other base bid(s) and/or by adding to or deducting from those base bid(s), additive or deduct alternates, or substitutions, if any, which the Owner elects to accept after the opening of bids.

C. Alternate bids shall reflect the increase or decrease in cost of all work of every nature which may be affected thereby, and no subsequent claims for extras by reason of the Contractor's failure to observe this requirement will be considered.

D. Except as otherwise described or approved, material and workmanship required by the Alternates differ from the requirements shown on the drawings or specified for corresponding items, the Alternate's construction and materials will be subject to the approval of the Architect.

E. Submit shop drawings and samples of the work under each accepted Alternate as per "General Conditions" requirements.

END OF SECTION

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 012600 – CONSTRUCTION PHASE CLARIFICATIONS REQUESTS FOR INFORMATION FROM ARCHITECT'S OFFICE

PART 1 – GENERAL

1.01 SUBMISSION OF ARCHITECT'S RFI FORM:

A. In addition to the requirements of General Conditions of the Contract for Construction and the Supplementary General Conditions of the Contract, each Contractor shall comply with the following wherever it applies to the work of his contract:

1. Each Contractor shall prepare and submit, on the Architect's attached form (see last page of this specification section), an original Request For Information (RFI) to Architect's Office, for all questions which may arise during post-bid award activities which are to be directed to the office of the Architect. This form shall be submitted before commencement of any work, which may be in question. (Commencement of work in question shall constitute complete acceptance of field conditions and necessary remedial repairs as directed by the Architect, and work shall be conducted at no additional charges to the Owner.) The RFI form shall indicate, at the bare minimum, the following information:

a. Date of Request and RFI number.

b. Project Name and Project Number: reflecting title sheet information, including SED number.

c. Attention of: Name of Architect in Charge/Project Director/Project Manager.

d. From: Name of submitting Contractor representative, including his project title, office or field office phone number, email address and fax number.

e. Trade: The Contract, which is being represented.

f. Date Information Required By: Fill in exact date information is required. "ASAP" or "IMMEDIATELY" will not be acknowledged by the Architect's office.

g. Detailed description of requested item.

2. Note to the Contractors: Request For Information forms shall be used for requests, clarifications, or questions on contract drawings and specifications, not contract terms, scheduling items, or general correspondence, or as a means to describe or request approval of alternate construction means and methods, concepts, substitutions, materials, or systems. Each individual Contractor is to fill out the Architect's RFI form completely (leaving no blanks) and send them DIRECTLY via fax to the Architect's Office, with a concurrent copy to the Construction Manager's office; if applicable. Neither the Architect nor the Construction Manager, if applicable, will be filling out these forms on your behalf, but they will be working with each other and the Owner to answer such RFIs. Incomplete RFI forms will not be logged in, and will be discarded. It shall not be the Architect's responsibility to contact any Contractor submitting RFIs to verify their completeness or accuracy.

B. RFI Log: Each Contractor shall be responsible to generate an RFI log, to be updated and submitted weekly to the Architect and the Construction Manager, if applicable. Examples of acceptable log format can be obtained from the office of the Owner's Representative or the Construction Manager, if applicable. Log shall include, at bare minimum, the following items:

1. Date of submittal to Architect's office, and method of transmittal.

2. Date of response from Architect's office.

3. If not yet responded to, number of days since submittal.

4. In Contractor's opinion, list of affected trades impacted by the results.

1.02 LIMITATIONS:

A. Requests for information shall be made in full accordance with General Conditions of the Contract for Construction. The Architect agrees to the following actions with regard to "Requests For Information" which are received by his office:

1. The Architect shall review properly prepared, timely requests by the Contractor for additional information about the contract documents. A properly prepared Request for Additional Information about the Contract Documents shall be in a form prepared or approved by the Architect, and shall include a detailed written statement that indicates the specific drawings or specifications in need of clarification and the nature of the clarification requested.

2. If deemed appropriate by the Architect, the Architect shall, on the Owner's behalf, prepare, reproduce, and distribute supplemental drawings and specifications in response to Request For Information by the Contractor.

   a. The Architect shall interpret and decide matters concerning performance of the Owner and Contractor under, and requirements of, the contract documents on written request of either the Owner or Contractor. The Architect's response to such requests shall be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

3. Based upon the amount of RFIs received, and their content, unless otherwise so indicated on the RFI, the Architect shall establish the level of importance of said RFIs, and shall be allowed sufficient time in the Architect's professional judgement to permit adequate review. Prior to submitting any RFIs, each Contractor shall use their individual discretion in determining whether or not an RFI format or verbal format be used to resolve said situation.

4. In the event of multiple sequential RFIs received same day at the Architect's office, unless they are specifically numbered by the Contractor for their order of relative importance, they will be reviewed either: a) in the time order in which they were received by the Architect's office, b) in their natural progressive order of construction placement, or c) in order of preference, as determined by the Architect.

5. As a result of multiple sequential RFI submission, no delays in time, or Contractor hard or soft costs shall be implied or imposed onto the Architect. It is the Contractor's complete responsibility to adhere to the prepared Construction Schedule at all costs, including extended delays, which may be incurred by time required for RFI responses from the Architect's office.

6. Should an answer be required 'immediately', the Contractor shall simply place an asterisk by the date required to call attention to such a fact. He shall coordinate his own work forces accordingly to allow the Architect proper review and analysis time for resolution of such 'immediate' problems.

7. It shall be the Contractor's complete responsibility to document any verbal responses, into either follow-up RFI submittals or formal letters (on company logo stationery) to the Architect's office. Upon receipt, the Architect will review and make modifications to the correspondence if it varies in content from the Architect's interpretation. This will eliminate confusion or misunderstandings made in verbal form.

8. The Architect shall be the sole interpreter of all RFI validity, as the RFI is based on products of service produced by the Architect's office. The Architect reserves the right to reject any and all RFIs deemed frivolous or trivial.

9. As work in question is directed to the Architect for his sole response, only the attached Architect's RFI form will be considered as final and binding.

1.03 LOG-IN PROCEDURE FOR ALL RFI REQUESTS

A. Log-in procedures are based on the normal business hours of the Architect's office, and ***will not be modified for any reason***. The Architect's normal business hours are 8:00 a.m. to 5:00 p.m., EST, Monday through Friday***. All RFIs shall be reviewed by the Architect's office during normal business hours***. The Architect's office is closed on the following legal holidays: New Year's Day, President's Day, Memorial Day, Labor Day, Thanksgiving Day and the day following, and Christmas Day. ***Under no circumstances shall the Architect's office be considered or assumed as open for business on Saturdays, Sundays, or legal holidays***.

B. Any RFIs, which are received between 8:00 a.m. and 2:59:59 p.m. on a normal business day, will be received and logged in as received on that business day. Any RFIs, which are received and logged in by the Architect's Office at 3:00 p.m. or later (Eastern Standard Time) on a normal business day shall be considered as received at 8:00 a.m. the following business day. Any RFIs received by the Architect's office at or after 3:00 p.m. on Fridays will be logged in as received at 8:00 a.m. on the next following business day (Monday), In the case of the following calendar day being a holiday, the RFI shall be considered as received on the next non-holiday business day at 8:00 a.m. ***All receipt times shall be as determined by the received time stamped and signed in by the Architect's office***.

1.04 PROPER SEQUENCING OF RFI SUBMISSIONS

A. It is the Contractor's sole responsibility to fully coordinate submission of RFI forms with shop drawing and technical data submittals made or yet to be made. The Contractor must coordinate each RFI with requirements of work and the contract documents.

B. The Contractor's responsibility for deviations in submissions from requirements of contract documents is not relieved by Architect/Engineer's review of RFIs or associated submissions, unless the Architect gives written acceptance of specific deviations.

C. The Contractor's responsibility for errors and omissions in submissions or RFIs is not relieved by the Architect's review of submissions or RFIs.

D. In conformance with Section 013300 – Submittal Procedures, notify the Architect in writing at time of shop drawing/technical data submission of deviations in submissions from requirements of contract documents. Do not wait until RFI is prepared to inform the Architect's office of planned deviations.

E. Similar to Section 013300 – Submittal Procedures, no portion of the work requiring RFI clarifications shall be started, fabricated, or installed until return of Architect's formal response, including any supplemental information the Architect deems relevant for clarification.

F. After response to RFI, the affected Contractor shall distribute copies of the RFI responses to all parties requiring same for coordinating all subsequent work. The Architect's only responsibility shall be to supply one copy of each RFI resolution to: the Construction Manager, if applicable, the Owner, and the affected Contractor who initiated the RFI.

G. The affected Contractor shall make required copies of all RFI resolutions for distribution to all affected parties immediately upon receipt and review of same.

1.05 AFFECT OF RFI RESPONSES ON THE CONTRACTOR'S CONSTRUCTION SCHEDULE

A. All Contractors shall note well that the Architect is not legally bound to their approved construction schedules; the Contractors are the only parties legally bound therein. The Architect is not required to expedite any reviews or comments in the effort to expedite the Contractors' submission and/or construction schedules. Therefore, time delays created by the Architect's required review time of each RFI shall be absorbed into the Contractor's work schedule accordingly. This may necessitate such Contractor measures as: multiple work crews, off-hour or weekend construction by the affected Contractor(s), to be completed at no additional costs to the Owner. For this reason, it is imperative that each Contractor carefully review all documents as early as possible, in order to issue RFIs by the earliest possible date.

B. Any RFIs which are relative to an alteration, to the approved contractual details, or specifications will be specifically referred to the Architect's office with relative time differences noted. Any additional time required for alterations, if RFIs are approved, shall have all additional costs (if any) absorbed directly by the Contractor affected. ***Should other Contractors be directly affected in either labor, material, or equipment costs, their additional costs shall be borne by the Contractor who initiated the RFI***.

1.06 AFFECT OF RFI FORMS ON CONTRACTOR PREPARATION, AND PREPARATION OF SHOP DRAWINGS, SAMPLES, MANUFACTURER'S DATA, ETC.

A. It is the responsibility of the Contractor furnishing and/or installing materials and/or systems to these projects to field verify all existing and/or as-built conditions, as well as all conditions presently under construction that are interrelated in whole or in part to the furnishing and/or installing of such materials and/or systems. Submissions of RFI forms are at the sole discretion of each Contractor.

B. It is the responsibility of each Contractor to coordinate such field verification and be ultimately responsible for the accuracy of same prior to the submission of any RFI forms or shop drawings for design intent review by the Architect/Engineer.

C. Similar to submittal information indicated in Section 013300 – Submittal Procedures, all RFIs initiated by any subcontractor and/or supplier of the Contractor and/or supplier of the Contractor or by the Contractor themselves shall be reviewed by and shall be deemed officially submitted by the Contractor. All RFIs shall be thoroughly checked by the Contractor prior to the submission of same to the Architect's office for: contract document accuracy, validity and/or equivalency (if applicable); total quantity of material provided; all dimensioning systems related; alteration to same if necessary to accommodate accepted field changes built or pending; interaction with other materials and/or systems furnished and/or installed by this Contractor or their subcontractors (i.e., field measurements for space allocation, accuracy to previous submittals of this Contractor, etc.); and interaction with materials and/or systems provided by other Contractors.

D. After the completion of applicable RFIs, when submitting subsequent revised technical data or revised shop drawings, the Contractor shall signify same on subsequent submittal by having the following information on each and every submittal:

- Name of Contractor
- Date of Review by Contractor
- Note: This submittal has been reviewed by (Name of Contractor) in accordance with the contract documents describing and defining the requirements of such review, with affected RFI number attached.
- Copy of approved RFI, indicating Architect's final comments.
- Signature of Contractor's reviewer.
- Name of Contractor's reviewer (printed).
- Title of Contractor's reviewer (printed).

E. The Contractor shall submit in writing to the Architect and Construction Manager, if applicable, prior to their relevant revised or initial submissions, the name and title of the reviewer who shall be an employee of the Contractor for review and acknowledgment of same, along with the recommended RFI from the Architect's office.

F. If this project has a Construction Manager who is acting on the Owner's behalf and who has full-time construction site representation, the scheduling of all RFIs, submissions, the coordination, and interaction of other contractors, field conditions that affect the submission of, fabrication of, or installation of another Contractor's submission, fabrication, or installation shall be made known to the Owner's Representative. Refer to Section 013300 – Submittal Procedures for additional relevant information.

G. Any resultant construction field condition that arises that is contrary to an RFI or submission made, that is conflicting with another Contractor's submission, the schedule for construction, or with another Contractor's constructed work shall be immediately identified by the Contractor(s) and made known to the Owner's Representative. If such condition causes any construction schedule delay, "rereview" by the Architect/Engineer, additional work of the Architect/Engineer (such as field review, "redesign" or document preparation); or "reconstruction" of any work already built and/or accomplished by another Contractor, the connection to such conditions (and any associated costs to accomplish same) shall be the sole responsibility of the Contractor found negligent in causing such conditions.

H. Any RFI not containing complete information outlined and required as indicated within the above subsections will not be reviewed by the Architect for design intent, but rather rejected and discarded, so all Contractors must insure that no blanks are left on their submitted RFIs. All time lost as a result of this error will be the sole responsibility of the Contractor who made the error.

I. Any RFI submitted by the Contractor that requires subsequent coordination with another material and/or system provided by this Contractor or another Contractor that has been reviewed, by that Contractor and previously submitted to the Architect may be rejected in whole or part by the Architect, or held in abeyance by same until the corresponding and coordinating submittals are submitted as the concurrent review of all such submittals for design intent, may be deemed important by the Architect. Any release given any entity other than the Architect to fabricate, furnish, and install any material or system not reviewed by the Architect for design intent shall become the sole responsibility of the releasing entity as well as the resolution of construction related issues or conflicts, relative to approved or disapproved RFIs.

J. In addition, the Contractor shall not utilize nor refer to any schedule of work not created nor provided by the Architect. The Contractor's method in establishing, defining, and/or substantiating their ability to maintain the schedule presented in these contract documents and as prepared by the Owner's representative shall be exclusive of a defined time period of submittal review, and shall not be dependent upon RFI approval or time delays incurred.

K. Similar to Item 1.09L of Section 013300 – Submittal Procedures, the rejection or abeyance noted in the above subparagraph shall not be considered a delay or a reason for an extension of time in the construction schedule to the contract, as such cause for same shall have been brought upon by the Contractor not providing the "pre-coordination" necessary for such submissions.

PART TWO – PRODUCTS

Not Applicable.

PART THREE – EXECUTION

Not Applicable.

END OF SECTION

BBS ARCHITECTS
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ENGINEERS

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www.BBSARCHITECTURE.COM

REQUEST FOR INFORMATION

RFI No.:	
Date:	

Project:		BBS Project No.:	
Location:			
To The Attention of :			
Company:		**Requested BY:**	
Trade:			
Phone:		**Fax:**	
Date Information Required By:			

Description:	**Spec Section/ Dwg:**

Reply:

BY:	**FIRM:**	BBS Architects, Landscape Architects & Engineers, P.C.	**DATE:**

If a "Request for Information" is deemed relevant and appropriate by the Architect, the Architect's response to such requests shall be made in writing within any time limits agreed upon or otherwise with reasonable promptness. Upon evaluation of the Prime Contractor's request and if deemed necessary, the Architect's response may include supplemental drawings and specifications.

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 013000 – SPECIAL PROCEDURES AND PROVISIONS

PART 1 - GENERAL

1.01 CONTRACTOR'S SUPERINTENDENT

A. The Contractor must devote his time and personal attention to the work and shall employ and retain at the building from the commencement until the entire completion of the work a Contractor's Superintendent competent and capable of maintaining proper supervision and care of the work and acceptable to the Architect, who, in the absence of the Contractor and irrespective of any superintendent or foreman employed by any Subcontractor, shall see that the instructions of the Owner are carried out.

B. The Contractor shall employ a competent senior superintendent. Such superintendent may not be replaced during the duration of the Project, including the completion of Punch List, unless approved by the Architect.

C. The Contractor is to provide a resume of the Contractor's Superintendent to the Owner's Representative.

D. The Contractor shall, at all times during the work, have a representative on site who communicates in English.

1.02 REPAIRING

A. The Contractor shall do all repairing of work that becomes damaged by his workmen or the workmen of any of his subcontractors during the progress of his work or prior to its acceptance.

B. All existing work that is damaged or disturbed during the alteration and finish work to the building shall be left in the condition as originally found.

C. Any exterior areas damaged or disturbed by work of this Contract shall be properly repaired and left in sound condition and the premises shall be left clean and orderly.

1.03 CONTRACTOR'S RESPONSIBILITY

A. The Contractor will be held responsible for all work and materials provided for by the plans and specifications until the work is completed and accepted. The Contractor will be held responsible also for any and all damages which may arise or occur to any party whomsoever by reason of work of this project, delivery and storing of materials, the opening or blocking of streets and walks or by neglecting to provide proper lights, guards, barriers, any other safeguards to prevent damage to property or injury to persons.

B. Where openings cause exposure to outside elements, the Contractor shall provide necessary protection and coverings to prevent damage from frost or water.

C. Provide and maintain temporary dustproof partitions to enclose spaces used by the Owner and relocate as required. Remove when no longer needed.

D. The Contractor assumes responsibility for all injury to or destruction of or loss by theft or pilferage of the Contractor's materials, tools, machinery, equipment, appliances, shoring, scaffolding, false and form of work and personal property of his employees regardless of the cause.

E. Each Contractor shall be responsible for their own material and equipment until completely installed, inspected for completeness and correctness, and signed off by the Architect or his duly appointed representative.

F. The Contractor shall provide written guarantee of the complete installation to be free from defects in materials and workmanship in accordance with Section 017000. Any portion of the work judged inferior shall be replaced by the Contractor at no additional cost to the Owner.

G. The cost/value of required repair/replacement of any non-conforming items as documented by the Architect's subject to inclusion in the Architects "Record of Unacceptable or Non-Conforming Work" and will be the subject of a fixed dollar amount of credit due to the Owner, prior to project closeout in enforcement of AIA Document A201, Item 12.3, "Acceptance of Non-Conforming Work". If the contractor delays resolution of non-conforming work, the fixed dollar amount of credit is subject to a proportional cost increase at the discretion of the Architect.

H. The Contractor shall maintain operational exits, exit lights, danger signs, open trench markings, fire emergency equipment, night lights, and proper storage facilities for equipment and materials as directed through the length of the contract.

I. The Contractor shall take over and maintain the site immediately after receiving the order to start work. Provide protection of property and utilities until work of the Contract is complete and accepted. The Contractor shall be responsible for the safety of any adjoining property, including paving, utility mains, pipes, conduit, etc., and shall, at his own expense, protect and maintain same in at least as good a condition as that in which they were found.

J. All seeded areas, pavements, walks, curbs, and approaches shall be kept clear at all times and, if disturbed by this construction work, shall be repaired and restored with materials to match existing.

K. Before commencing any work, the Contractor shall verify all dimensions, coverage and conditions prevalent at the job sites. If discrepancies are found, the Contractor shall report all discrepancies in writing. If no corrections are brought to the attention of the Owner and the Architect/ Engineer before starting installation, the Contractor will be totally responsible for the installation providing complete coverage of the area designed as intended by the Architect.

L. For Additions to Existing Buildings: The General Contractor is responsible for correct finish floor alignment between existing building and proposed addition. At each finish floor, General Contractor shall utilize a licensed New York State surveyor to check all finish floor elevations shown for accuracy and shall be responsible for establishing said elevations prior to shop drawing submittal. The General Contractor's submission of steel and or concrete shop drawings shall contain said information and be the final basis for all other established elevations. The architect will accept said elevations as final, as the submission will include a licensed surveyor's certification of same.

M. Upon completion of the work, the Contractor shall furnish as-built drawings showing the exact locations of every new item.

N. It is assumed that Contractor's prices are based on scope of work complete and as confirmed by site(s) inspections prior to bidding.

O. The Contractor shall be responsible for all incidental electric and plumbing work required to complete work under this Contract.

P. The Contractor shall be required to conform to all OSHA requirements regarding Lock-out/Tag-out procedures. This shall include, but not be limited to, disconnecting the power to any equipment to be serviced via a disconnect switch or breaker, locking out this power source, and tagging this lockout with appropriate wording as per OSHA requirements. This shall apply to any power source associated with this project.

Q. Safety and Security during Construction Statements: Refer to Specification Section 013500 - Commissioner Regulations (Part 155.5) and Safety Standards – Part 2 Items C1 through C5.

R. Additional Requirements of the Contractor:

1. No drinking of alcoholic beverages or use of controlled substances allowed on the grounds. No reporting to work impaired by alcohol or controlled substances is allowed. The Contractor bears the responsibility of determining if its, or its subcontractors, employees are in any way impaired which would jeopardize the safety of the public, the employees of other Contractors and their Subcontractors, the Owner, Architect, and Construction Manager.

2. All Contractors are to refrain from conversing with school personnel and students. Any construction employees found doing so will be removed from the site.

3. All Contractors are to refrain from using indecent language. All doing so will be removed from the site. Art work or decoration found on vehicles belonging to the Contractor's or Subcontractor's employees parked on or near the school property which contain indecent language or pictures shall either be covered or removed from the location.

S. Separation of Construction Statement: Refer to Specification Section 013500 - Commissioner Regulations (Part 155.5) and Safety Standards – Item E.

1. A specific stairwell and/or elevator should be assigned for construction worker use during work hours. In general, workers may not use corridors, stairs, or elevators designated for students or school staff.

2. Large amounts of debris must be removed by using enclosed chutes or a similar sealed system. There shall be no movement of debris through halls of occupied spaces of the building. No material shall be dropped or thrown outside the walls of the building.

3. All occupied parts of the building affected by renovation activity shall be cleaned at the close of each workday. School buildings occupied during a construction project shall maintain required health, safety, and educational capabilities at all times that classes are in session.

T. Fire Prevention: There is no smoking allowed anywhere on school property per New York State law. Violators are subject to a $1,000 fine and/or banishment from the property.

1. Any holes in floors or walls should be sealed with a fire-resistant material.

U. Construction Noise: Refer to Specification Section 013500 - Commissioner Regulations (Part 155.5) and Safety Standards – Part 1 - Item H.

V. Construction Fume Control: Refer to Specification Section 013500 - Commissioner Regulations (Part 155.5) and Safety Standards – Part 1 - Item I.

W. Off-Gassing Control: Refer to Specification Section 013500 - Commissioner Regulations (Part 155.5) and Safety Standards – Part 1 - Item I.

X. Asbestos Code Rule 56: Refer to Specification Section 013500 - Commissioner Regulations (Part 155.5) and Safety Standards – Part 1 - Item K.

Y. Asbestos TEM: Refer to Specification Section 013500 - Commissioner Regulations (Part 155.5) and Safety Standards – Part 1 - Item J.

Z. Lead Abatement Projects: Refer to Specification Section 013500 - Commissioner Regulations (Part 155.5) and Safety Standards – Part 1 - Item K.

1.04 CLEANING

A. Upon completion of all work, the Contractor shall be totally responsible for general site clean up and shall provide all labor and material required to thoroughly "broom clean" the premises throughout. This cleaning shall include, but not be limited to, the removal of all surplus material from all radiators, pipes, ducts, gypsum boards, metal work, woodwork, stairs, floors, ceilings, glass and other material and surfaces, and all surfaces which are finished shall be left in a clean and suitable condition.

1.05 REMOVAL OF TEMPORARY WORKS

A. All temporary work such as guards, shoring, staging, etc., provided or erected by the Contractor shall be removed and shall become the property of the Contractor when such temporary work is no longer required, or when directed, or at completion of the contract.

1.06 MATERIALS, LABOR, TOOLS, WORKMANSHIP

A. The Contractor will provide and furnish at his own expense any and all material, labor, scaffolding, tools, implements, molds, models, and cartage of every description necessary or proper to or for the duty and performance of said work and the faithful execution of his contract.

1.07 ORDERING OF SPECIFIED MATERIALS

A. All specified materials are available from the manufacturers and some items require more time for delivery to the job than others. Therefore, to avoid the necessity of last minute substitutions because of late ordering, it will be the responsibility of the General Contractor to see that items that will require a substantial waiting period before delivery are ordered soon after the Contract is awarded.

1.08 SHUT-DOWNS

A. The Contractor shall perform the work in a manner which will minimize shut-downs of existing operating items or systems. When the performance of the work requires the shut-down of an existing operation item or system, such shut-down shall take place only after the Contractor has given at least five working days notice and has obtained written authorization for the shut-down from the Owner. All shut-downs shall take place only on overtime, at no additional cost. This provision shall apply to all work, including testing of newly installed or altered systems.

1.09 DELIVERIES AND STORAGE

A. All deliveries of materials or equipment must be done in conjunction with the Owner's representatives, to insure the least disruption of the facility. Storage of all materials must be approved by the Owner prior to delivery. The Owner will not accept any deliveries on behalf of the Contractor. A Contractor's representative must be on site to accept such deliveries.

B. Before attempting to deliver materials to the site, the Contractor shall inform the designated Owner’s Representative so that arrangements can be made for places of entrance and inspection of materials being delivered.

C. Storage of materials in the occupied building shall not be allowed unless otherwise agreed upon by the Owner’s Representative. The Contractor shall be responsible for providing all storage trailers and security of same.

1.10 SPECIAL PROVISIONS

A. Contractor Representation at Construction Project Meetings:

1. Each Contractor shall provide qualified representation at all construction project meetings which will be held on a bi-weekly basis for the review of construction progress and coordination of all building trades. Failure of the Contractor to abide by these provisions may cause delays and incur additional expenses due to coordination difficulties.

B. Any existing items (whether or not specified or shown on the drawings) requiring removal in order to properly complete the new work shall be removed by the Contractor performing the work and disposed of off-site at no additional charge to the Owner.

C. Unless a specified item of removal, relocation, or installation (which appears to be in conflict with the actual site conditions) is brought to the attention of the Architect during the bidding period, the Contractor shall be responsible for the execution of said work and any related expenses incurred.

D. Should any work or material be required which is not denoted in the Plans and Specifications, either directly or indirectly, but which is necessary for the proper execution of the intent thereof, it shall be understood and agreed that the same is implied and required and that the Contractor shall furnish all labor and material as if they were completely delineated and prescribed.

E. Should a conflict occur between the drawings and specification and/or existing conditions, the Contractor shall be deemed to have estimated the more expensive way of accomplishing the work unless during the bidding period a clarification was requested by the Contractor and obtained in writing from the Architect, as to which method and material is to be used.

F. Where, in these specifications, one certain kind, type, brand, or manufacture of material is named, it shall be regarded as the required minimum standard of quality and performance. Where two or more are named, these are presumed to be equal and the Contractor may select one of these items. If the Contractor desires to use any other kind, type, brand, or manufacture of material that those named in the specification, he shall submit information describing in detail where it differs from base specifications and other information as required by the Owner.

    1. The burden of proof of equivalence rests with the bidder. Adequate supporting information must accompany proposed substitution. The Owner or Architect reserves the right to accept or reject proposed substitutes.

G. Any item shown on the plans but not specified or conversely specified but not shown on the plans, shall be treated as if shown or mentioned respectively in both.

H. Alignment and adjustment of all erected steel shall be accomplished by a registered professional or land surveyor at the Contractor's expense and to the satisfaction of the Inspector.

I. Inspection of all welded and high strength bolted field connections shall be accomplished by one of the following approved independent testing laboratories or an alternate testing company acceptable by the Owner. The Contractor shall arrange for and the Owner shall pay for all testing other than testing revealing failed results:

    1. All Island Testing.

    2. Soil Mechanics Environmental Services.

    3. Long Island Materials Testing Laboratories, Inc.

J. Unless otherwise noted, each Contractor shall be responsible for their own cutting and rough patching. The General Construction Contractor shall be responsible for all finish patching and painting. All repair and patching work shall be done in a professional manner. The Contractor shall

take care to match new and existing surfaces and materials as closely as possible for a continuous finish where duplication is impossible.

K. Each Contractor shall be responsible for their own material and equipment until completely installed, inspected for completeness and correctness, and signed off by the Architect or his duly appointed representative.

L. The General Construction Contractor shall be the lead contractor, responsible for all coordination between the General Construction, Mechanical, and Electrical trades.

M. The General Construction Contractor shall be responsible for cutting and patching all masonry work, insulated panels, etc. to accommodate any required thru-wall piping, conduit, equipment, or ductwork penetrations by other trades.

N. The General Contractor shall be responsible for provision of any required temporary roof drainage, protective fencing, plywood enclosure of all window and door masonry openings, etc., until new construction or material is permanently and completely in place.

O. The General Contractor shall provide and install all flashing, counterflashing, and pitch pockets for all roof equipment and roof penetrations and install all required roof curbs provided by others in accordance with the manufacturer's approved methods.

P. Changes to the Contract:

1. Should any changes be requested or required over and above the original contract scope, the Contractor shall be compensated as follows:

    a. For the actual and reasonable net costs for all materials and wages of applied labor required for such extra work.

    b. Rental costs for all machinery and equipment (other than small tools) required and approved for such extra work.

    c. 10% overhead and 5% profit as compensation for all other items of profit and cost or expense, including administration, overhead, supervision, etc. (Contractor is limited to 5% overhead for work performed by his subcontractor on changes.)

    d. A maximum of 2% for any increase in bonds and insurance's due to the adjusted contract sum.

Q. As is usual with capital project payments, the Owner will retain 5 percent of each payment issued on verified requisitions for payment submitted by the Contractor. This retainage total will be paid upon satisfactory completion of all work.

R. Contractor's proposals for any additional work (whether a field condition or program change) shall be submitted for consideration as follows:

1. Labor - Number of men
    Wage per hours
    Number of hours

2. Material - Unit costs (no lump sums)
    Unit measure (l.f., s.f., cu.ft., etc.)

3. Rental costs for machine, equipment, driver, etc.

4. 2% for bonds and insurance.

5. Upon request, the Contractor shall furnish satisfactory proof of all labor performed, materials furnished, and equipment used in performance of the extra work.

S. Whenever inclement weather (rain, hail, sleet, snow, etc.) causes an interruption in the day to day execution of the Contract work, each Contractor must fully mobilize their forces (with the necessary manpower and equipment) to immediately continue with Contract operations the very first day that such weather has subsided.

1. Contractor shall provide all necessary excavation and dewatering equipment to remove any standing water from open holes, ditches, trenches, and other excavations.

T. The maximum gross weight of vehicles used shall not exceed 2,500 lbs. per wheel in the area of any playground or ballfields. The equipment shall be fitted with flotation type tires. On lawns, the pounds per square inch exerted on the turf-grass shall not exceed 15 lbs. per square inch and on athletic areas shall not exceed 32 pounds per square inch.

U. See attached “Record of Unacceptable or Non-Conforming Work”.

END OF SECTION

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RECORD OF UNACCEPTABLE and NON-CONFORMING WORK DOCUMENT

PROJECT NAME: _____ **LOCATION:** _____ **FILE No.:** _____

OWNER/DISTRICT: _____ **CON MGR or CLERK:** _____ **INITIALS:** _____

CONTRACTOR: _____ **CONTRACTOR REP:** _____ **TRADE:** _____

PROJECT MANAGER: _____ INITIALS: _____ **BBS CONST ADMIN:** _____ **INITIALS:** _____

BBS REVIEW ARCH: _____ INITIALS: _____ **BBS REVIEW ENG:** _____ **INITIALS:** _____

THIS DOCUMENT MAY NOT REPRESENT ALL WORK THAT IS CONSIDERED UNACCEPTABLE OR NON-CONFORMING. IT IS INTENDED TO TRACK SPECIFIC WORK IDENTIFIED TO A CORRECTED CONDITION. THE CONTRACTOR SHALL STILL BE REQUIRED TO MEET THE FULL UIREMENTS OF QUALITY & PERFORMANCE NOTED IN THE CONTRACT DOCUMENTS.

ITEM No.	DESCRIPTION OF DEFICIENT OR UNCOMPLETE WORK ITEMS	INITIALS OF REVIEW REP	DATE INDENTIFIED	WORK CORRECTED OR ACCEPTED AS NON-CONFORMING	INITIALS OF BBS REP/ OWNER/ CONTRACTOR	COST AS DETERMINED BY BBS	COMMENTS

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RECORD OF UNACCEPTABLE and NON-CONFORMING WORK DOCUMENT

Please note that this document will be a running list of Unacceptable and Non-conforming Work for each building and will be issued after each site review if warranted. It is noted by the Architect/ Engineer that the project is on going, the review and decisions will be made with that information in mind. Once the item indicated has been reviewed and approved by the Architect/ Engineer it will be marked as 'Item is Closed' with the date attached.

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 013200 – PROJECT SCHEDULE

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes:

1. Work sequence.

2. Contractor use of premises.

3. Owner occupancy.

1.02 WORK SEQUENCE

A. Project Start:

1. Commence construction activity at the site as soon after contract award, unless specified otherwise, as required to comply with specified Construction Schedule.

2. Schedule material deliveries to correspond with starting dates so that materials are on site on required start date.

B. Coordination:

1. Schedule all construction activities at the site with Architect, Construction Manager (if applicable) Owner, and other prime contractors to avoid, to maximum extent, interference with Owner's operations and to meet specified completion dates.

a. It is the responsibility of all Prime Contractors to meet the Completion Schedule within the Owner's Educational Schedule.

b. Coordinate construction activities with school calendar issued by Owner to each Prime Contractor to avoid interference with normal educational process by Owner.

c. Review requirements of Contract Documents for each Prime Contract in relationship to requirements for other Prime Contractors and the Owner's Educational Schedule.

2. Coordinate all interruptions of building services or shut-down of building systems with Architect, Construction Manager (if applicable) and Owner, and obtain written approval of proposed schedule for interruptions or shut-down from Architect, Owner, and/or Construction Manager (if applicable).

a. If, in the opinion of the Owner or Construction Manager (if applicable), any such interruption or shut-down will affect life or safety of building occupants, schedule interruption of shut-down at a time acceptable to the Owner, when classes are not in session, or after normal working hours.

b. Extra payment for overtime outside normal working hours required by any such interruption or shut-down will not be made by Owner. Prime Contractor requiring overtime shall do so at his own cost and shall be responsible for extra costs incurred by other Prime Contractors as a result.

c. Insure all equipment, fittings, pipe, and similar items required are on hand before interrupting or shutting down existing systems.

d. Notify all inspectors and representatives of utility companies, village officials, Architect, Construction Manager (if applicable), Owner, and similar parties by letter in advance of required changeovers, tie-ins, removals, and similar operations.

1.03 CONTRACTOR USE OF PREMISES

A. Access to Building:

1. All Prime Contractors are directed to schedule all construction activities with Owner to allow Owner's full use of building areas and systems for normal educational process. Owner acknowledges Prime Contractors will require access to Owner-occupied areas, rooms, and systems, and intends to cooperate in making rooms and systems available for construction activities.

2. Notify Project Representative in advance of any requirements for access to any existing building outside normal working hours and days.

B. Building Security:

1. Owner will maintain building security at all times for his sole benefit. Each Prime Contractor shall retain full responsibility for security and protection of work of his Prime Contract until final acceptance by the Owner.

C. Maintenance of Building Circulation and Exits:

1. Maintain circulation corridors, exits, and exit stairs unobstructed from equipment and materials, except in areas of construction activity closed by temporary partitions.

1.04 OWNER OCCUPANCY

A. Normal School Year: Owner intends to maintain full education program during the normal school year throughout duration of project, and will make full use of buildings and sites, unless otherwise specified.

1. School and special activities may be conducted within buildings and on sites after regular school hours and on weekends during the normal school year.

2. Free access by Owner's personnel to building and site areas not scheduled for alteration or dimensional change shall be maintained by all Prime Contractors.

3. Owner's personnel will perform normal custodial and maintenance services for building areas and systems not involved in construction activities, unless otherwise indicated.

B. Summer School:

1. Owner will staff the buildings with at least administrative, custodial, and maintenance personnel during the scheduled Summer Recess.

PART 2 – PRODUCTS – (NOT APPLICABLE)

PART 3 – EXECUTION – (NOT APPLICABLE)

END OF SECTION

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 013300 – SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

A. Section Includes:

1. Submittal schedule requirements.
2. Administrative and procedural requirements for Shop Drawings, Product Data, Samples and other submittals.

B. Related Sections:

1. Section 012600 – Construction Phase Clarifications
2. Section 013200 – Project Schedule
3. Section 016000 – Product Requirements
4. Section 017000 – Contract Closeout
5. Section 017839 – Project Record Documents

1.03 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

A. Submittal Log: Prepare and submit, with construction schedule, a separate schedule for shop drawings, product data, and samples submittals, which shall be herein referred to as a “Submittal Log”. This log shall list all required submittals specific to your trade as detailed in the various sections of the Project Specifications. Submittal log shall be submitted within one (1) calendar week of Notice to Proceed, before submitting first payment application. Submittal log shall show the following:

1. Section number.
2. Item of shop drawing, product data, and samples.
3. Date to be submitted.

B. Submittal Cover Sheet: All submissions must be provided with a Submittal Cover Sheet. The Submittal Cover Sheet follows this specification section.

1. An electronic form of the submittal cover sheet is available in PDF format upon request from the Architect.
2. The Submittal Cover sheet shall be the first page of each individual submission and/ or individual PDF file.

a. Each product submitted within a specification section shall have an individual Submittal Cover sheet attached. Combined submittals with one cover sheet will not be accepted.
b. All fields within each Submittal Cover sheet shall be completed providing the following information:

1) Name of Contractor
2) Project Name

3) Date
4) Architect's Project Number
5) Items Submitted
6) Manufacturer
7) Model Numbers
8) Submission Number
9) Specification Section
10) Acknowledgement by Contractor

3. Submissions that are provided without a Submittal Cover Sheet or not filled in correctly will not be reviewed. The Architect will advise the Contractor that the submission is incomplete. Submissions that are not corrected will be returned to the contractor REJECTED.

C. Architect's Electronic Drawing Files: Electronic digital data files of the Contract Drawings may be provided at the discretion by the Architect for Contractor's use in preparing submittals for a cost of $25.00 per drawing.

1. Architect makes no representations as to the accuracy of completeness of digital drawing files as they relate to the Contract Drawings.
2. Digital Drawing Software Program: The Contract Drawings are available in the most current version of AutoCAD.
3. Contractors requesting this service will be required to sign a disclaimer. Contractor shall fully execute a disclaimer agreement and pay a fee for preparation of the electronic files prior to their release.
4. Request for electronic files must be made in writing to the Architects office. This request must include a specific list of drawings required in this format.

D. 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 activity.
2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
3. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
4. Delays associated with the above are not the Architects responsibility and rests solely with the Contractor.

E. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. The architect will not be responsible for project delays due to the contractor's failure to submit the required submittal information in time to allow for review based on the stipulated review time and to meet the project schedule.
2. Initial Review: Allow (10) ten working days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
3. Re-submittal Review: Allow (10) ten working days for review of each re-submittal.
4. Submittals requiring Architect's Consultant review such as Structural Steel Shop Drawings will require longer review periods. Contractor shall submit such reviews in a timely manner to coordinate with the project schedule accordingly.

5. Where submittal are required to be approved that are part of an assembly or for items such as finishes where color selections are required. The submittal will be retained until all of the information related to these systems and color selections is provided and accepted.
6. Products with multiple submittals may be held until all necessary information has been submitted for architect to make a complete review. Submittals dependent on coordinating information from related or dependent products; or products with critical interface with other products may be held until all information is submitted for architect to make a complete review and coordinate all required information.

F. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:

1. Prepare submittals as PDF package, incorporating complete information into each PDF file, including Submittal Cover Sheet. Name PDF file with submittal number.

    a. File name shall use project identifier and Specification Section number followed by a decimal point and then a sequential number (e.g., LNHS-061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., LNHS-061000.01.A).

2. Transmit to Architect by sending via email or utilize other web-based software such as Procore or Submittal Exchange when provided by the Construction Manager, if applicable or Owner.
3. Include Submittal number within Subject Line as requested by Architect.
4. Architect will return annotated file. Annotate and retain one copy of file as a digital Project Record Document file.

1.04 SUBMITTAL SCHEDULE

A. Submittal Schedule: Submit a list of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.

1. Submittal Schedule: Submit, as an action submittal, a list of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.

B. The information is required to be submitted under the Submittal section from each respective Specification Section. With each item listed, the Contractor shall provide anticipated dates for submission to the Architect. The Architect will review and accept or request that corrections be made for subsequent acceptance. This acceptance will constitute a review for the submittal, shop drawings and sample submissions may commence. No Submittals or Shop Drawings will be reviewed by the Architect until an approved Submittal Schedule is in place.

1. The Submittal Schedule shall be coordinated with the overall Project Schedule to ensure that submittals are submitted and reviewed so as not to delay the Project Schedule.
2. The Architect will not be responsible for ensuring that all required Shop Drawings, Product Data, Samples or similar submittals that are required to be submitted and reviewed under the Contract Documents are submitted by the Contractor. Submissions of Shop Drawings, Product Data, Samples or similar submittals are the Contractor’s sole responsibility. Delays associated with the Contractor’s failure to provide the required submittals are the Contractor's responsibility.
3. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.

4. Initial Submittal Schedule: Submit concurrently with startup construction schedule. Include submittals required during the first (30) thirty days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
5. Final Submittal Schedule: Submit concurrently with the first complete submittal of Contractor's construction schedule.

    a. Submit revised submittal schedule as required to reflect changes in current status and timing for submittals.

6. Format: Arrange the following information in a tabular format:

    a. Scheduled date for first submittal.
    b. Specification Section number and title.
    c. Submittal Category: Action; informational.
    d. Name of subcontractor.
    e. Description of the Work covered.
    f. Scheduled date for Architect's final release or approval.
    g. Scheduled dates for purchasing.
    h. Scheduled date of fabrication.
    i. Scheduled dates for installation.

C. Submit the following submittals: Within (14) fourteen days of contract award.

1. Submittal Schedule including dates of anticipated review and approval.

    a. No submittals will be reviewed without an approved Submittal Schedule in place.

2. Subcontractor List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:

    a. Name, address, telephone number and email address of entities performing subcontract or supplying products.
    b. Number and title of related Specification Section(s) covered by subcontract.

3. Submit the required submissions from the following submittals:

    a. Section 010000 – General Requirements
    b. Section 010200 – Insurance Requirements
    c. Section 013000 – Special Procedures and Provisions
    d. Section 013200 – Project Schedule
    e. Section 013310 – Product Approval Standard
    f. Section 014529 – Testing Laboratory Services
    g. Section 015000 – Temporary Facilities and Controls
    h. Section 024119 – Selective Demolition
    i. Section 028200 – Asbestos Abatement
    j. Section 040100 – Masonry Restoration and Cleaning
    k. Section 040140 – Natural Stone Repair and Repointing
    l. Section 042000 – Unit Masonry
    m. Section 042150 – Thin Brick Masonry
    n. Section 042223 – Interior Glazed Masonry Units
    o. Section 042300 – Glass Unity Masonry
    p. Section 044000 – Belgian Block
    q. Section 047200 – Architectural Cast Stone
    r. Section 047300 – Manufactured Stone Veneer

D. Submit within the first (28) twenty-eight days after Contract Award.

1. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Section 014523 – Test, Inspections, and Special Inspections.
2. 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.
3. 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.
4. All remaining required submissions required for the project.

E. Submit a minimum (30) thirty days prior to Project Closeout:

1. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Section 017000 – Contract Closeout.

1.05 SUBMITTAL PROCEDURES

A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.

1. Submit electronic submittals via email as PDF electronic files or utilize other web-based software such as Procore or Submittal Exchange when provided by the Construction Manager, if applicable or Owner.

a. Architect will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.
b. Provide a digital signature with digital certificate on electronically submitted certificates and certifications where indicated.

2. Provide (6) six hard copies of submittals when requested by the Architect.

3. Transmittal Form for Electronic Submittals: Use electronic form acceptable to Owner, containing the following information:

a. Project name.
b. Date.
c. Name and address of Architect.
d. Name of Construction Manager, if applicable.
e. Name of Contractor.
f. Name of firm or entity that prepared submittal.
g. Names of subcontractor, manufacturer, and supplier.
h. Category and type of submittal.
i. Submittal purpose and description.
j. Specification Section number and title.
k. Specification paragraph number or drawing designation and generic name for each of multiple items.
l. Drawing number and detail references, as appropriate.
m. Location(s) where product is to be installed, as appropriate.
n. Related physical samples submitted directly.
o. Indication of full or partial submittal.
p. Transmittal number, numbered consecutively.
q. Submittal and transmittal distribution record.

r. Other necessary identification.
s. Notification of deviations from contract documents.
t. Remarks

B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment. Each product within a specification section shall have a separate submittal cover.

1. If information must be specially prepared for submittal because standard published data are unsuitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable. Send full submittals for each product. Partial submittals will not be reviewed until all required submittal information is received. The Architect will not be responsible for project delays due to the Contractor's failure to submit the required submittal information in a complete package.
3. Include the following information, as applicable:

a. Manufacturer's catalog cuts.
b. Manufacturer's product specifications.
c. Standard color charts.
d. Statement of compliance with specified referenced standards.
e. Testing by recognized testing agency.
f. Application of testing agency labels and seals.
g. Notation of coordination requirements.
h. Availability and delivery time information.

4. For equipment, include the following in addition to the above, as applicable:

a. Wiring diagrams that show factory-installed wiring.
b. Printed performance curves.
c. Operational range diagrams.
d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.

5. Submit Product Data before Shop Drawings, and before or concurrently with Samples.

C. Shop drawings: Original drawing, prepared by the Contractor, subcontractor, supplier, or distributor, which illustrates some portion of the work; showing fabrication, layout, setting or erection details. Prepare project-specific information for each shop drawing. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data, unless submittal based on Architect's digital data drawing files is otherwise permitted.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:

a. Identify details by reference to sheet and detail numbers shown on contract drawings.
b. Identification of products.
c. Schedules.
d. Compliance with specified standards.
e. Notation of coordination requirements.
f. Notation of dimensions established by field measurement.
g. Relationship and attachment to adjoining construction clearly indicated.
h. Description any conflicts with other trades.
i. Seal and signature of professional engineer if specified.

2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches, but no larger than 30 by 42 inches.

3. Submit Shop Drawings in the following format:

    a. PDF electronic file.

D. Samples: Physical examples to illustrate materials, equipment, or workmanship, and to establish standards by which completed work is judged. Submit Samples for review of type, color, pattern, and texture for a check of these characteristics with other materials.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.

2. Identification: Attach label on unexposed side of Samples that includes the following:

    a. Generic description of Sample.
    b. Product name and name of manufacturer.
    c. Sample source.
    d. Number and title of applicable Specification Section.
    e. Specification paragraph number and generic name of each item.

3. For projects where electronic submittals are required, provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record.

4. Disposition: Maintain sets of approved Samples at Project site, available for quality- control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
    a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
    b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor

5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units, showing the full range of colors, textures, and patterns available. Samples to be sufficient size and quantity to clearly illustrate:

    a. Functional characteristics of product or material, with related parts and method of attachment.
    b. Number of Samples: Submit (1) one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.

6. Field samples and mock-ups, as specified in technical sections.

    a. Erect on project site at location acceptable to Architect/Engineer.
    b. Construct samples or mock-up complete, including work of all trades required in finish work.

7. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

a. Number of Samples: Submit (3) three sets of Samples. Architect will retain (2) two Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a project record Sample.

1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least (3) three sets of paired units that show approximate limits of variations.

E. Manufacturer's Warranties:

1. The Contractor shall include in his submissions samples of all manufacturer's warranties indicating the correct time duration of the warranty as specified in the contract documents. If the documents do not specify a specific time duration, the manufacturer's standard time duration shall apply, but in no event shall it be less than the contractor's guarantee as specified in Section 017000.

F. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of Engineers and owners, and other information specified.

G. 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 forms. Include names of firms and personnel certified.

H. 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.

1.06 DELEGATED DESIGN SERVICES

A. Performance and Design Criteria: Where professional design services or certifications by a design professional 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 not sufficient to perform services or certification required, submit a written request for additional information to Architect.

B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF electronic file paper copies of certificate, signed and sealed by the responsible design professional, licensed in the State of New York, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

    1. 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.

1.07 ARCHITECT'S SHOP DRAWING STAMP ACTIONS

A. Submittals: Architect will review each submittal, make marks to indicate corrections or revisions required, and return it. Architect will respond to each submittal indicating one of the following actions required:

    1. FURNISH AS SUBMITTED (FAS): Architect takes no exception to the submittal. This part of the Work covered by the submittal may proceed provided it complies with requirements of the Contract Documents; final acceptance will depend upon that compliance.

    2. REJECTED (REJ): The submittal is rejected. See Architects comments on why submittal was rejected. Resubmit in accordance with the requirements of the Contract Documents.

        a. Submittal has not been reviewed by the Contractor and so noted.
        b. Submittal has been prepared without due regard for information called for or logically implied by the Contract Documents.
        c. Information is not sufficiently complete or accurate to verify that work represented is in accordance with the Contract Documents.

d. Do not permit submittals marked “Rejected” to be used at the Project Site, or elsewhere where Work is in progress.

3. FURNISH AS CORRECTED (FAC): No exceptions taken except what is identified by the Architect. The part of the Work covered by the submittal may proceed provided it complies with notations or corrections on the submittal and requirements of the Contract Documents; final acceptance will depend on that compliance. Furnish any additional related information as requested.

4. REVISE AND RESUBMIT (RAR): Revise the submittal based on the Architects comments and resubmit the submittal. Do not proceed with that part of the Work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal in accordance with the notations; resubmit without delay. Repeat if necessary to obtain a different action mark.

   a. Do not permit submittals marked “Revise and Resubmit” to be used at the Project Site, or elsewhere where Work is in progress.

5. RESUBMISSION NOT REQUIRED (RNR): Resubmission of the submittal is not required based on Architect’s comments.

1.08 CONTRACTOR RESPONSIBILITIES

A. All submissions are to be made directly to the Architect’s office. Each Contractor shall completely review, stamp, and sign his shop drawings, product data, and samples prior to submission to Architect. The Architect will not review any shop drawings unless first reviewed by the Contractor.

B. The Contractor's responsibility for errors and omissions in submissions is not relieved by Architect/Engineer's review of submissions.

C. The Contractor's responsibility for deviations in submissions from requirements of contract documents is not relieved by Architect/Engineer's review of submissions unless Architect/Engineer gives written acceptance of specific deviations.

D. All submissions shall be accompanied by a Letter of Transmittal, signed by the Contractor’s project manager. Notify Architect/Engineer, in writing at time of submission of deviations in submissions from requirements of contract documents. In addition, all submittals shall be accompanied by a signed and dated “Submittal Cover Sheet” for each item, which acknowledges the Contractors review for completeness, correctness and accuracy of each submitted item.

E. No portion of the work requiring submissions shall be started, fabricated, or installed until return of approved submissions to the contractor.

F. After Architect review, distribute copies of submissions to parties requiring same for coordinating of work.

G. Make required copies for distribution of shop drawings, and product data, that has been stamped and signed by the Architect.

1.09 CONTRACTOR PREPARATION, REVIEW, AND SUBMISSION OF SHOP DRAWINGS, SAMPLES, MANUFACTURER'S DATA, ETC.

A. It is the responsibility of the Contractor furnishing and/or installing materials and/or systems to these projects to field verify all existing and/or as-built conditions, as well as all conditions presently under construction that are interrelated in whole or in part to the furnishing and/or installing of such materials and/or systems.

B. It is the responsibility of the Contractor, to coordinate such field verification and be ultimately responsible for the accuracy of same prior to the submission of shop drawings for design intent review by the Architect/Engineer.

C. All submittals of shop drawings, materials, samples, etc. prepared by any subcontractor and/or supplier of the Contractor or by the Contractor themselves shall be reviewed by the Contractor, prior to the submission of same to the Architect/Engineer, for: contract document accuracy and equivalency (if applicable); total quantity of material provided; all dimensioning systems related; alteration to same if necessary to accommodate accepted field changes built or pending; interaction with other materials and/or systems furnished and/or installed by this Contractor or their subcontractors (i.e., field measurements for space allocation, accuracy to previous submittals of this Contractor, etc.); and interaction with materials and/or systems provided by other Contractors.

D. After the completion of such review as stated in 1.09C above, the Contractor shall signify same by having the following information on each and every submittal:

- Name of Contractor
- Date of Review by Contractor
- Note: This submittal has been reviewed by (Name of Contractor) in accordance with the contract documents describing and defining the requirements of such review.
- Signature of reviewer.
- Name of reviewer (printed).
- Title of reviewer (printed).

E. In compliance with 1.09D above, the Contractor shall submit in writing to the Architect/Engineer and Owner's representative (if any), prior to their first submission, the name and title of the reviewer who shall be an employee of the Contractor for review and acknowledgment of same.

F. If this project has a Construction Manager who is acting on the Owner's behalf and who has full-time construction site representation, the scheduling of submissions, the coordination, and interaction of other contractors, field conditions that affect the submission of, fabrication of, or installation of another Contractor's submission, fabrication, or installation shall be made known to the Owner's Representative.

G. Any resultant construction field condition that arises that is contrary to a submission made, that is conflicting with another Contractor's submission, the schedule for construction, or with another Contractor's constructed work shall be immediately identified by the Contractor(s) and make known to the Owner's Representative, and, if such condition causes any construction schedule delay, "rereview" by the Architect/Engineer, additional work of the Architect/Engineer (such as field review, "redesign" or document preparation); or "reconstruction" of any work already built and/or accomplished by another Contractor, the connection to such conditions and associated costs to accomplish same shall be the sole responsibility of the Contractor found negligent in causing such conditions.

H. No submission to the Architect/Engineer shall contain or utilize directly portions whole or in part of the contract documents, such as the reproduction of drawings, portions of the Project Manual, etc.

I. The Architect's office reserves the right to retain any submitted technical data and shop drawings in abeyance if: submissions are incomplete, improper number of samples are submitted, if submissions are not accompanied by a properly-executed submittal cover sheet/letter of transmittal, or until all associated/interrelated shop drawings or interrelated technical data are submitted. See "K" below.

J. Any submission not containing the information outlined and required in 1.09D above will not be reviewed by the Architect/Engineer for design intent, but rather rejected and sent back to the Contractor for review by same.

K. Any submission by the Contractor that requires coordination with another material and/or system provided by this Contractor or another Contractor that has been reviewed, by that Contractor and previously submitted to the Architect/Engineer may be rejected in whole or part by the Architect/Engineer, or held in abeyance by same until the corresponding and coordinating submittals are submitted as the concurrent review of all such submittals for design intent, may be deemed important by the Architect/Engineer. Any release given any entity other than the Architect/Engineer to fabricate, furnish, and install any material or system not reviewed by the Architect/Engineer for design intent shall become the sole responsibility of the releasing entity as well as the resolution of construction related issues or conflicts.

L. In addition, the Contractor shall not utilize nor refer to any schedule of work not created nor provided by the Architect/Engineer. The Contractor's method in establishing, defining, and/or substantiating their ability to maintain the schedule presented in these contract documents and as prepared by the Owner's representative shall be exclusive of a defined time period of submittal review.

M. The rejection or abeyance noted in the above subparagraph shall not be considered a delay or a reason for an extension of time in the construction schedule to the contract, as such cause for same shall have been brought upon by the Contractor not providing the "pre-coordination" necessary for such submissions.

N. The Architect is not legally bound to the approved construction schedule; only the Contractors are bound to the approved construction schedule. The Architect is not required to expedite reviews or comments in the effort to expedite any Contractors' submissions and/or construction schedule.

1.10 DISTRIBUTION OF SUBMISSIONS:

A. The Contractor shall distribute copies of shop drawings, product data, and/or samples which carry the Architect/Engineer approval stamp to:

1. Contractor's file (as required).
2. Job site file (as required).
3. Record document file (as required).
4. Other contractors, as required for coordination (as required).
5. Subcontractor (as required).
6. Suppliers and Fabricators (as required)
7. The Construction Manager, if applicable (2 copies).

B. Distribute samples as directed, by Architect/Engineer.

C. The Contractor will be responsible for the distribution of their approved drawings/cuts in a timely manner to other Contractors (and subcontractors) for coordination with their work. Any additional costs generated due to the lack of transfer information will be borne by the Contractor responsible for distribution. In the event the Contractor fails to distribute shop drawings/product information to other Contractors (and their subcontractors), the Owner reserves the right to have the Architect make the necessary copies and Federal Express to the parties involved. All costs incurred by the Architect will be back-charged to the Contractor responsible for distributing the shop drawings/product information.

D. Shop drawings/submittals returned to the Contractors for second resubmission will require a two (2) day turnaround on resubmission. Submittals requiring a second resubmission will result in charges for additional Architect/Engineer review time.

1.11 ARCHITECT/ENGINEER:

A. Review for:

1. Design concept of project.
2. Compliance with contract documents.

B. Review of separate items does not constitute review of an assembly in which item functions.

C. Stamp and initial or sign to review of submission.

D. Return submissions to Contractor for distribution.

E. Note: Based upon the amount of multiple submittals received in one day, and their content, unless they are specifically numbered by the Contractor for their order of relative importance on his Letter of Transmittal, the Architect shall establish the level of importance of each submittal, and shall be allowed sufficient time (in the Architect's professional judgement) to permit adequate review. Such submissions will be reviewed either: a) in the time order in which they were received by the Architect's office, b) in their natural progressive order of construction placement, or c) in order of preference, as determined by the Architect. As a result of multiple/sequential submissions, no delays in time, or Contractor hard or soft costs shall be implied or imposed onto the Architect. It is the Contractor's complete responsibility to adhere to the prepared Construction Schedule at all costs, including extended delays which may be incurred by time required for adequate review from the Architect's office.

F. Architect's Stamp: The Architect's stamp (indicating initials and date), affixed to any shop drawing, manufacturer's specification cut or sample is only for design concept conformance, and general compliance with the content of the contract documents. This does not relieve the Contractor of his/her responsibility to comply with the requirements of the Contract Documents.

PART TWO – PRODUCTS

NOT APPLICABLE

PART THREE – EXECUTION

NOT APPLICABLE

END OF SECTION

BBS ARCHITECTS
LANDSCAPE ARCHITECTS
ENGINEERS

244 EAST MAIN STREET | PATCHOGUE | NEW YORK 11772 | T. 631.475.0349 | F. 631.475.0361
187 WOLF ROAD, SUITE 205 | ALBANY | NEW YORK 12205 | T. 518.621.7650 | F. 518.621.7655
www.BBSARCHITECTURE.COM

Submittal Cover Sheet

Name of Contractor: _____

Project Name: _____

District Name: _____

Date: _____ Architect's Project No.: _____

Items Submitted: _____

Manufacturer: _____

Model No's: _____

Submission Number: _____ Spec Section: _____

Acknowledgement by Contractor: This submittal has been reviewed by the above named contractor in accordance with the contract documents describing and defining the requirements of such review

*Signature:*_____ *Title of reviewer (print)*_____

Name (print): _____ *Date of review:* _____

Notes:

CA-CCI-2018

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 013500 – COMMISSIONER REGULATIONS (PART 155.5) AND SAFETY STANDARDS

PART 1 – COMMISSIONER REGULATIONS (PART 155.5)

A. Monitoring of construction and maintenance activities:
The occupied portion of any school building shall always comply with the minimum requirements necessary to maintain a certificate of occupancy and shall be monitored during construction or maintenance activities for safety violations by school district personnel. It is the responsibility of the board of education or board of cooperative educational services to assure that these standards are continuously maintained when the building or any portion thereof is occupied.

B. Investigation and disposition of complaints relating to health and safety received as a result of construction and maintenance activities.
Boards of education and boards of cooperative educational services shall follow procedures established under section 155.4(d)(7) of this Part.

C. Pre-construction testing and planning for construction projects.

1. Boards of education and boards of cooperative educational services shall assure that proper planning is made for safety of building occupants during construction. For all construction projects for which bids are issued on or after September 30, 1999, such boards shall assure that safety is addressed in the bid specifications and contract documents before contract documents are advertised for bid. All school areas to be disturbed during renovation or demolition shall be tested for lead and asbestos. Appropriate procedures to protect the health of building occupants shall be included in the final construction documents for bidding.

2. Boards of education and boards of cooperative educational services shall establish procedures for involvement of the health and safety committee to monitor safety during school construction projects. The health and safety committees in school districts other than in cities with one million inhabitants or more shall be expanded during construction projects to include the project architect, construction manager, and the contractors. Such committee shall meet periodically to review issues and address complaints related to health and safety resulting from the construction project. In the case of a city school district in a city of one million inhabitants or more, the board of education shall submit procedures for protecting health and safety during construction to the commissioner for approval. Such procedures shall outline methods for compliance with this section.

3. The district emergency management plan shall be updated to reflect any changes necessary to accommodate the construction process, including an updated emergency exit plan indicating temporary exits required due to construction. Provisions shall be made for the emergency evacuation and relocation or release of students and staff in the event of a construction incident.

4. Fire drills shall be held to familiarize students and staff with temporary exits and revised emergency procedures whenever such temporary exits and revised emergency procedures are required.

D. Pre-construction notification of construction projects.
The board of education or board of cooperative educational services shall establish procedures for notification of parents, staff and the community in advance of a construction project of $10,000 or more to be conducted in a school building while the building is occupied. Such procedures shall provide notice at least two months prior to the date on which construction is scheduled to begin, provided that in the case of emergency construction projects, such notice shall be provided as far

in advance of the start of construction as is practicable. Such notice shall include information on the district's obligations under this section to provide a safe school environment during construction projects. Such notice requirement may be met by publication in district newsletters, direct mailings, or holding a public hearing on the project to inform parents, students, school personnel and community members.

E. General safety and security standards for construction projects.
1. All construction materials shall be stored in a safe and secure manner.
2. Fences around construction supplies or debris shall be maintained.
3. Gates shall always be locked unless a worker is in attendance to prevent unauthorized entry.
4. During exterior renovation work, overhead protection shall be provided for any sidewalks or areas immediately beneath the work site or such areas shall be fenced off and provided with warning signs to prevent entry.
5. Workers shall be required to wear photo identification badges at all times for identification and security purposes while working at occupied sites.

F. Separation of construction areas from occupied spaces.
Construction areas which are under the control of a contractor and therefore not occupied by district staff or students shall be separated from occupied areas. Provisions shall be made to prevent the passage of dust and contaminants into occupied parts of the building. Periodic inspection and repairs of the containment barriers must be made to prevent exposure to dust or contaminants. Gypsum board must be used in exit ways or other areas that require fire rated separation. Heavy duty plastic sheeting may be used only for a vapor, fine dust or air infiltration barrier, and shall not be used to separate occupied spaces from construction areas.

1. A specific stairwell and/or elevator should be assigned for construction worker use during work hours. In general, workers may not use corridors, stairs or elevators designated for students or school staff.

2. Large amounts of debris must be removed by using enclosed chutes or a similar sealed system. There shall be no movement of debris through halls of occupied spaces of the building. No material shall be dropped or thrown outside the walls of the building.

3. All occupied parts of the building affected by renovation activity shall be cleaned at the close of each workday. School buildings occupied during a construction project shall maintain required health, safety and educational capabilities at all times that classes are in session.

G. Maintaining exiting and ventilation during school construction projects.
The following information shall be included in all plans and specifications for school building projects:

1. A plan detailing how exiting required by the applicable building code will be maintained during construction. The plan shall indicate temporary construction required to isolate construction equipment, materials, people, dust, fumes, odors, and noise during the construction period. Temporary construction details shall meet code-required fire ratings for separation and corridor enclosure. At a minimum, required exits, temporary stairs, ramps, exit signs, and door hardware shall be provided at all times.

2. A plan detailing how adequate ventilation will be maintained during construction. The plan shall indicate ductwork which must be rerouted, disconnected, or capped in order to prevent contaminants from the construction area from entering the occupied areas of the building. The plan shall also indicate how required ventilation to occupied spaces affected by construction will be maintained during the project.

H. Fire and hazard prevention.

Areas of buildings under construction that are to remain occupied shall maintain a certificate of occupancy. In addition, the following shall be strictly enforced:

1. No smoking is allowed on public school property, including construction areas.
2. During construction daily inspections of district occupied areas shall be conducted by school district personnel to assure that construction materials, equipment or debris not block fire exits or emergency egress windows.
3. Proper operation of fire extinguishers, fire alarm, and smoke/fire detection systems shall be maintained throughout the project.

I. Noise abatement during construction and maintenance activities.

Construction and maintenance operations shall not produce noise in excess of 60 dba in occupied spaces or shall be scheduled for times when the building or affected building spaces are not occupied or acoustical abatement measures shall be taken. Noise level measurements (dba) shall be taken with a type 2 sound level meter in the occupied space in a location closest to the source of the noise. Complaints regarding excessive noise shall be addressed through the health and safety committee. The district should anticipate those times when construction noise is unacceptable and incorporate “no work” periods into the bid specifications.

J. Control of chemical fumes, gases, and other contaminants during construction and maintenance projects.

The bid specifications and construction contracts for each construction project shall indicate how and where welding, gasoline engine, roofing, paving, painting or other fumes will be exhausted. Care must be taken to assure fresh air intakes do not draw in such fumes.

1. The bid specifications shall require schedules of work on construction and maintenance projects which include time for off-gassing of volatile organic compounds introduced during construction before occupancy is allowed. Specific attention is warranted for activities including glues, paint, furniture, carpeting, wall coverings, and drapery. Manufacturers shall be contacted to obtain information regarding appropriate temperatures and times needed to cure or ventilate the product during use and before safe occupancy of a space can be assured. Building materials or furnishings which off-gas chemical fumes, gases, or other contaminants shall be aired out in a well ventilated heated warehouse before it is brought to the project for installation or the manufacturer's recommended off-gassing periods must be scheduled between installation and use of the space. If the work will generate toxic gases that cannot be contained in an isolated area, the work must be done when school classes and programs are not in session. The building must be properly ventilated and the material must be given proper time to cure or off-gas before re-occupancy.

2. Manufacturer's material safety data sheets (MSD) shall be maintained at the site for all products used in the project. MSDS must be provided to anyone who requests them. MSDS indicate chemicals used in the product, product toxicity, typical side effects of exposure to the product and safe procedures for use of the product.

K. Asbestos abatement protocols.

All asbestos abatement projects shall comply with all applicable Federal and State laws including but not limited to the New York State Department of Labor industrial code rule 56 (12 NYCRR 56), and the Federal Asbestos Hazard Emergency Response Act (AHERA), 40 CFR part 763 (Code of Federal Regulations, 1998 Edition, Superintendent of Public Documents, U.S. Government Printing Office, Washington, DC 20402; 1998; available at the Office of Facilities Planning, Education Building Annex, Room 1060, State Education Department, Albany, NY 12234). Large and small asbestos projects as defined by 12 NYCRR 56 shall not be performed while the building is occupied. Minor asbestos projects defined by 12 NYCRR 56 as an asbestos project involving the removal, disturbance, repair, encapsulation, enclosure or handling of 10 square feet or less of asbestos or asbestos material, or 25 linear feet or less of asbestos or asbestos material may be

performed in unoccupied areas of an occupied building in accordance with the above referenced regulations.

L. Lead paint.
Any construction or maintenance operations which will disturb lead based paint will require abatement of those areas pursuant to protocols detailed in the "Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing" (June 1995; U.S. Department of Housing and Urban Development, Washington, D.C. 20410; available at the Office of Facilities Planning, Education Building Annex, Room 1060, State Education Department, Albany, NY 12234). All areas scheduled for construction as well as areas of flaking and peeling paint shall be tested for the presence of lead and abated or encapsulated in accordance with the above noted guidelines.

M. Radon.
Districts shall take responsibility to be aware of the geological potential for high levels of radon and to test and mitigate as appropriate. This information is available from the New York State Department of Health Radon Measurement Database.

N. Post construction inspection.
The school district or board of cooperative educational services shall provide the opportunity for a walk-through inspection by the health and safety committee members to confirm that the area is ready to be reopened for use.

PART 2 – ADDITIONAL SAFETY STANDARDS

A. Certificate of Occupancy Statement: The existing building will be occupied during construction. Throughout the duration of construction, the contractor shall maintain the integrity of the existing structure. The occupied portion of any school building and required exits shall always comply with the minimum requirements necessary to maintain a certificate of occupancy.

B. Asbestos / Lead / Polychlorinated Biphenyls Test Letter: All existing school areas to be disturbed during renovation or demolition (existing facilities building envelope components, interior finishes and concealed utility infrastructure) have been tested for lead, asbestos and Polychlorinated Biphenyls containing materials in accordance with OSHA, EPA, DEC and DOH requirements. Material test results are provided within the Project Manual. If negative for asbestos, Item J below does not apply. If negative for Lead, Item K below does not apply. If negative for Polychlorinated Biphenyls (PCB) item L does not apply.

C. Safety and Security Standards for Construction Projects: Throughout the duration of this construction project, the following general safety and security standards shall be maintained by all Contractors on site:

1. All construction materials shall be delivered during the times as stipulated by the School District. Locations for on-site storage shall be coordinated with the Owner's Representative.

2. Temporary construction fencing shall be erected around construction activity areas in accordance with Specification Section 015000. When indicated in the drawings, construction fencing will be shown on the Construction Implementation Plans. All fencing around construction activity areas shall be maintained to restrict unauthorized access and prevent students from entering site. Fencing around construction supplies or debris shall be maintained.

3. Gates securing construction activity areas shall be secured and locked at all times unless manned by contractor personnel to prevent unauthorized access. Signs stating "Caution –

Construction Activity Area Construction Personnel Only, Unauthorized Access Prohibited" shall be posted at all entry points and 75' intervals along security fence.

D. Provisions shall be made to prevent the passage of dust and contaminants into occupied parts of the building in accordance with Specification Section 015000.

1. Contractors shall remove large amounts of construction debris and rubbish from the building using enclosed chutes or other similar sealed system to contain dust and other particulate. No material shall be dropped or thrown outside the walls of the building. Removal of construction debris and rubbish shall be through construction areas only, there shall be no movement of debris through halls of occupied spaces of the building.

2. Dust and debris generated by construction activities in occupied parts of the building shall be cleaned by the Contractor at the close of each workday in accordance with the General Requirements of Division 01, Specification Sections 013200 and 015000. The Contractor is responsible to maintain all health, safety, public address systems and educational capabilities of occupied areas within the school building at all times that classes are in session.

E. Exiting Plan: A plan showing how exits required by NYS Building Code will be maintained. This is typically shown within CIP and/or Code Compliance Plans.

F. Ventilation During Construction: A plan showing how required ventilation will be maintained during construction. This is typically shown within CIP and/or Code Compliance Plans.

G. Construction Noise: Construction and maintenance operations shall not produce noise in excess of 60 DBA in occupied spaces, or shall be scheduled for times when the building or affected building spaces are not occupied or acoustical treatments shall be placed so as to abate the excessive noise levels. Acoustic treatments shall be prescribed by the Architect and supplied and installed by the Contractor.

H. Construction Fume Control: The Contractor shall be responsible for the control of chemical fumes, gasses and other contaminates produced by welding, gasoline or diesel engines, roofing, paving, painting, etc., to ensure they do not enter occupied portions of the building or air intakes.

I. Off-Gassing Control: The Contractor shall be responsible for ensure that activities and materials which result in "off-gassing" of volatile organic compounds such as glues, paints, furniture, carpeting, wall covering, drapery, etc. are scheduled, cured, or ventilated in accordance with manufacturer's recommendations before a space can be occupied.

J. Asbestos Code Rule 56 Compliance: Where so indicated by positive test results, portions of the project may entail the removal of asbestos containing material as defined by 12NYCRR56. Large and small asbestos abatement projects (as defined by 8 NYCRR 155.5(k)) shall not be performed while the building is occupied. (Definition of "building", as referenced in this section, means a wing or major section of a building that can be completely isolated from the rest of the building with sealed non-combustible construction.) The isolated portions (the occupied portion and the portion under construction) of the building must contain separate code compliant exits. The ventilation systems must be physically separated and sealed at the isolation barrier(s).

Removal of asbestos containing material shall only be performed when the building, as defined above, is unoccupied. The Contractor shall verify that the building has been vacated prior to commencing asbestos abatement work. If the building is configured such that the affected area can be completely isolated from the unaffected areas with sealed non-combustible construction barriers, then the unaffected areas can remain occupied provided required exits are maintained independently in both areas.

Removal of asbestos containing materials on the exterior of the building such as flashing, roofing, siding or soffit and caulking may be performed on occupied buildings provided all variances have been granted and the occupants have been notified of the intention to remove asbestos containing material. Complete isolation of ventilation systems supplying the occupied spaces and windows must be maintained throughout the removal duration.

Asbestos TEM: Where so indicated by positive test results, the asbestos abatement area shall be completely sealed off from the rest of the building and completely cleaned and tested by TEM prior to re-entry by the public.

K. Lead Abatement Projects: At interior painted surfaces which have tested Positive for Lead: Portions of walls that will be disturbed as a requirement of this contract shall be removed in accordance with the Lead Safety Plan included within the Project Manual. This section clearly references OSHA regulations to be followed, and clean-up and testing associated with lead abatement must be done in strict conformance with HUD protocol. Locations where construction activity requires the removal of lead containing materials shall be completely isolated from occupied portions of the building using a construction barrier. The Contractor shall have all surrounding areas tested for lead levels prior to commencing work and after work has been completed to ensure that surrounding areas have not been contaminated by removals.

L. PCB Projects: Any window caulking tested and found to contain PCBs must be removed in accordance with U.S. EPA regulations under the Toxic Substances Control Act (40 CFR 761.62). Soil areas adjacent to windows containing PCBs must follow the 40 CFR 761.62 criteria. A site-specific abatement plan must be developed to address potential environmental and public health concerns. Steps for abating contamination and preventing contamination of nearby areas must be done in accordance with HUD Technical Guidelines for the Evaluating and Control of Lead Based Paint Hazards in Housing.

Removal of PCB containing materials on the exterior of the building such as caulking may be performed on occupied buildings provided all variances have been granted and the occupants have been notified of the intention to remove PCB containing material. Complete isolation of ventilation systems supplying the occupied spaces and windows must be maintained throughout the removal duration.

M. Fire Prevention: Any holes in floors or walls shall be sealed with a fire-resistant material whose rating meets or exceeds that of the construction to which it is attached.

END OF SECTION

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 014213 – ABBREVIATIONS AND SYMBOLS

PART 1 - GENERAL

1.01 DESCRIPTION

A. This Section lists and defines various common abbreviations which are used throughout the Contract Documents.

B. Abbreviations of organizations and federal agencies which publish standards, codes, and regulations are defined in Section 014219 – Applicable Standards.

C. Other abbreviations and symbols may be found in legends and elsewhere on the Drawings. Piping material abbreviations are contained in the piping sections.

D. Should an abbreviation or symbol not be specifically defined, it shall carry the standard definition commonly used in the industry.

E. Whenever any doubt arises as to what an abbreviation or symbol means, notify Engineer and he will issue a definition in writing.

1.02 ABBREVIATIONS

A. The following is a list of commonly used abbreviations which may be found in the Contract Documents, and the meanings ascribed to them:

A.C. or ac	Alternating Current
a or A	Amperes
AFF	Above Finished Floor
amp or Amp	Amperes
Alum.	Aluminum
Asph.	Asphalt
AWG.	American Wire Gauge
Aux.	Auxiliary
Bit. Conc.	Bituminous Concrete
CB	Circuit Breaker
Cl.	Class
cm	Centimeter
C.O.	Clean out
Conc.	Concrete
Cont.	Continuous
Cu.	Cubic
cc	Cubic Centimeters
C.F.	Cubic Feet
CFM or cfm	Cubic Feet Per Minute
CFS or cfs	Cubic Feet Per Second
C.Y.	Cubic Yards
CT	Current Transformer
D.C. or dc	Direct Current
DFT.	Dry Film Thickness
Dia.	Diameter
DWG. or Dwg.	Drawing
Dr.	Drive

Ea. or ea.	Each
EF	Each Face
EW	Each Way
Eff. or eff.	Efficiency
El. or Elev.	Elevation
Fin. Gr.	Finished Grade
fps	Feet Per Second
Ft. or ft.	Feet
ftg.	Footing
g.	Grams
Ga. or ga.	Gauge
Gal. or gal.	Gallon
Galv.	Galvanized
GPD or gpd	Gallons Per Day
GPM or gpm	Gallons Per Minute
H-O-A	Hand-off-automatic
Hz. or hz	Hertz
I.D.	Inside Diameter
Inv.	Invert
KVA or kva	Kilovolts-amperes
Kw or kw	Kilowatts
kwh or KWH	Kilowatt-hours
Lbs. or lbs.	Pounds
L.F.	Linear Feet
LPA	Lighting Panel "A"
L.S.	Lump Sum
m.	Meters
mA	Milliamperes
Max. or max.	Maximum
MCC	Motor Control Center
mg.	Milligrams
MGD or mgd	Million Gallons Per Day
mi.	Miles
Min. or min	Minimum
mm	Millimeters
No. or no.	Number
nom.	Nominal
N.T.S.	Not To Scale
O.D.	Outside Diameter
O & M	Operations and maintenance
Oz. or oz.	Ounce
pb	Pushbutton
PPD	Pounds Per Day
P/B	Pullbox
pri.	Primary
psf	Pounds Per Square Foot
psi	Pounds Per Square Inch,
psig	Pounds Per Square Inch, Gauge Pressure
PT	Potential Transformer
Pvt. or Pvmt.	Pavement
R.	Radius
R.O.W.	Right-of-Way
Sch.	Schedule
sec.	Secondary or Seconds
S.F.	Square Feet
S/S/P/	Stop-start-pilot Station

Std. or std.	Standard
S.Y.	Square Yards
T&B	Top and Bottom
Typ.	Typical
U.O.N.	Unless Otherwise Noted
U.V.	Ultraviolet
V or v	Volts
Vac or VAC	Alternating current Voltage
Vdc or VDC	Direct Current Voltage
V.F.	Vertical Feet
Vol.	Volume
W or w	Watts
Yd. or yd.	Yards

1.03 SYMBOLS

A. The following is a list of commonly used symbols which may be found in the Contract Documents, and the meanings ascribed to them:

P	Phase, Diameter, or Round (as applicable)
D	Degrees (F. = Fahrenheit C. = Centigrade)
'	Feet or Minutes
"	Inches or Seconds
#	Number or Pound
/	Per or Divided by

PART 2 - EXECUTION

(NOT UTILIZED)

PART 3 - EXECUTION

(NOT UTILIZED)

END OF SECTION

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 014219 – APPLICABLE STANDARDS

PART 1 - GENERAL

1.01 GENERAL

A. Work included:

1. Throughout the Contract Documents, reference is made to codes and standards which establish qualities and type of workmanship and materials, and which establish methods for testing and reporting on the pertinent characteristics.

2. Where materials or workmanship are required by these Contract Documents to meet or exceed the specifically named code or standard, it is the Contractor's responsibility to provide materials and workmanship, which meet or exceed the specifically named code or standard.

3. It is also the Contractor's responsibility, when so required by the Contract Documents or by written request from the Architect, to deliver to the Architect all required proof that the materials or workmanship, or both, meet or exceed the requirements of the specifically named code or standard. Such proof shall be in the form requested in writing by the Architect, and generally will be required to be copies of a certified report of tests conducted by a testing agency approved for that purpose by the Architect.

B. Related Documents:

1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.

C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

D. Rejection of non-complying items: The Architect reserves the right to reject items incorporated into the Work, which fail to meet the specified minimum requirements. The Architect further reserves the right, and without prejudice to other recourse the Architect may take, to accept non-complying items subject to and adjustment in the Contract Amount as approved by the Architect and the Owner.

1.03 ABBREVIATIONS AND ACRONYMS

A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale's "Encyclopedia of Associations: National Organizations of the U.S." or in Columbia Books' "National Trade & Professional Associations of the United States. “

B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web sites are subject to change and are believed to be accurate and up-to-date as of the date of the Contract Documents.

C. Applicable standards listed in these Specifications include, but not necessarily limited to, standards promulgated by the following agencies and organizations:

1. AABC - Associated Air Balance Council; www.aabc.com.
2. AAMA - American Architectural Manufacturers Association; www.aamanet.org.
3. AASHTO - American Association of State Highway and Transportation Officials; www.transportation.org.
4. AATCC - American Association of Textile Chemists and Colorists; www.aatcc.org.
5. ABMA - American Bearing Manufacturers Association; www.americanbearings.org.
6. ABMA - American Boiler Manufacturers Association; www.abma.com.
7. ACI - American Concrete Institute; (Formerly: ACI International); www.concrete.org.
8. ACPA - American Concrete Pipe Association; www.concrete-pipe.org.
9. AEIC - Association of Edison Illuminating Companies, Inc. (The); www.aeic.org.
10. AF&PA - American Forest & Paper Association; www.afandpa.org.
11. AGA - American Gas Association; www.aga.org.
12. AHAM - Association of Home Appliance Manufacturers; www.aham.org.
13. AHRI - Air-Conditioning, Heating, and Refrigeration Institute (The); www.ahrinet.org.
14. AI - Asphalt Institute; www.asphaltinstitute.org.
15. AIA - American Institute of Architects (The); www.aia.org.
16. AISC - American Institute of Steel Construction; www.aisc.org.
17. AISI - American Iron and Steel Institute; www.steel.org.
18. AITC - American Institute of Timber Construction; www.aitc-glulam.org.
19. AMCA - Air Movement and Control Association International, Inc.; www.amca.org.
20. ANSI - American National Standards Institute; www.ansi.org.
21. AOSA - Association of Official Seed Analysts, Inc.; www.aosaseed.com.
22. APA - APA - The Engineered Wood Association; www.apawood.org.
23. APA - Architectural Precast Association; www.archprecast.org.
24. API - American Petroleum Institute; www.api.org.
25. ARI - Air-Conditioning & Refrigeration Institute; (See AHRI).
26. ARI - American Refrigeration Institute; (See AHRI).
27. ARMA - Asphalt Roofing Manufacturers Association; www.asphaltroofing.org.
28. ASCE - American Society of Civil Engineers; www.asce.org.
29. ASCE/SEI - American Society of Civil Engineers/Structural Engineering Institute; (See ASCE).
30. ASHRAE - American Society of Heating, Refrigerating and Air-Conditioning Engineers; www.ashrae.org.
31. ASME – ASME International; (American Society of Mechanical Engineers); www.asme.org.
32. ASSE - American Society of Safety Engineers (The); www.asse.org.
33. ASSE - American Society of Sanitary Engineering; www.asse-plumbing.org.
34. ASTM - ASTM International; www.astm.org.
35. ATIS - Alliance for Telecommunications Industry Solutions; www.atis.org.
36. AWEA - American Wind Energy Association; www.awea.org.
37. AWI - Architectural Woodwork Institute; www.awinet.org.
38. AWMAC – Architectural Woodwork Manufacturers Association of Canada; www.awmac.com.
39. AWPA - American Wood Protection Association; www.awpa.com.

40. AWS - American Welding Society; www.aws.org.
41. AWWA - American Water Works Association; www.awwa.org.
42. BHMA - Builders Hardware Manufacturers Association; www.buildershardware.com.
43. BIA - Brick Industry Association (The); www.gobrick.com.
44. BICSI - BICSI, Inc.; www.bicsi.org.
45. BIFMA - BIFMA International; (Business and Institutional Furniture Manufacturer's Association); www.bifma.org.
46. BISSC - Baking Industry Sanitation Standards Committee; www.bissc.org.
47. BWF - Badminton World Federation; (Formerly: International Badminton Federation); www.bissc.org.
48. CDA - Copper Development Association; www.copper.org.
49. CE - Conformite Europeenne; http://ec.europa.eu/growth/single-market/ce-marking/.
50. CEA - Canadian Electricity Association; www.electricity.ca.
51. CEA - Consumer Electronics Association; www.ce.org.
52. CFFA - Chemical Fabrics and Film Association, Inc.; www.chemicalfabricsandfilm.com.
53. CFSEI - Cold-Formed Steel Engineers Institute; www.cfsei.org.
54. CGA - Compressed Gas Association; www.cganet.com.
55. CIMA - Cellulose Insulation Manufacturers Association; www.cellulose.org.
56. CISCA - Ceilings & Interior Systems Construction Association; www.cisca.org.
57. CISPI - Cast Iron Soil Pipe Institute; www.cispi.org.
58. CLFMI - Chain Link Fence Manufacturers Institute; www.chainlinkinfo.org.
59. CPA - Composite Panel Association; www.pbmdf.com.
60. CRI - Carpet and Rug Institute (The); www.carpet-rug.org.
61. CRRC - Cool Roof Rating Council; www.coolroofs.org.
62. CRSI - Concrete Reinforcing Steel Institute; www.crsi.org.
63. CSA - CSA Group; www.csagroup.com.
64. CSA - CSA International; www.csa-international.org.
65. CSI - Construction Specifications Institute (The); www.csinet.org.
66. CSSB - Cedar Shake & Shingle Bureau; www.cedarbureau.org.
67. CTI - Cooling Technology Institute; (Formerly: Cooling Tower Institute); www.cti.org.
68. CWC - Composite Wood Council; (See CPA).
69. DASMA - Door and Access Systems Manufacturers Association; www.dasma.com.
70. DHI - Door and Hardware Institute; www.dhi.org.
71. ECA - Electronic Components Association; (See ECIA).
72. ECAMA - Electronic Components Assemblies & Materials Association; (See ECIA).
73. EIA - Electronic Industries Alliance; (See TIA).
74. EIMA - EIFS Industry Members Association; www.eima.com.
75. EJMA - Expansion Joint Manufacturers Association, Inc.; www.ejma.org.
76. ESD - ESD Association; (Electrostatic Discharge Association); www.esda.org.
77. ESTA - Entertainment Services and Technology Association; (See PLASA).
78. EVO - Efficiency Valuation Organization; www.evo-world.org.
79. FIBA - Federation Internationale de Basketball; (The International Basketball Federation); www.fiba.com.
80. FIVB - Federation Internationale de Volleyball; (The International Volleyball Federation); www.fivb.org.
81. FM Approvals - FM Approvals LLC; www.fmglobal.com.
82. FM Global - FM Global; (Formerly: FMG - FM Global); www.fmglobal.com.
83. FRSA - Florida Roofing, Sheet Metal & Air Conditioning Contractors Association, Inc.; www.floridaroof.com.
84. FSA - Fluid Sealing Association; www.fluidsealing.com.
85. FSC - Forest Stewardship Council U.S.; www.fscus.org.
86. GA - Gypsum Association; www.gypsum.org.
87. GANA - Glass Association of North America; www.glasswebsite.com.
88. GS - Green Seal; www.greenseal.org.
89. HI - Hydraulic Institute; www.pumps.org.
90. HI/GAMA - Hydronics Institute/Gas Appliance Manufacturers Association; (See AHRI).

91. HMMA - Hollow Metal Manufacturers Association; (See NAAMM).
92. HPVA - Hardwood Plywood & Veneer Association; www.hpva.org.
93. HPW - H. P. White Laboratory, Inc.; www.hpwhite.com.
94. IAPSC - International Association of Professional Security Consultants; www.iapsc.org.
95. IAS - International Accreditation Service; www.iasonline.org.
96. ICBO - International Conference of Building Officials; (See ICC).
97. ICC - International Code Council; www.iccsafe.org.
98. ICEA - Insulated Cable Engineers Association, Inc.; www.icea.net.
99. ICPA - International Cast Polymer Alliance; www.icpa-hq.org.
100. ICRI - International Concrete Repair Institute, Inc.; www.icri.org.
101. IEC - International Electrotechnical Commission; www.iec.ch.
102. IEEE - Institute of Electrical and Electronics Engineers, Inc. (The); www.ieee.org.
103. IES - Illuminating Engineering Society; (Formerly: Illuminating Engineering Society of North America); www.ies.org.
104. IESNA - Illuminating Engineering Society of North America; (See IES).
105. IEST - Institute of Environmental Sciences and Technology; www.iest.org.
106. IGMA - Insulating Glass Manufacturers Alliance; www.igmaonline.org.
107. IGSHPA - International Ground Source Heat Pump Association; www.igshpa.okstate.edu.
108. ILI - Indiana Limestone Institute of America, Inc.; www.iliai.com.
109. Intertek - Intertek Group; (Formerly: ETL SEMCO; Intertek Testing Service NA); www.intertek.com.
110. ISA - International Society of Automation (The); (Formerly: Instrumentation, Systems, and Automation Society); www.isa.org.
111. ISAS - Instrumentation, Systems, and Automation Society (The); (See ISA).
112. ISFA - International Surface Fabricators Association; (Formerly: International Solid Surface Fabricators Association); www.isfanow.org.
113. ISO - International Organization for Standardization; www.iso.org.
114. ISSFA - International Solid Surface Fabricators Association; (See ISFA).
115. ITU - International Telecommunication Union; www.itu.int/home.
116. KCMA - Kitchen Cabinet Manufacturers Association; www.kcma.org.
117. LMA - Laminating Materials Association; (See CPA).
118. LPI - Lightning Protection Institute; www.lightning.org.
119. MBMA - Metal Building Manufacturers Association; www.mbma.com.
120. MCA - Metal Construction Association; www.metalconstruction.org.
121. MFMA - Maple Flooring Manufacturers Association, Inc.; www.maplefloor.org.
122. MFMA - Metal Framing Manufacturers Association, Inc.; www.metalframingmfg.org.
123. MHIA - Material Handling Industry of America; www.mhia.org.
124. MIA - Marble Institute of America; www.marble-institute.com.
125. MMPA - Moulding & Millwork Producers Association; www.wmmpa.com.
126. MPI - Master Painters Institute; www.paintinfo.com.
127. MSS - Manufacturers Standardization Society of The Valve and Fittings Industry Inc.; www.mss-hq.org.
128. NAAMM - National Association of Architectural Metal Manufacturers; www.naamm.org.
129. NACE - NACE International; (National Association of Corrosion Engineers International); www.nace.org.
130. NADCA - National Air Duct Cleaners Association; www.nadca.com.
131. NAIMA - North American Insulation Manufacturers Association; www.naima.org.
132. NBGQA - National Building Granite Quarries Association, Inc.; www.nbgqa.com.
133. NCAA - National Collegiate Athletic Association (The); www.ncaa.org.
134. NCMA - National Concrete Masonry Association; www.ncma.org.
135. NEBB - National Environmental Balancing Bureau; www.nebb.org.
136. NEC - National Electrical Code (See NFPA).
137. NECA - National Electrical Contractors Association; www.necanet.org.
138. NeLMA - Northeastern Lumber Manufacturers Association; www.nelma.org.
139. NEMA - National Electrical Manufacturers Association; www.nema.org.
140. NFHS - National Federation of State High School Associations; www.nfhs.org.

141. NFPA - National Fire Protection Association; www.nfpa.org.
142. NFPA - NFPA International; (See NFPA).
143. NFRC - National Fenestration Rating Council; www.nfrc.org.
144. NHLA - National Hardwood Lumber Association; www.nhla.com.
145. NLGA - National Lumber Grades Authority; www.nlga.org.
146. NOFMA - National Oak Flooring Manufacturers Association; (See NWFA).
147. NOMMA - National Ornamental & Miscellaneous Metals Association; www.nomma.org.
148. NRCA - National Roofing Contractors Association; www.nrca.net.
149. NRMCA - National Ready Mixed Concrete Association; www.nrmca.org.
150. NSF - NSF International; www.nsf.org.
151. NSPE - National Society of Professional Engineers; www.nspe.org.
152. NSSGA - National Stone, Sand & Gravel Association; www.nssga.org.
153. NTMA - National Terrazzo & Mosaic Association, Inc. (The); www.ntma.com.
154. NWFA - National Wood Flooring Association; www.nwfa.org.
155. PCI - Precast/Prestressed Concrete Institute; www.pci.org.
156. PDI - Plumbing & Drainage Institute; www.pdionline.org.
157. PLASA - PLASA; (Formerly: ESTA - Entertainment Services and Technology Association); www.plasa.org.
158. RCSC - Research Council on Structural Connections; www.boltcouncil.org.
159. RFCI - Resilient Floor Covering Institute; www.rfci.com.
160. RIS - Redwood Inspection Service; www.redwoodinspection.com.
161. SAE - SAE International; www.sae.org.
162. SCTE - Society of Cable Telecommunications Engineers; www.scte.org.
163. SDI - Steel Deck Institute; www.sdi.org.
164. SDI - Steel Door Institute; www.steeldoor.org.
165. SEFA - Scientific Equipment and Furniture Association (The); www.sefalabs.com.
166. SEI/ASCE - Structural Engineering Institute/American Society of Civil Engineers; (See ASCE).
167. SIA - Security Industry Association; www.siaonline.org.
168. SJI - Steel Joist Institute; www.steeljoist.org.
169. SMA - Screen Manufacturers Association; www.smainfo.org.
170. SMACNA - Sheet Metal and Air Conditioning Contractors' National Association; www.smacna.org.
171. SMPTE - Society of Motion Picture and Television Engineers; www.smpte.org.
172. SPFA - Spray Polyurethane Foam Alliance; www.sprayfoam.org.
173. SPIB - Southern Pine Inspection Bureau; www.spib.org.
174. SPRI - Single Ply Roofing Industry; www.spri.org.
175. SRCC - Solar Rating & Certification Corporation; www.solar-rating.org.
176. SSINA - Specialty Steel Industry of North America; www.ssina.com.
177. SSPC - SSPC: The Society for Protective Coatings; www.sspc.org.
178. STI - Steel Tank Institute; www.steeltank.com.
179. SWI - Steel Window Institute; www.steelwindows.com.
180. SWPA - Submersible Wastewater Pump Association; www.swpa.org.
181. TCA - Tilt-Up Concrete Association; www.tilt-up.org.
182. TCNA - Tile Council of North America, Inc.; www.tileusa.com.
183. TEMA - Tubular Exchanger Manufacturers Association, Inc.; www.tema.org.
184. TIA – Telecommunications Industry Association (The); (Formerly: TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance); www.tiaonline.org.
185. TIA/EIA - Telecommunications Industry Association/Electronic Industries Alliance; (See TIA).
186. TMS - The Masonry Society; www.masonrysociety.org.
187. TPI - Truss Plate Institute; www.tpinst.org.
188. TPI - Turfgrass Producers International; www.turfgrasssod.org.
189. TRI - Tile Roofing Institute; www.tileroofing.org.
190. UL - Underwriters Laboratories Inc.; www.ul.com.
191. UNI - Uni-Bell PVC Pipe Association; www.uni-bell.org.
192. USAV - USA Volleyball; www.usavolleyball.org.
193. USGBC - U.S. Green Building Council; www.usgbc.org.

194. USITT - United States Institute for Theatre Technology, Inc.; www.usitt.org.
195. WA - Wallcoverings Association; www.wallcoverings.org.
196. WASTEC - Waste Equipment Technology Association; www.wastec.org.
197. WCLIB - West Coast Lumber Inspection Bureau; www.wclib.org.
198. WCMA - Window Covering Manufacturers Association; www.wcmanet.org.
199. WDMA - Window & Door Manufacturers Association; www.wdma.com.
200. WI - Woodwork Institute; www.wicnet.org.
201. WSRCA - Western States Roofing Contractors Association; www.wsrca.com.
202. WWPA - Western Wood Products Association; www.wwpa.org.

D. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is believed to be accurate as of the date of the Contract Documents.

1. DIN - Deutsches Institut fur Normung e.V.; www.din.de.
2. IAPMO – International Association of Plumbing and Mechanical Officials; www.iapmo.org.
3. ICC - International Code Council; www.iccsafe.org.
4. ICC-ES - ICC Evaluation Service, LLC; www.icc-es.org.

E. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Information is subject to change and is up to date as of the date of the Contract Documents.

1. COE - Army Corps of Engineers; www.usace.army.mil.
2. CPSC - Consumer Product Safety Commission; www.cpsc.gov.
3. DHHS - Department of Health and Human Services; www.hhs.gov.
4. DOC - Department of Commerce; National Institute of Standards and Technology; www.nist.gov.
5. DOD - Department of Defense; www.quicksearch.dla.mil.
6. DOE - Department of Energy; www.energy.gov.
7. EPA - Environmental Protection Agency; www.epa.gov.
   Part 61, Sub-Part M
   National Air Emissions Standards for Hazardous
   Air Pollutants (NESHAP)
   40 CFR Paret 763, Subpart E
   Asbestos Hazard Emergency Response Act (AHERA)
8. FAA - Federal Aviation Administration; www.faa.gov.
9. FG - Federal Government Publications; www.gpo.gov/fdsys.
10. GSA - General Services Administration; www.gsa.gov.
11. HUD - Department of Housing and Urban Development; www.hud.gov.
12. LBL - Lawrence Berkeley National Laboratory; Environmental Energy Technologies Division; www.eetd.lbl.gov.
13. NIOSH – National Institute for Occupational Safety & Health; www.cdc.gov/niosh/index.htm.
14. OSHA - Occupational Safety & Health Administration; www.osha.gov.
15. SD - Department of State; www.state.gov.
16. TRB - Transportation Research Board; National Cooperative Highway Research Program; The National Academies; www.trb.org.
17. USDA - Department of Agriculture; Agriculture Research Service; U.S. Salinity Laboratory; www.ars.usda.gov.
18. USDA - Department of Agriculture; Rural Utilities Service; www.usda.gov.
19. USDOJ - Department of Justice; Office of Justice Programs; National Institute of Justice; www.ojp.usdoj.gov.
20. USP - U.S. Pharmacopeial Convention; www.usp.org.
21. USPS - United States Postal Service; www.usps.com.

F. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.

1. CFR - Code of Federal Regulations; Available from Government Printing Office; www.gpo.gov/fdsys.
2. DOD - Department of Defense; Military Specifications and Standards; Available from DLA Document Services; www.quicksearch.dla.mil.
3. DSCC - Defense Supply Center Columbus; (See FS).
4. FED-STD - Federal Standard; (See FS).
5. FS - Federal Specification; Available from DLA Document Services; www.quicksearch.dla.mil.
   a. Available from Defense Standardization Program; www.dsp.dla.mil.
   b. Available from General Services Administration; www.gsa.gov.
   c. Available from National Institute of Building Sciences/Whole Building Design Guide; www.wbdg.org.
6. MILSPEC - Military Specification and Standards; (See DOD).
7. USAB - United States Access Board; www.access-board.gov.
8. USATBCB - U.S. Architectural & Transportation Barriers Compliance Board; (See USAB).

G. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.

1. CBHF - State of California; Department of Consumer Affairs; Bureau of Electronic and Appliance Repair, Home Furnishings and Thermal Insulation; www.bearhfti.ca.gov.
2. CCR - California Code of Regulations; Office of Administrative Law; California Title 24 Energy Code; www.calregs.com.
3. CDHS - California Department of Health Services; (See CDPH).
4. CDPH - California Department of Public Health; Indoor Air Quality Program; www.cal- iaq.org.
5. CPUC - California Public Utilities Commission; www.cpuc.ca.gov.
6. SED/SLD - State Education Department and State Labor Department; www.nysed.gov & dol.ny.gov.
7. SCAQMD - South Coast Air Quality Management District; www.aqmd.gov.
8. TFS - Texas A&M Forest Service; Sustainable Forestry and Economic Development; www.txforestservice.tamu.edu.

PART 2 – PRODUCTS

(Not Used)

PART 3 – EXECUTION

(Not Used)

END OF SECTION

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 014523 – TESTS, INSPECTIONS & SPECIAL INSPECTIONS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and General Provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to Work of this Section.

1.02 SCOPE / SUMMARY

A. Scope: This project will require both general inspections and special inspections coordinated with all required testing and certifications throughout the Project Manual and/or the Building Code of the State of New York, as listed below. The Project Manual shall be carefully reviewed by the Prime Contractors for actual and detailed descriptions concerning responsibilities with regard to testing parameters. All testing which is assigned to a Prime Contractor shall be borne as a part of their submitted Base Bid for this project, and shall not be subject to additional costs to the Owner. There are specific general inspections, as well as coordination of inspections, which are to be included in each Prime Contractor's Base Bid submitted; refer to each specification section for complete information. ***Note: The cost of all General and Special Inspections performed by the independent testing laboratory/laboratories retained by the Owner shall be directly borne by the Owner, implemented by and coordinated through the Owner's Representative and/or the Construction Manager.***

B. Summary:

1. This Section includes responsibilities relating to quality control services and extent of quality control services to be performed.

2. Related Work Specified Elsewhere

    a. Section 014529 – Testing Laboratory Service.

3. Definitions: Quality control services include inspections and tests, special inspections and actions related thereto including reports, but do not include contract enforcement activities performed directly by Architect/Engineer. Quality control services include those inspections and tests, special inspections and related actions performed by independent agencies and governing agencies as well as directly by Contractor.

    a. Testing service is required to immediately notify the Architect and the Construction Manager of discrepancies observed in the Work performed and to be performed to the Contract Documents.

4. Inspections, tests, special inspections and related actions specified in this Section and elsewhere in Contract Documents are not intended to limit a Contractor's quality control procedures which facilitate compliance with requirements of Contract Documents.

5. Requirements for quality control services by Contractor, as requested or to be requested by Architect/Engineer, Owner, governing authorities, or other authorized entities are not limited by provisions of this Section.

6. Contractors shall review and become familiar with the requirements of Article 13.5, Tests and Inspections, of the General and Supplementary Conditions covering the provisions for testing of the Work.

1.03 RESPONSIBILITIES

A. Contractor shall coordinate with independent testing agency performing inspections, tests, and quality control services.

1. Construction Manager will schedule services of independent testing agency to perform services so specified. When no Construction Manager is hired by the Owner, it will be the Contractor's contractual responsibility to schedule the services of independent testing.

2. The Owner will pay for services of the independent testing laboratory, awarded through the Owner's Representative. Source of services as well as payment and rates of payments will be as directed by the Owner's Representative. Testing specified herein shall be performed at a minimum. Construction Manager or Architect may request additional testing; payment for additional testing is subject to the provisions of the General Conditions.

B. Retest Responsibility: Where results of required inspection, test, or similar service are unsatisfactory (do not indicate compliance of related work with requirements of Contract Documents), retests are responsibility of Contractor. Retesting of work revised or replaced by Contractor is Contractor's responsibility, where required tests were performed on original work. Retesting shall be performed by testing laboratory as directed by the Owner's Representative.

C. Responsibility for Associated Services: Contractor is required to cooperate with independent agencies performing required inspections, tests, and similar services. Provide auxiliary services as reasonably requested, including access to work, the taking of samples or assistance with the taking of samples, delivery of samples to test laboratories, and security and protection for samples and test equipment at project site.

D. Coordination: Contractor and each engaged independent agency performing inspections, tests, and similar services for project are required to coordinate and sequence activities so as to accommodate required services with minimum delay of work and without the need for removal/replacement of work to accommodate inspections and tests. It is the contractual responsibility of the Contractor to continually notify the Owner's Representative of all scheduling of times for inspections, tests, taking of samples, and similar activities.

1.04 SAMPLING AND TESTING (GENERAL)

A. Sampling and testing are required for the following Sections of Work and, unless otherwise indicated, shall be performed by an independent testing lab and paid for by the Owner through the Owner's Representative. ***Note: Certain sections indicated under this item also have specific BCNYS Special Testing & Inspection requirements, which shall be conducted in conformance with BCNYS Chapter 17 guidelines; all special testing & inspection costs shall be borne by the Owner. Refer to item 1.22 for the listing of special inspections required. Where an item may be duplicated under both general and special inspections, only one set of testing is required; special inspection requirements shall prevail.***

1. Section 033000 – Cast-in-Place Concrete: Inspection of reinforcing steel placement; field quality control of concrete; tests for concrete materials and mix design tests (slump, air content, temperature, compression test, compressive strength tests (cylinders) taken at 7 & 28 days. Testing of FF/FL floor tolerances.

2. Section 033000 – Cast-in-Place Concrete: Curbs: Random batch testing shall be made. Refer to 03311, 2.01.C.2 for additional information. ***Note: this item also has specific BCNYS***

Special Testing & Inspection requirements, which shall be conducted in conformance with BCNYS Chapter 17 guidelines; all special testing & inspection costs shall be borne by the Owner.

3. Section 035416 – Self Leveling Cementitious Underlayment: Field quality control slump testing and cubes tested in accordance with ASTM C109. Refer to 035416 for additional information.

4. Section 042000 – Unit Masonry: Field quality control of unit masonry and masonry assemblies.

5. Section 051200 – Structural Steel Framing: Field quality control for welds; field quality control for high strength steel torqued bolted connections; field quality control for structural steel alignment.

6. Section 051200 – Structural Steel Framing: Source quality control (per 051200) materials and fabrication procedures; Per 015200 – Inspection of high-strength bolted connections, shop and field welding.

7. Section 052100 – Steel Joist Framing: Source quality control SJI (Steel Joist Institute) certifications through steel fabricator. Inspection of high-strength bolted connections, shop and field welding.

8. Section 053000 – Metal Decking: GC to supply certified shop drawings per Section 053000.

9. Section 054000 – Cold Formed Metal Framing: for field quality control.

10. Section 078100 – Spray-Applied Fire Resistive Materials: Conduct testing per 078100 requirements.

11. Section 078413 – Penetration Firestopping: Conduct testing per 078413 requirements.

12. Section 078443 – Joint Firestopping: Conduct testing per 078443 requirements.

13. Section 085113 – Aluminum Windows: Field quality control testing per 085113.

14. Section 099000 – Paints: Field quality control for painting.

15. Section 221000 – Plumbing Domestic Water Piping System: Plumbing Contractor to conduct testing per 221000.

16. Section 221316 – Plumbing Sanitary Piping System: Plumbing Contractor to conduct testing per 221316.

17. Section 221400 – Plumbing Storm Water Piping System: Plumbing Contractor to conduct testing per 221400.

18. Section 230593 – Inspection, Testing & Balancing: HVAC Contractor to conduct testing per 230593.

19. Section 260500 – General Provisions – Electrical Contractor to conduct testing per 260500 requirements.

20. Section 262416 – Panelboards: Electrical Contractor to conduct testing per 262416 requirements.

21. Section 284613 – Fire Alarm System: Electrical Contractor to conduct testing per 284613 requirements.

22. Section 310000 – Earthwork – Daily testing of in-situ soil, submitted to the Owner's Representative.

23. Section 310000 – Earthwork: Soil testing and inspection service during earthwork operations for subgrades and fill.

24. Section 310000 – Earthwork – Excavating, Backfilling & Compacting for Utilities: Testing at intervals not exceeding 200'-0" of trench for first and every other 8" lift of compacted trench backfill.

25. Section 310000 – Earthwork – Excavating, Backfilling & Compacting: Testing at intervals not exceeding 200'-0" of trench for first and every other 8" lift of compacted trench backfill. Refer to 02224, 3.09A for additional information.

26. Section 321216 – Asphalt Paving: Field density testing, moisture & density relationship, mechanical analysis, plasticity index, base material, thickness and compaction, source testing. Refer to 02230, 3.02A-D for additional information.

27. Section 321216 – Asphalt Paving: Testing paid for by General Contractor – Per 02602, 3.04B, testing of finished surface of the base course shall be accomplished by the GC; utilizing a 16 foot straight edge (a 10 foot straight edge used on vertical curves).

28. Section 321216 – Asphalt Paving: Quality control testing of uncompacted asphalt concrete mix and in-place compacted pavement.

Note: For those projects utilizing a Construction Manager, the Construction Manager's involvement with testing shall be limited to coordinating, documenting (recording the date, time, location and type of test being performed), witnessing, filing copies of reports prepared by the testing agency, and transmitting copies of the reports to the Owner. The reports shall be prepared by the testing agency in accordance with criteria established by 1.04 of this Section and BCNYS Chapter 17 and in a format approved by, the Architect/Engineer. Where no Construction Manager is retained, the coordination and documentation of all required tests shall be the complete and sole responsibility of the Prime Contractor responsible for the work being tested in conjunction with the testing agency.

Note: The Construction Manager will coordinate and document (recording the date, time, location and type of test being performed) all special inspections or testing as required by BCNYS Chapter 17 requirements.

B. Additional Information: All Prime Contractors shall review all specifications of their disciplines for additional information concerning general testing services necessary for this project. The list provided above shall not be considered mutually exclusive.

C. Test procedures to be used shall be submitted for approval of the Owner's Representative where other than those specified are recommended by the testing agency.

1.05 QUALIFICATION OF LABORATORY

A. Shall meet "Recommended Requirements of Independent Laboratory Qualifications," published by American Council of Independent Laboratories. For concrete and steel the laboratory shall comply with the basic requirements of ASTM E 329, "Standards of Recommended Practice for Inspection and Testing Agencies for Concrete and Steel as Used in Construction."

B. Submit copy of report of inspection of facilities made by Materials Reference Laboratory of National Bureau of Standards during most recent tour of inspection; with memorandum of remedies of deficiencies reported by inspection.

C. Testing equipment shall be calibrated at maximum 12 month intervals by devices of accuracy traceable to either:
   1. National Bureau of Standards.
   2. Accepted values of natural physical constants.
   3. Submit copy of certificate of calibration, made by accredited calibration agency.

D. Refer to Section 014529 – Testing Laboratory Service for additional requirements.

E. Laboratory is not authorized to:

   1. Release, revoke, alter or enlarge on requirements of Contract documents.
   2. Approve or accept portion of work.
   3. Perform duties of the Contractor.

1.06 SUBMITTALS

A. Testing document submittal procedures shall be as requested by the Construction Manager and the Architect.

B. Promptly submit two (2) copies to the Owner's Representative one (1) to be turned over to the Owner), two (2) copies directly to the Architect/Engineer, and one (1) to the Contractor of reports of inspections and test, including the following information, as applicable:

   1. Date issued.

   2. Project title and number.

   3. Testing laboratory name and address.

   4. Name and signature of field inspector.

   5. Date of inspection or sampling.

   6. Record of temperature and weather.

   7. Name and signature of laboratory inspector.

   8. Identification of product and specification section.

   9. Location in project.

   10. Designation of the work and test method.

   11. Observations regarding compliance with Contract Documents.

   12. Complete inspection or test data.

   13. Test results and interpretation of test results.

   14. Recommendation on retesting.

1.07 SOIL COMPACTION TESTING

A. The Contractors for the Work of Division 31 specification – “Earthwork” shall cooperate and coordinate with the soil testing and inspection service for quality control testing during earthwork operations as follows:

1. Field density test reports.

2. One optimum moisture-maximum density curve for each type of soil encountered.

3. The Contractor shall arrange for Soils Engineer to be on the site for observation and testing during times when the following operations are being performed:

   a. Proofrolling.

   b. Compaction of subgrades and fill. During compaction operations, the Soils Engineer shall carefully monitor existing foundations to detect possible foundation movements. If movement is detected, Work shall be stopped and the Architect immediately notified.

B. Percentage of Maximum Density Requirements: Provide not less than following percentages of maximum density of soil material compacted at optimum moisture content, for the actual density of each layer of soil material in place.

1. Foundations: Compact top 12 inches of subgrade and each 8-inch layer of backfill or fill material to 95 percent Modified Proctor maximum dry density.

2. Building Slabs and Steps: Compact top 12 inches of subgrade and each 8 inch layer of backfill or fill material to 95 percent Modified Proctor maximum dry density.

3. Lawn, Unpaved Areas, and Borrow Pit: Compact top 6 inches of subgrade and 8 inch layer of backfill or fill material to 90 percent Modified Proctor maximum dry density.

4. Walkways: Compact top 6 inches of subgrade and each 8-inch layer of backfill or fill material to 95 percent Modified Proctor maximum dry density.

5. Pavements: Compact top 12 inches of subgrade and each 8-inch layer of backfill or fill material to 95 percent Modified Proctor maximum dry density.

6. Underground Utilities: Provide the preceding requirements for the respective utility location(s).

7. Underground Piping and Conduit Outside Building:

   a. Bedding shall begin by placing 4 to 6 inch bedding of the approved backfill material and compacting to between 85 to 90 percent of the Modified Proctor Maximum Dry Density. The width of the bedding shall be the diameter of the pipe plus 2 feet.

   b. Haunching shall consist of placing the approved backfill material to the spring line of the pipe and conduit and compacting between 85 to 90 percent of the Modified Proctor Maximum Dry Density. This lift shall not exceed 9 inches loose. The pipe and conduit bedding and flow line shall not be disturbed as a result of the haunching operation.

   c. Initial backfill shall consist of placing the approved backfill material to the top of the pipe and conduit and compacting to between 85 and 90 percent of the Modified Proctor Maximum Dry Density. This lift shall not exceed 9 inches loose. Crushed or buckled pipe and conduit as a result of the backfilling operations will be removed and replaced with no additional payment.

d. Initial backfill shall continue in 6-inch lifts with the approval backfill material to a depth of 12 inches above the pipe.

e. Finish backfilling of the trench shall consist of placing the approved backfill or material from the trench excavation in 6-inch lifts to the grade of the trench. Finish backfilling within paved areas shall continue to the base of the compacted aggregate with the approved backfill material.

8. Retaining Walls: Compact each 8 inch layer of backfill or fill material to 95 percent Standard Proctor Maximum Dry Density.

C. Quality Control Testing During Construction: Testing service must inspect and approve subgrades and fill layers before further construction work is performed thereon. Tests of subgrades and fill layers will be taken as follows:

1. Footing Subgrade: For each strata of soil on which footings will be placed, conduct at least one test to verify required design bearing capacities. Subsequent verification and approval of each footing subgrade may be based on a visual comparison of each subgrade with related tested strata, when acceptable to Architect, except that a minimum of one test shall be performed for each 15,000 sq.ft. of building area.

2. Paved areas and Building Slab Subgrade: Make at least on field density test of subgrade for every 2,000 sq.ft. of paved area or building slab, but in no case less than 3 tests.

3. Foundation and Retaining wall Backfill: Take at least 2 field density tests, at locations and elevations as directed.

4. Trench Backfill: For each compacted backfill layer make one field density test between each drainage structure.

D. If, in the opinion of the Architect, based on reports of testing service and inspection, subgrade or fills which have been placed are below specified density, additional compaction work and testing shall be provided by the Contractor for the Section of Work involved at no additional expense, until subgrades or fills meet or exceed specified density.

1.08 BITUMINOUS PAVING TESTING

A. The Contractor for the Work of Division 32 specification “Asphalt Pavement” shall cooperate and coordinate with the testing laboratory to perform field inspection of the pavement work, unless specifically noted otherwise.

B. Field quality control testing shall be performed during paving operations. Perform the following sampling and testing of asphalt concrete mixtures for quality control during paving operations. Record the locations where samples are taken to correlate with subsequent testing.

C. Test uncompacted asphalt concrete mix and report the following:

1. Sampling: AASHTO T168 (ASTM D979).

2. Asphalt Cement Content: AASHTO T164 (ASTMD2172).

3. Perform at least one initial test for paving, unless otherwise specified or directed.

D. Test in-place, compacted pavement for density and thickness, as herein specified. Perform one test for each 500 sq.yds. but not less than one test per day, unless otherwise specified or directed.

E. The Contractor shall pay for and perform additional Work and testing as may be required if any of the previous tests indicate insufficient values or if directed by the Architect. Continue Work and testing until specified values have been attained.

F. Asphalt concentrate material not complying with specified requirements will not be acceptable. The Contractor shall repair or remove and replace defective paving as directed by the Architect, at no additional cost to the Owner.

1.09 INSPECTION OF REINFORCING STEEL PLACEMENT

A. The Contractor for the Work of Division 03 specifications for "Cast-In-Place Concrete", shall cooperate and coordinate with the testing laboratory to perform field inspection of the placement of reinforcing steel prior to, and in some specified instances during the placement of concrete structures, unless specifically noted otherwise.

B. Inspection shall include the following:

1. All structures:

    a. Size of all reinforcing bars.
    b. Measurement of bar laps.
    c. Spacing of reinforcing bars.
    d. Measurement of reinforcing concrete cover.
    e. Adequacy of reinforcement ties to prevent movement during concrete placement.
    f. Placement of reinforcing chairs, bolsters, and concrete blocks supporting reinforcement.
    g. Condition of reinforcing free of corrosion scale, grease, oil, and other foreign materials which would reduce bond of concrete to reinforcement.

2. Slabs-on-Grade:

    a. Nominal size of welded wire fabric.
    b. Measurement of fabric lap.
    c. Type, size, and spacing of supports for welded wire fabric.
    d. Adequacy of maintaining welded wire fabric in correct position during the concrete placement. If concrete workers walk on fabric during concrete placement, is fabric lifted back in to correct position prior to set of concrete. (THE TESTING LABORATORY SHALL BE PRESENT DURING THE PLACEMENT OF SLABS-ON-GRADE, WHICH USE WELDED WIRE FABRIC OR REINFORCING STEEL BARS).
    e. Slabs-on-grade with fibrous reinforcement do not require this inspection.

C. The Testing Laboratory shall report inspection results in writing to the Architect, Construction Manager, and Contractor the same day that tests are made. Reports shall indicate the specific structural items inspected and the location, with column grid references, where possible to clearly identify the inspected items.

D. Additional Inspections: Where inspections indicate deficiencies and concrete placement of any structural item is made without this required inspection, the testing laboratory shall conduct additional tests, including concrete coring, magnetic detection devices, sonic testing devices, and other methods as required to verify the conformance of the reinforcing steel placement to the Contract Documents. The Contractor shall pay for such inspections conducted and other additional inspections as may be required when unacceptable or un-inspected reinforcing steel placement is verified.

1.10 CONCRETE TESTING

A. The Contractor for the Work of Division 03 specification for “Cast-In-Place Concrete”, shall cooperate and coordinate with testing laboratory to perform field quality control testing during concrete work under Division 03.

B. Quality Control Testing During Construction: Perform sampling and testing for field quality control during the placement of concrete, as follows:

1. Sampling Fresh Concrete: ASTM C172, except modified for slump to comply with ASTM C94.

2. Slump: ASTM C143, one test for each concrete load at point of discharge, and one for each set of compressive strength test specimens.

3. Air Content: ASTM C231, pressure method; one for every other concrete load at point of discharge or when the indication of change requires.

4. Concrete Temperature: Test hourly when air temperature is 40 degrees F. and below and when 80 degrees F. and above; and each time a set of compressive test specimens is made.

5. Compression Test Specimens: ASTM C31, one set of 4 standard cylinders for each compressive strength test, unless otherwise directed. Mold and store cylinders for laboratory cured test specimens except when field-cure test specimens are required.

6. Compressive Strength Tests: ASTM C39, one set for each day’s placement exceeding 5 cu. yds. plus additional sets for each 50 cu. yds. over and above the first 25 cu. yds. of each concrete class placed in any one day; one specimen tested at 7 days, two specimens tested at 28 days, and one specimen retained in reserve for later testing if required.

    a. When the frequency of testing will provide less than 5 strength tests for a given mix design, conduct testing strength tests for a given mix design, conduct testing from at least 5 randomly selected batches or from each batch if fewer than 5 are used.

    b. When the total quantity of a given mix design of concrete is less than 50 cu.yds., the strength tests may be waived by the Architect if, in his judgment, adequate evidence of satisfactory strength is provided.

    c. When the strength of field-cured cylinders is less than 85 percent of companion laboratory cured cylinders, evaluate current operations and provide corrective procedures for protecting and curing the in-place concrete.

C. The testing laboratory shall report test results in writing to the Architect, Construction Manager, Contractor, and ready-mix supplier on the same day that tests are made. Reports of compressive strength tests shall contain the project identification name and number, date of concrete placement, name of Contractor, name of concrete supplier and truck number, name of concrete testing service, concrete type and class, location of concrete batch in the structure, design compressive strength at 28 days, concrete mix proportions and materials, type and amount of fibrous reinforcement, compressive breaking strength, and type of break for both 7 day tests and 28 day tests.

D. Additional Tests: The testing service will make additional tests of in-place concrete, as directed by the Architect, when test results indicate the specified concrete strengths and other characteristics have not been attained in the structure. The testing service shall conduct tests to determine the strength and other characteristics of the in-place concrete by compression tests on cored cylinders complying with ASTM C42 or by load testing specified in ACI 318 or other acceptable nondestructive testing methods, as directed. The Contractor shall pay for such tests conducted and other additional testing as may be required, when unacceptable concrete is verified.

E. Evaluation of Quality Control Tests: Do not use concrete delivered to the final point of placement, which has slump or total air content outside the specified values.

1. Compressive strength tests for laboratory-cured cylinders will be considered satisfactory if the averages of all sets of 3 consecutive compressive strength tests results equal or exceed the 28 day design compressive strength of the type or class of concrete; and no individual strength test falls below the required compressive strength by more than 500 psi.

2. Strength tests of specimens cured under field conditions may be required by the Architect to check the adequacy of curing and protecting of the concrete placed. Specimens shall be molded by the field quality control laboratory at the same time and from the same samples as the laboratory cured specimens.

   a. Provide improved means and procedures for protecting concrete when the 28 day compressive strength of field cured cylinders is less than 85 percent of companion laboratory cured cylinders.

   b. When laboratory cured cylinder strengths are appreciably higher than the minimum required compressive strength, field cured cylinder strengths need not exceed the minimum required compressive strength by more than 500 psi even thought the 85 percent criterion is not met.

   c. If individual tests of laboratory cured specimen produce strengths more than 500 psi below the required minimum compressive strength or if tests of field cured cylinders indicates deficiencies in protection and curing, provide additional measures to assure that the load-bearing capacity of the structure is not jeopardized. If the likelihood of low-strength concrete is confirmed and computations indicate the load-bearing capacity may have been significantly reduced, tests of cores drilled from the area in question may be required.

3. If the compressive strength tests fail to meet the minimum requirements specified, the concrete represented by such tests will be considered deficient in strength.

F. Deficient concrete shall be removed and replaced by the Contractor without additional cost to the Owner.

1.11 CONCRETE MATERIALS AND MIX DESIGN

A. Concrete Materials and Mix Design: The Contractor(s) for Division 03 specification “Cast-In-Place Concrete” shall provide the following in conformance with the requirements of the Division 03 specifications:

1. Ready-mixed concrete shall be mixed and delivered in accordance with ASTM C94.

2. Product Data: Submit copies of manufacturer’s specifications with application and installation instructions for proprietary materials and items, including admixtures, bonding agents, waterstops, joint systems, chemical floor hardeners, and dry shake finish materials.

3. Laboratory Test Reports: Submit copies of laboratory test reports for concrete materials and mix design tests. The Architect’s review will be for general information only. Production of concrete to comply with specified requirements is the Contractor’s responsibility.

4. Mix Design: Submit copies of concrete mix designs for each type of mix required by the Concrete Schedule indicating the amount of each ingredient (by weight) in one cubic yard of concrete, the calculated water/cement ratio, and the slump.

B. Tests for Concrete Materials:

1. For normal weight concrete, test aggregates by the methods of sampling and testing of ASTM C33.

2. For lightweight concrete, test aggregates by the methods of sampling and testing of ASTM C330.

    a. For portland cement, sample the cement and determine the properties by the methods of test of ASTM C33.

3. Submit written reports for each material sampled and tested, prior to the start of Work. Provide the project identification name and number, date of report, name of Contractor, name of concrete testing service, source of concrete aggregates, material manufacturer and brand name for manufactured materials, values specified in the referenced specification for each material, and test results. Indicate whether or not material is acceptable for intended use.

C. Submit signed statement from ready-mix plant that concrete furnished for the Project will exactly conform to the approved design mixes.

1.12 TESTS FOR FF/FL (Refer to Division 03 specification for “Cast-In-Place Concrete”)

1.13 TESTS FOR MORTAR

A. The Contractor for the Work of Division 04 – “Unit Masonry”, shall cooperate with a separate testing laboratory to perform field quality control testing during the masonry work under Division 04 – “Unit Masonry”, unless specifically noted otherwise.

B. For colored and noncolored mortars test for compressive strength by the methods of sampling and testing of ASTM C109 and ASTM C780.

1. Provide a minimum of one set of cubes for testing per 5,000 sq.ft. of masonry wall construction and as directed by Architect.

C. Submit written reports for each material sampled and tested. Provide the project identification name and number, date of report, name of contractor, name of testing service, source of aggregates, material manufacturer and brand name for manufactured materials, values specified in the referenced specification for each material, and test results. Indicate whether or not material is acceptable for intended use.

D. If the compressive strength tests fail to meet the minimum requirements specified, the mortar represented by such tests will be considered deficient in strength.

E. Deficient mortar shall be removed and replaced by the Contractor without additional cost to the Owner.

1.14 TESTS FOR GROUT

A. The Contractor for the Work of Division 04 – “Unit Masonry”, shall cooperate with a separate testing laboratory to perform field quality control testing during the masonry work under the Division 04 specification, which covers “Masonry Grout”, unless specifically noted otherwise.

B. Grout for filling reinforced or unreinforced concrete masonry cores or brick cavities test for compressive strength by methods as described in Division 04 section covering – “Masonry Grout”.

1. Provide a minimum of one set of 3 test specimens for testing per 5,000 square feet of masonry wall construction or for each ready-mix truck load of grout and as directed by the Architect.

C. Submit written reports for each material sampled and tested. Provide the project identification name and number, date of report, name of Contractor, name of testing service, source of aggregates, material manufacturer and brand name for manufactured materials, values specified in the reference specification for each material, specific location where material represented by sample is used, slump and compression test results. Indicate whether or not material is acceptable for intended use.

D. If the compressive strength tests fail to meet the minimum requirements specified, the grout represented by such tests shall be considered deficient in strength.

E. Deficient grout shall be removed and replaced by the Contractor without additional cost to the Owner.

1.15 TESTS OF CONCRETE MASONRY PRISMS

A. The Contractor for the work of Division 04 specification – "Unit Masonry", shall cooperate with a separate testing laboratory to perform field quality control testing during the masonry work under Division 04 specification – "Unit Masonry".

B. When required by the masonry plan, construct a set of 3 masonry prisms using mortar and concrete masonry units to be used in the masonry work. Unless otherwise noted, construct prisms 8 inches by 8 inches by 16 inches high (nominal) in compliance with ASTM E447, Method B.

C. When prism tests are required to establish the strength of masonry in lieu of Masonry Inspection, provide a minimum of one set of 3 masonry prisms for testing for each 5000 sq.ft. (gross) of masonry wall construction.

D. Submit written reports for each prism tested. Provide the project identification name and number, date of report, name of Contractor, name of testing service, name of material suppliers, specific location where masonry represented by the prism is used, compression test strength results, and specified required strength.

E. If the compressive strength tests fail to meet the minimum strength specified in the Plans, the masonry represented by the tests shall be considered deficient.

F. When tests indicating deficient masonry represent masonry already constructed, such masonry shall be removed and replaced by the Contractor without additional cost to the Owner. In lieu of removal and replacement, additional cores may be grouted as required and directed by the Architect without additional cost to the Owner.

1.16 MASONRY INSPECTION

A. Provide masonry construction inspection of concrete or brick masonry walls to insure that masonry construction is in conformance with the Contract Documents. Masonry inspection is required for those masonry elements, which must be constructed to attain high design strengths.

B. Qualification of Inspection Agency: Refer to Section 014529 – "Testing Laboratory Service". Individual inspector shall be certified as a masonry construction inspector by the National Concrete Masonry Association or by a qualified state Masonry Institute or Association.

C. Inspection shall use NCMA-TEK 18-3 Quality Assurance as a guideline.

D. The individual or individuals who will perform the masonry inspection shall be present for the Pre-Masonry Conference.

E. The masonry inspector shall prepare a written report or reports for each day of inspection. The format for this report shall be furnished by the Owner's Representative upon request.

F. The masonry inspector shall be present and observe all masonry construction operations in walls requiring inspections. The masonry inspector shall be present at the project site within sufficient time, in advance of grouting operations, to inspect the construction to insure its conformance to the Contract Documents and that grouting may proceed. No grouting shall be permitted unless the masonry inspector is present and has indicated that the masonry construction is properly prepared for the grouting operation.

1.17 WELDING QUALITY CONTROL

A. Welding operators shall be qualified under the provisions of the AWS Structural Welding Code on test pieces in positions and with clearances equivalent to those actually to be encountered in construction. Welders shall make only those types of welds for which they are specifically certified.

B. Welds requiring inspection shall be so indicated in the Drawings.

1. Welds indicated as requiring visual inspection shall be visually inspected by an independent inspector, acceptable to the Architect, prequalified by the American Welding Society Qualification Test.

C. The Contractor performing the welding requiring visual inspection shall coordinate with an independent testing service, acceptable to the Architect to perform weld testing.

D. Submit written reports for each weld tested. Provide project identification and number, date of report, name of Welding Contractor, name of testing service, location of weld, type of weld, and test results. Indicate whether or not weld is acceptable for intended use.

E. If by inspection welds fail to meet minimum acceptable criteria, the welds shall be cut out and replaced at no additional cost to the Owner.

1.18 BOLTED STRUCTURAL CONNECTIONS QUALITY CONTROL

A. The Contractor for the work of the Division 5 specification for *"Structural Steel"* shall cooperate with a separate testing laboratory, to perform field quality control inspection of slip-critical and snug-tight bolted connections.

B. Inspection of slip-critical connections shall be visual. The inspector shall be present at the beginning of steel erection to insure that the erector is conforming to the Contract Documents and AISC Specifications. The inspector shall verify that the erector is marking the bolts and nuts prior to the turn-of-nut procedure. Ten percent of all slip-critical bolted connections shall be observed as they are installed. Any connections, which, in the opinion of the inspector, do not meet the tightening requirements of the Contract Documents, shall be corrected by the erector.

1. Inspection of snug-tight connections shall be made by use of a spud wrench. Ten percent of all snug-tight bolted connections selected randomly over the entire limits of the building structure shall be tested to verify tightness. If more than 20 percent of the bolts tested do not meet the General Requirements of the Contract Documents, the erector shall be required to retighten all snug-tight bolted connections on the Project.

1.19 STRUCTURAL STEEL ALIGNMENT QUALITY CONTROL

A. The Contractor for the Work of the Division 05 specification section "Structural Steel", shall cooperate with a separate testing laboratory, to perform field measurement of structural steel beams, columns, joist, and deck alignment.

B. Alignment shall be measured and compared to AISC “Code of Standard Practice for Steel Buildings and Bridges”.

C. The Testing Agency shall submit, to the Architect, a written report summarizing the measurements performed and the equipment used in the fieldwork. Where alignment fails to meet AISC requirements, the Contractor for the work in “Structural Metal Framing” shall make the required corrections.

1.20 COLD FORMED METAL FRAMING QUALITY CONTROL

A. The Contractor shall cooperate with a separate testing laboratory to perform field quality control inspections.

1. Test and inspect cold formed metal framing used for exterior curtain wall system to verify framing meets the following specified and indicated items:

a. Thickness of framing members (gauge).
b. Spacing of framing members.
c. Attachment details of framing members to structural substrate.
d. Supplemental bracing and reinforcement are correctly provided including spacing, size and type of bracing and thickness of bracing.

1.21 FIRE RESISTANT PENETRATIONS & JOINTS QUALITY CONTROL

A. The Contractor shall cooperate with a separate testing laboratory to perform field quality control inspections in accordance with NYS BC 1705.17.

1. A pre-construction meeting shall take place to discuss the application of firestop protection systems including the coordination of work among trades and each contractor’s responsibility of the installation of firestop systems for the penetrations and joints.

2. The pre-construction meeting should address the following:

a. Agree on all the penetrations to be protected in accordance with the approved construction plans.
b. Schedule the trades work in conjunction with the firestop installation work.
c. Schedule the firestop inspections and coordinate with the firestop contractor work.

3. The Contractor shall cooperate with a separate testing laboratory to perform field quality control inspections. Major elements of quality firestopping inspections are as follows:

a. Firestop systems must not be concealed from view before being inspected and approved.
b. Walk through visual inspections should be made during the firestop installation.
c. When necessary or required, destructive evaluation will be made on various types of firestop systems.
d. Flashlights, coring device and other appropriate tools make a proper inspection easier.
e. Proper depths, annular space and product types are critical to the effectiveness of the system.
f. Construction documents detailing the firestop locations and systems must be kept on site to assist in the conduct of the inspection.
g. Observe that empty containers, wrappings or boxes of the specified materials are in sufficient quantity to have been installed correctly.
h. Observe that the actual products, containers, wrappings or boxes are labeled with the approved testing agency marks and are as specified in the submitted details.

i. Measure the depth and width of materials as indicated in the details (sometimes density measurements are also required for products such as thermal insulation).
j. Observe that joints have been installed in such manner that the required movement can be achieved (temporary screws used to hold studs to ceiling runners must be removed).
k. Compare the installed firestop system with the approved submitted details.
l. Observe a reasonable degree of workmanship, which would indicate compliance with the specified designs.
m. Deficient installations must immediately be corrected and then re-inspected before concealment.

1.22 PAINTING QUALITY CONTROL

A. The Contractor for the Work of Section 099000 – "Painting", shall cooperate with a separate testing laboratory to perform field quality control testing of painted finishes.

B. Wet Film Thickness:

1. Wet film thickness shall be tested at the rate of one reading per 1000 sq. ft. of painted surface. Ten random locations for readings will be chosen throughout building.

2. Wet film thickness shall be as specified in Section 099000 – "Painting"; or if not specified, as specifically recommended by the paint manufacturer for the type of substrate, type of paint and system used, and application methods and coverage requirements.

3. Testing Instrument:

a. Wet Film Thickness Gage, KTA-Tator, Inc., Pittsburgh, PA.

C. Dry Film Thickness:

1. Dry film thickness shall be tested at the rate of 5 readings per 100 sq.ft. of painted surface. Twenty random locations for readings will be chosen throughout the building.

2. Average of all readings for a given area or surface area to be within the dry film thickness range specified in Section 099000 – Paints, and no individual reading should be more than 20 percent below the specified dry film thickness.

3. Testing instruments; shall be destructive or nondestructive type applicable for the type of substrate the coating is applied to. The following lists acceptable types of testing instruments:

a. Type I, (Magnetic Pull-Off) Dry Film Thickness Gage, KTA-Tator, Inc., Pittsburgh, PA.
b. Fixed Probe Dry Film Thickness gage – Elcometer 345 Basic, KTA-Tator, Inc., Pittsburgh, PA.
c. Fixed Probe Dry Film Thickness Gage – Elcometer 345 Top, KTA-Tator, Inc., Pittsburgh, PA.
d. Fixed Probe Dry Film Thickness Gage Elcometer 300F-P2, KTA-Tator, Inc., Pittsburgh, PA.
e. Type II – Fixed Probe Dry Film Thickness Gage – Minitest 200F, KTA-Tator, Inc., Pittsburgh, PA.
f. Fixed Probe Dry Film Thickness Gage – Positector 6000-F1, KTA-Tator, Inc., Pittsburgh, PA.
g. Fixed Probe Dry Film Thickness Gage – Positector 6000-F3, KTA-Tator, Inc., Pittsburgh, PA.
h. Fixed Probe Dry Film Thickness Gage – Quanix 2200, KTA-Tator, Inc., Pittsburgh, PA.
i. Fixed Probe Dry Film Thickness Gage – Quanix 2300, KTA-Tator, Inc., Pittsburgh, PA.
j. Destructive Dry Film Thickness – Tooke Gage, KTA-Tator, Inc., Pittsburgh, PA.

1.23 STRUCTURAL TESTING AND SPECIAL INSPECTION CONFORMANCE IN COMPLIANCE WITH BUILDING CODE OF NEW YORK STATE

A. General: In addition to the above Division 02-33 general testing requirements, the provisions of Chapter 17, "*Structural Tests and Special Inspections*" of the *Building Code of New York State (BCNYS)* additionally governs the quality, workmanship and requirements for all materials, as applicable. Materials of construction and tests shall conform to the applicable standards listed in the BCNYS.

B. New Materials: New building materials, equipment, appliances, systems or methods of construction not provided for in the *BCNYS*, and any material of questioned suitability proposed for use in the construction of a building or structure shall be subjected to the tests prescribed in Chapter 17 of the *BCNYS*.

C. Used Materials: The use of second-hand materials that meet the minimum requirements of Chapter 17 of the *BCNYS* shall be permitted.

D. Special Inspections – All special inspections shall conform to the requirements of Section 1704 of Chapter 17 of the *BCNYS*. The Owner shall employ one or more Special Inspectors to provide inspections during construction on the types of work listed under Section 1704 of Chapter 17 of the *BCNYS*. The Special Inspector shall be a qualified person who shall demonstrate competence to the satisfaction of the code enforcement official for inspection of the particular type of construction or operation requiring special inspection. **Refer to Specification Section 014529, "Testing Laboratory Service" for the specific qualifications of the Special Inspector.**

E. Report Requirements: Special inspectors shall keep records of all inspections, and shall furnish said records to the code enforcement official, to the Architect and the Owner. If a Construction Manager has been retained by the Owner, all test results shall be submitted in quadruplicate, via the Construction Manager. Reports shall indicate that work inspected was done in conformance to the approved Construction Documents. Discrepancies shall be brought to the immediate attention of the contractor for correction. If the discrepancies are not corrected, the discrepancies shall be brought to the attention of the code enforcement official and to the Architect, prior to the completion of that phase of the work. A final report of inspections documenting required special inspections and corrections of any discrepancies noted in the inspections shall be submitted periodically at a frequency agreed upon by the Owner, the Architect and the Construction Manager, prior to the start of the work.

F. Inspection of Fabricators: Where fabrication of structural load bearing members and assemblies is being performed on the premises of a fabricator's shop, special inspection of the fabricated items shall be required by Section 17, and as required elsewhere in the *BCNYS*.

G. Fabrication and Implementation Procedures: The special inspector shall verify that the fabricator maintains detailed fabrication and quality control procedures that provide a basis for inspection control of the workmanship and the fabricator's ability to conform to the approved construction documents and referenced standards. The special inspector shall review the procedures for completeness and adequacy relative to the code requirements for the fabricator's scope of work.

H. Fabricator Approval: Special inspections required by the *BCNYS* are not required where the work is done on the premises of a fabricator registered and approved to perform such work without special inspection. Approval shall be based upon the review of the fabricator's written procedural and quality control manuals and periodic auditing of fabrication practices by an approved special inspection agency. At the completion of fabrication, the approved fabricator shall submit a certificate of compliance to the code enforcement official, stating that the work was performed in accordance with the approved construction documents.

SPECIAL INSPECTIONS & TESTS – The table below summarizes the special inspections & testing requirements of the contract, in conformance with BCNYS 1704.1.1. The Owner shall pay for all Special Inspections & Tests indicated below. (Note: This chart includes all items indicated within the BCNYS as requiring special inspections. These inspections shall be performed for all work items that are included within the project scope of work. If there is testing indicated for a material or component that is not required on the project, then it follows that there is no testing required for that item on the particular project in question.)

A. Soils				**1704.7**
INSPECTION AND TESTING (Continuous & Periodic is as defined by the BCNYS) **(Table 1704.7 – Required Verification and Inspection of Soils)**	**CONTINUOUS**	**PERIODIC**	**REFERENCE STANDARD**	**BCNYS REFERENCE**
1. Verify materials below footings are adequate to achieve the design bearing capacity.		X		1704.7
2. Verify excavations are extended to proper depth and have reached proper material.		X		1704.7
3. Perform classification and testing of controlled fill materials.		X		1704.7
4. Verify use of proper materials, densities and lift thicknesses during placement and compaction of controlled fill.	X			1704.7
5. Prior to placement of controlled fill, observe subgrade and verify that site has been prepared properly.		X		1704.7
B. Foundation and Soil Investigations				**1802.2**
1. Questionable soil.	X			1802.2.1
2. Expansive soil.		X		1802.2.2
3. Groundwater table.		X		1802.2.3
4. Pile and pier foundations.	X			1802.2.4
5. Rock strata.		X		1802.2.5
6. Seismic Design Category C.		X		1802.2.6
7. Seismic Design Category D, E, F.		X		1802.2.7
C. Soil Classification		**X**		**1802.3**
D. Concrete Construction (per NYSBC Table 1704.4)				**1704.4**
INSPECTION AND TESTING (Continuous & Periodic is as defined by the BCNYS) **(Table 1704.4 – Required Verification and Inspection of Concrete Construction)**	**CONTINUOUS**	**PERIODIC**	**REFERENCE STANDARD** (where applicable, see also Section 1707.1, special inspections for seismic resistance)	**BCNYS REFERENCE**
1. Inspection of reinforcing steel, including prestressing tendons and placement.		X	ACI 318; 3.5, 7.1-7.7	1913.4
2. Inspection of reinforcing steel welding, in accordance with Table 1704.3, Item 5B of BCNYS.			AWS D1.4, ACI 318; 3.5.2	
3. Inspection of bolts to be installed in concrete prior to and during placement of concrete where allowable loads have been increased.	X			1911.5
4. Verify use of required design mix.		X	ACI 318; Ch.4, 5.2-5.4	1904.2.2, 1913.2, 1913.3

5. At the time fresh concrete is sampled to fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete.	X		ASTM C172, ASTM C31; ACI 318; 5.6, 5.8	1913.10
6. Inspection of concrete and shotcrete placement for proper application techniques.	X		ACI 318; 5.9, 5.10	1913.6, 1913.7, 1913.8
7. Inspection for maintenance of specified curing temperature and techniques.		X	ACI 318, 5.11, 5.13	1913.9
8. Inspection of prestressed concrete: a. Application of prestressing forces. b. Grouting of bonded prestressing tendons in the Seismic-force-resisting system.	 X X		 ACI 318; 18.20: ACI 318; 18.18.4	
9. Erection of precast concrete members.		X	ACI 318; Ch. 16	
10. Verification of in-situ concrete strength prior to stressing of tendons in posttensioned concrete and prior to removal of shores and forms from beams and structural slabs.		X	ACI 318; 6.2	
11. Inspect formwork for shape, location and dimensions of the concrete member being formed.		X	ACI 318; 6.1.1	
E. Pile Foundations: Installation and load tests.				1704.8
INSPECTION AND TESTING (Continuous & Periodic is as defined by the BCNYS) **(Table 1704.8 – Required Verification and Inspection of Pile Foundations)**	**CONTINUOUS**	**PERIODIC**	**REFERENCE STANDARD**	**BCNYS REFERENCE**
1. Verify pile materials, sizes and lengths comply with requirements.	X			
2. Determine capacities of test piles and conduct additional load tests, as required.	X			
3. Observe driving operations and maintain complete and accurate records for each pile.	X			
4. Verify placement locations and plumbness, confirm type and size of hammer, record number of blows per foot of penetration, determine required penetrations to achieve design capacity, record tip and butt elevations and document and pile damage.	X			
5. For steel piles, perform additional inspections in accordance with Section 1704.3.				1704.3
6. For concrete piles and concrete filled piles perform additional inspections in accordance with Section 1704.4				1704.4
7. For specialty piles, perform additional inspections as determined by the registered design professional in responsible charge.				
8. For augured uncased piles and caisson piles, perform inspections in accordance with Section 104.9				1704.9
F. Pier Foundations: Seismic Design Category C, D, E, F				1704.9

INSPECTION AND TESTING (Continuous & Periodic is as defined by the BCNYS) **(Table 1704.9 – Required Verification and Inspection of Pier Foundations)**	**CONTINUOUS**	**PERIODIC**	**REFERENCE STANDARD**		**BCNYS REFERENCE**
1. Observe drilling operations and maintain complete and accurate records for each pier.	X				
2. Verify placement locations and plumbness, confirm pier diameters, bell diameters (if applicable), lengths, embedment into bedrock (if applicable) and adequate end bearing strata capacity.	X				
3. For concrete piers, perform additional inspections in accordance with Section 1704.4					1704.4
4. For masonry piers, perform additional inspections in accordance with Section 1704.5					1704.5
G. Masonry Construction					
INSPECTION AND TESTING (Continuous & Periodic is as defined by the BCNYS) L1 = Level 1 Inspection required for empirically designed & nonessential facilities. (Per NYSBC Table 1704.5.1)	**CONTINUOUS**	**PERIODIC**	ACI 530/ASCE5 / TMS 402, BCNYS Ch. 35	ACI 530.1/ASCE6 / TMS 602, BCNYS Ch. 35	**BCNYS REFERENCE**
1. As masonry construction begins, the following shall be verified, to ensure compliance:					
a. Proportions of site-prepared mortar.		X		2.6A	
b. Construction of mortar joints.		X		3.3B	
c. Location or reinforcement, connectors, prestressing tendons and anchorages.		X		3.4, 3.6A	
d. Prestressing technique.		X		3.6B	
e. Grade and size of prestressing tendons and anchorages.		X		2.4B, 2.4H	
2. The Inspection Program shall verify:					
a. Size and location of structural elements.		X		3.3G	
b. Type, size, and location of anchors, including other details of anchorage of masonry to structural members, frames or other construction.		X	1.2.2(e), 2.1.4, 3.1.6		
c. Specified size, grade and type of reinforcement.		X	1.13	2.4, 3.4	
d. Welding of reinforcing bars.	X		2.1.10.7.2, 3.3.3.4(b)		
e. Protection of masonry during cold weather (temperature below 40°F) or hot weather (temperature above 90°F)		X		1.8C, 1.8D	2104.3, 2104.4
f. Application and measurement of prestressing force.		X		3.6B	
3. Prior to grouting, the following shall be verified to ensure compliance:					
a. Grout space is clean.		X		3.2D	
b. Placement of reinforcement and connectors and prestressing tendons and anchorages.		X	1.13	3.4	
c. Proportions of site prepared grout and prestressing grout for bonded tendons.		X		2.6B	
d. Construction of mortar joints.		X		3.3B	
4. Grout placement shall be verified to ensure compliance with code and construction document provisions.	X			3.5	
a. Grouting of prestressing bonded tendons.	X			3.6C	

5. Preparation of any required grout specimens, mortar specimens and/or prisms shall be observed.	X			1.4	2105.2.2, 2105.3
6. Compliance with required inspection provisions of the construction documents and the approved submittals shall be verified.		X		1.5	
INSPECTION AND TESTING (Continuous & Periodic is as defined by the BCNYS) L2 = Level 2 Inspection required for essential facilities. See 1704.5 for clarification. (Per NYSBC Table 1704.5.3)	**CONTINUOUS**	**PERIODIC**	ACI 530/ASCE5 / TMS 402, BCNYS Ch. 35	ACI 530.1/ASCE6 / TMS 602, BCNYS Ch. 35	**BCNYS REFERENCE**
1. From the beginning of masonry construction, the following shall be verified to ensure compliance:					
a. Proportions of site-prepared mortar, grout and prestressing grout for bonded tendons.		X		2.6A	
b. Placement of masonry units and construction of mortar joints.		X		3.3B	
c. Placement of reinforcement, connectors and prestressing tendons and anchorages.		X	1.13	3.4, 3.6A	
d. Grout space prior to grouting.	X			3.2D	
e. Placement of grout.	X			3.5	
f. Placement of prestressing grout.	X			3.6C	
2. The Inspection Program shall verify:					
a. Size and location of structural elements.		X		3.3G	
b. Type, size, and location of anchors, including other details of anchorage of masonry to structural members, frames or other construction.	X		1.2.2(e), 2.1.4, 3.1.6		
c. Specified size, grade and type of reinforcement.		X	1.13	2.4, 3.4	
d. Welding of reinforcing bars.	X		2.1.10.7.2, 3.3.3.4(b)		
e. Protection of masonry during cold weather (temperature below 40°F) or hot weather (temperature above 90°F)		X		1.8C, 1.8D	2104.3, 2104.4
f. Application and measurement of prestressing force.	X			3.6B	
3. Preparation of any required grout specimens, mortar specimens and/or prisms shall be observed.	X			1.4	2105.2.2, 2105.3
4. Compliance with required inspection provisions of the construction documents and the approved submittals shall be verified.		X		1.5	
H. Steel Construction (per NYSBC Table 1704.3)					
INSPECTION AND TESTING (Continuous & Periodic is as defined by the BCNYS) **(Table 1704.3 – Required Verification and Inspection of Steel Construction)**	**CONTINUOUS**	**PERIODIC**	**REFERENCE STANDARD** (where applicable, see also Section 1707.1, special inspections for seismic resistance)		**BCNYS REFERENCE**
1. Material verification of high-strength bolts, nuts & washers:					
a. Identification markings to conform to ASTM standards specified in the approved construction documents.		X	Applicable ASTM material specifications. AISC 360, Section a3.3		
b. Manufacturer's certificate of compliance required.		X			
2. Inspection of high-strength bolting:					
a. Bearing-type connections.		X	AISC 360, Section M2.5		1704.3.3

b. Slip-critical connections.	X	X		
3. Material verification of structural steel:				
a. Identification markings to conform to ASTM standards specified in the approved construction documents.			ASTM A6 or A568	1708.4
b. Manufacturer's certified mill test reports.			ASTM A6 or A568	
4. Material verification of weld filler materials:				
a. Identification markings to conform to AWS specification in the approved construction documents.			AISC 360, Section A3.5	
b. Manufacturer's certificate of compliance required.				
5. Inspection of welding.				
a. Structural Steel:				
1) Complete & partial penetration groove welds.	X		AWS D1.1	1704.3.1
2) Multi-pass fillet welds.	X			
3)Single-pass fillet welds > 5/16"	X			
4) Single-pass fillet welds < 5/16"		X		
5) Floor and deck welds.		X		
b. Reinforcing Steel:				
1) Verification of weldability of reinforcing steel other than ASTM A706.		X	AWS D1.4, ACI 318:3.5.2	
2) Reinforcing steel-resisting flexural & axial forces in intermediate and special moment frames, and boundary elements of special reinforced concrete shear walls & shear reinforcement.	X			
3) Shear Reinforcement.	X			
4) Other reinforcing steel.		X		
6. Inspection of steel frame joint details for compliance with approved construction documents: a. Details such as bracing & stiffening. b. Member locations. c. Application of joint details at each connection.		X		1704.3.2
I. Wood Construction: Fabrication of wood structural elements & assemblies.				1704.6, 1704.2
J. Sprayed Fire-Resistant Materials				**1704.10**
1. Structural member surface conditions.				1704.10.1
2. Application.				1704.10.2
3. Thickness.			ASTM E 605	1704.10.3
4. Density.			ASTM E 605	1704.10.4
5. Bond Strength.			ASTM E 736	1704.10.5
INSPECTION AND TESTING (Continuous & Periodic is as defined by the BCNYS)	**CONTINUOUS**	**PERIODIC**	**REFERENCE STANDARD**	**BCNYS REFERENCE**
K. Mastic and intumescent fire-resistant coatings			AWCI 12-B	**1704.11**
L. Exterior Insulation and Finish Systems (EIFS)				1704.12
M. Special Cases (unusual in it's nature)				1704.13
N. Smoke Control Systems (Ductwork)				1704.14
O. Special Inspections for Seismic Resistance: Applicable to specific structures, systems and components (Seismic Category C, D, E, F) **				**1707**
1. Structural steel (welding).	X		AISC 341	1707.2
2. Structural wood.	X	X		1707.3

3. Cold-formed steel framing.		X		1707.4
4. Pier Foundations a. During placement of reinforcement. b. During placement of concrete.	X	X		1707.5
5. Storage racks & access floors.		X		1707.6
6. Architectural components.		X		1707.7
7. Mechanical & electrical components.		X		1707.8
8. Designated seismic system verifications.				1707.9, 1708.5
9. Seismic isolation system.		X		1707.10
P. Structural Testing for Seismic Resistance: Applicable to specific structures, systems and components. (Seismic Category C, D, E, F) **				**1708**
1. Testing and verification of masonry materials and assemblies. (Level 1, 2 or 3)				1708.1
2. Testing for seismic resistance.				1708.2
3. Reinforcing and prestressing steel.			ACI 318, ACI 318:3.5.2	1708.3,
4. Structural steel.			AISC 341; AWS D1.1, ASTM A435, A898	1708.4
5. Mechanical & electrical equipment.				1708.5
6. Seismically isolated structures.			Section 17.8 ASCE 7	1708.6
INSPECTION AND TESTING (Continuous & Periodic is as defined by the BCNYS)	**CONTINUOUS**	**PERIODIC**	**REFERENCE STANDARD**	**BCNYS REFERENCE**
Q. Structural Observations: Applicable to specific structures. (Seismic Category C, D, E, F) **				**1709**
R. Design Strengths of Materials			All design strengths and permissible stresses of any structural materials shall conform to the specifications and methods of design of accepted engineering practice or the approved rules in the absence of applicable standards.	1710.1
a. New Materials			For materials that are not specifically provided for in this code, the design strengths and permissible stresses shall be established by tests as provided for in Section 1711.	1710.2; 1711
S. Alternative Test Procedures			Provide duly authenticated reports from approved agencies in respect to the quality & manner of use of new materials or assemblies as provided for in Section 104.11. Costs of all tests and other investigations required under the provisions of this code shall be borne by the Owner.	1711.1
T. Test Safe Load				1712.1
U. In-Situ Load Tests (Completed Building or Structure)				1713.1, NYSBC

				Chapter 35
V. Preconstruction Load Tests (Structural Adequacy)				**1714**, NYSBC Chapter 35
a. Load Test Procedures specified				1714.2
b. Load Test Procedures not specified				1714.3
c. Wall and partition assemblies				1714.4
d. Exterior window & door assemblies				1714.5
e. Test Specimens				1714.6
W. Material & Test Standards				**1715**
a. Joist Hangers & Connectors				1715.1
b. Concrete and Clay Roof Tiles				1715.2
X. Misc.				
1. Fire Resistant Penetrations & Joints Fire Stops Testing for Smoke Control		X	Ch.7 ASTM E119 UL 263	1705.17 1705.18
Y. Other (List)				
End				

**** - For Seismic Classification, see Code Analysis located within the Construction Drawings.**
Note: For projects utilizing a Construction Manager, the Construction Manager's involvement with Special Inspections and Testing shall be limited to documenting, witnessing, acquiring and filing copies of all reports prepared by the Special Inspectors and testing agencies, and sequentially transmitting copies of the reports to the Architect and the Owner. All reports shall be prepared and certified by the Special Inspector and Testing Agency in accordance with criteria established by, and in a format approved by, the Architect/Engineer, in complete conformance with the requirements of BCNYS Chapter 17, Section 1704. Where no Construction Manager is retained, coordination and documentation of tests shall be the sole responsibility of the Prime Contractor responsible for the work being tested, in conjunction with the testing agency's Special Inspector.

1.24 QUALITY ASSURANCE FOR WIND REQUIREMENTS

A. Each of the main wind force-resisting systems that are identified within the construction documents are subject to special inspections and testing, in accordance with Section 1704 and other applicable sections of the Building Code of New York State.

B. Wind force-resisting systems include the following; (refer to construction documents for more specific information concerning systems contained within a specific project.)

1. Roof cladding and roof framing connections;

2. Wall connections to roof and floor diaphragms and framing.

3. Roof and floor diaphragm systems, including collectors, drag struts and boundary systems.

4. Vertical windforce-resisting systems, including braced frames, moment frames and shear walls.

5. Windforce-resisting system connections to the foundation.

6. Fabrication and installation of components and assemblies required to meet the impact resistance requirements of Section 1609.1.4 of the *BCNYS*.

Exception: Fabrication of manufactured components and assemblies that have a label indicating compliance with the wind-load and impact-resistance requirements of the *BCNYS*.

C. Special inspections and testing, observations, frequency and distribution of reports shall be as indicated within other areas of this section.

D. Contractor Responsibility: Each contractor responsible for the construction of a main wind force-resisting component listed in the quality assurance plan shall submit a written contractor's statement of responsibility to the code enforcement official and to the Owner prior to the commencement of work on the system or component. The contractor's statement of responsibility shall contain the following:

1. Acknowledgement of awareness of the special requirements contained in the quality assurance plan;

2. Acknowledgement that control will be exercised to obtain conformance with the construction documents approved by the code enforcement official;

3. Procedures for exercising control within the contractor's organization, the method and frequency of reporting, and the distribution of the reports;

4. Identification and qualifications of the person(s) exercising such control and their position(s) in the organization.

1.25 SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE (Section 1707 of *BCNYS*)

A. Special Inspections for Seismic Resistance: Special inspection as specified herein is required for the following, where required in Section 1704.1 of *BCNYS*. Special inspections itemized in Sections 1707.2 through 1707.8 of the *BCNYS* are required for the following:

B. The seismic-force-resisting systems in structures assigned to Seismic Design Category C, D, E or F, as determined in Section 1616 of the *BCNYS*.

C. Designated seismic systems in structures assigned to Seismic Design Category D, E or F.

D. Architectural, mechanical and electrical components in structures assigned to Seismic Design Category C, D, E or F that are required in Sections 1707.6 and 1707.7 of the *BCNYS*.

E. For Seismic Classification specific to this project, see Code Analysis located within the Construction Drawings.

PART 2 – PRODUCTS – (NOT APPLICABLE)

PART 3 - EXECUTION

3.01 REPAIR AND PROTECTION

A. General: Upon completion of inspection, testing, sample-taking and similar services performed on Work, repair damaged work and restore substrates and finishes to eliminate deficiencies including defects in visual qualities of exposed finishes. Except as otherwise indicated, comply with the requirements of the "Cutting and Patching" specification. Protect work exposed by or for service

activities and protect repaired work. Repair and protection is the Contractor's responsibility, regardless of assignment of responsibility for inspection, testing or similar service.

END OF SECTION

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 014529 – TESTING LABORATORY SERVICE

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and General Provisions of Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to Work of this Section.

1.02 SUMMARY

A. The Owner will pay for services of the independent testing laboratory. Source of services as well as payment and rates of payments will be as directed by the Owner's Representative. Testing specified in the Project Manual shall be performed at a minimum. Construction Manager or Architect may request additional testing which will be compensated as agreed upon between the parties.

B. Inspections and testing required by laws, ordinances, rules, regulations, or order of public authorities and General Conditions.

C. Certification of products and mill test reports: Respective Specification Sections.

D. Test, adjust, and balance of equipment.

E. Inspection, sampling, and testing: Soils, asphalt, concrete, steel, masonry, mortar, and grout, etc. and specified elsewhere.

F. Inspections, test, and related actions specified in this section and elsewhere in Contract Documents are not intended to limit contractor's quality control procedures, which facilitate compliance with requirements of Contract Documents.

G. Related work specified elsewhere:

1. Refer to Section 014523 – Tests, Inspections, and Special Inspections.

1.03 QUALIFICATIONS OF LABORATORY AND SUBMITTALS

A. Meet requirements of ASTM E329, current edition "Standards of Recommended Practice for inspection and testing Agencies for Concrete, Steel, and Bituminous Materials as used in Construction".

1. The term "agency" as used in Section 4 of ASTM E329 shall mean the local or closest office of said agency.

B. Laboratory qualifications for inspection, sampling, and testing of soils and aggregates shall be comparable to the requirements of ASTM E329.

C. Testing Equipment

1. Calibrated at maximum 12-month intervals by devices of accuracy. Traceable to either:

a. National Bureau of Standards

b. Accepted Values of Natural Physical Constants.

c. Submit copy of Certificate of Calibration, made by accredited calibration agency.

D. Submit documentation of specified requirements. Submit 2 copies to the Owner's Representative.

E. All testing and inspection performed by the testing laboratory shall be under the direct supervision of a Professional Engineer licensed in the state of the construction activities. This Professional Engineer shall submit a letter certifying that all testing services are in conformance with the standards and specifications as specified in these Contract Documents. The letter shall also certify that all tested and inspected items and procedures conform to the Contract Documents, except where specifically noted on the inspection reports.

F. All inspectors shall have at least one (1) year of experience performing the type of inspections to be performed on this project. Qualifications and experience of proposed inspectors shall be submitted to the architect for approval prior to the beginning of any testing.

1.04 QUALIFICATION OF SPECIAL INSPECTOR

A. The special inspector must have the expertise necessary to ensure compliance with the approved Construction Documents and referenced standards.

B. The special inspector, if an individual, should be a registered Structural Engineer or Professional Engineer specializing in structural engineering. If the special inspector is an agency, the agency should be under the responsible direction of a registered Structural Engineer or Professional Engineer specializing in Structural Engineering.

C. Special inspector qualifications (New York State Department of State, Technical Bulletin January 2003).

1. Reinforced Concrete: New York State Licensed Professional Engineer (PE) with relevant experience.

2. Prestressed Concrete: Pre-tension tendons and post-tension tendons: PE with relevant experience.

3. Welding: Current AWS Certified Welding Inspector.

4. High Strength Bolting and Steel Frame Inspection: PE with relevant experience.

5. Masonry: Current ICC Structural Masonry Certification and one (1) year relevant experience.

6. Sprayed Fire Resistant Materials: PE with relevant experience.

7. Excavation and Filling; Verification of Soils and Bearing, Piling and Drilled Piers, Modular Retaining Walls and Related Geotech: PE with relevant experience.

8. Inspection of Fabricators: Bar joist, metal building and structural steel – see welding requirements.

9. Exterior and Interior Architectural Wall Panels: PE with relevant experience.

10. Exterior Insulation and Finish Systems: New York State Registered or Licensed Design Professional.

11. Smoke Control: Expertise in fire-protection engineering, mechanical engineering, and

certification as air balancers.

12. Seismic Resistance: Refer to the applicable categories of this list.

NOTE: The list includes the word 'relevant' to describe experience for persons not holding formal certifications.

1.05 LABORATORY RESPONSIBILITIES, LIMITATIONS OF AUTHORITY

A. Provide qualified personnel promptly on notice.

B. Perform special inspections, sampling, and testing of materials and methods of construction.

1. Comply with specified standards; ASTM, other recognized authorities and as specified.

2. Ascertain compliance with requirements of Contract Documents.

C. Promptly notify Architect, Construction Manager, and Contractor of irregularities in the work to be performed in accordance with the Construction Documents and deficiencies of work performed which are observed during performance of services.

D. Promptly submit two (2) copies to the Construction Manager (one (1) to be turned over to Owner), two (2) copies directly to the Architect/Engineer and one (1) to the Contractor of reports of inspections and test, including the following information, as applicable:

1. Date issued.

2. Project title and number.

3. Testing laboratory name and address.

4. Name and signature of field inspector.

5. Date of inspection or sampling.

6. Record of temperature and weather.

7. Name and signature of laboratory inspector.

8. Identification of product and specification section.

9. Location in project.

10. Designation of the work and test method.

11. Observations regarding compliance with Contract Documents.

12. Complete inspection or test data.

13. Test results and interpretation of test results.

14. Recommendation on retesting.

E. Laboratory is not authorized to:

1. Release, revoke, alter, or enlarge on requirements of contract documents.

2. Approve or accept portion of work.

3. Perform duties of the Contractor.

1.06 INSPECTOR RESPONSIBILITIES

A. Notify the contractor of their presence and responsibilities at the job site.

B. Observe assigned work. The inspector shall inspect all work for which they are responsible for conformance with the plans and specifications. Perform inspection in a timely manner to avoid delay of work.

C. Report non-conforming items. Inspector shall bring all nonconforming items to the immediate attention of the contractor for correction. If any such item is not resolved in a timely manner or is about to be incorporated into the work, the Construction Manager and the Architect shall be notified immediately, and the item noted in the inspector's written report. The inspector shall write a separate report to be posted at the job site regarding noted discrepancies that should contain, as a minimum, the following information about each nonconforming item:

1. Description and exact location.
2. Reference to applicable plan sheets, details and specifications.
3. Resolution of corrective action taken and the date.

D. Provide timely reports. The Inspector shall complete written inspection reports for each visit to the site. These reports shall be organized on a daily format and will be submitted to the Construction Manager, Architect, and Contractor at the approved times and frequency. In the reports the inspector should:

1. Describe inspections and tests made, with applicable locations.

2. Indicate how nonconforming items are to be or were resolved.

3. List unresolved items, parties notified, time and method of notification.

4. Itemize changes authorized by the Architect.

E. Submit final report. Inspector shall submit a final, signed report to the Construction Manager and Architect stating that all items requiring inspection and testing were fulfilled and reported, and to the best of their knowledge, in conformance with the approved plans and specifications. Items not in conformance, unresolved items, or any discrepancies in inspection coverage (i.e., missed inspections, periodic inspection when continuous inspection was required, etc.) should be specifically itemized in this report.

1.07 CONTRACTOR'S RESPONSIBILITIES

A. Contractor shall coordinate with independent testing agency performing inspections, tests, and quality control services.

1. Construction Manager will schedule services of independent testing to agency to perform services so specified.

B. Retest Responsibility: Where results of required inspection, test, or similar service are unsatisfactory (do not indicate compliance of related work with requirements of Contract Documents), retests are the responsibility of the Contractor. Retesting of work revised or replaced by the Contractor is the Contractor's responsibility, where required tests are performed on original

work. Retesting shall be performed by testing laboratory as directed by Construction Manager.

C. Responsibility of Associated Services: Contractor is required to cooperate with independent agencies performing required inspections, tests, and similar services. Provide auxiliary services as reasonably requested, including access to work, the taking of samples or assistance with the taking of samples, delivery of samples to test laboratories, and security and protection for samples and test equipment at project site.

D. Coordination: Contractor and each engaged independent agency performing inspections, tests, and similar services for project are required to coordinate and sequence activities so as to accommodate required services with minimum delay of work and without the need for removal/replacement of work to accommodate inspections and tests. Notify Construction Manager as required for all scheduling of times for inspections, test, taking of samples, and similar activities are contractor's responsibility.

PART 2 - MATERIALS

NOT APPLICABLE

PART 3 - EXECUTION

NOT APPLICABLE

END OF SECTION

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 015000 – TEMPORARY FACILITIES, CONTROLS & MISCELLANEOUS REQUIREMENTS

PART 1 - GENERAL

1.01 SCOPE

A. Provide, maintain, and remove when no longer required temporary services and utilities as specified, except as may be otherwise provided by the Owner; include costs of obtaining permits, labor, equipment, fixtures, lamps, and similar items as well as duties, levies, or taxes imposed.

1.02 SUMMARY

A. Section includes:

1. Construction facilities provided by the Contractor as required by the Contract:

    a. Temporary utilities:

        1) Temporary sanitary facilities.

    b. Construction aids:

        1) Temporary ramps, ladders, and runways.

        2) Material lifting equipment (i.e. hoists, cranes, and similar items).

        3) Temporary scaffolding and platforms.

    c. Barriers:

        1) Temporary enclosures and barricades, including protection for existing trees and plants to remain.

        2) Temporary enclosures and barricades within existing building.

    d. Controls:

        1) Construction cleaning and rubbish removal, including providing and maintaining rubbish chutes and rubbish containers.

        2) Dust control, erosion and sediment control, and noise, pest, and pollution control.

        3) Fire Protection and prevention.

    e. Other temporary equipment, facilities, controls, and similar items required to complete contract requirements or specified in other section of project manual.

2. Restoration of premises.

3. Cutting and Patching.

4. Rough Openings and Routine Items.

5. Water Tightness.

6. Miscellaneous Requirements.

B. Placement, Relocation, and Removal:

1. Unless otherwise directed by the Project Representative, locate construction facilities and temporary controls to avoid interference with the work of its project, future projects indicated in the Contract Documents, and the Owner's activities on site.

2. Should change in location of construction facilities and temporary controls be necessary, relocation shall be accomplished by the Contractor providing facility or control without addition cost to Owner.

3. When no longer required, each Contractor shall remove construction facilities and temporary controls provided by the Contractor and shall remove all debris and restore area to original conditions, unless otherwise indicated in the Contract Documents.

1.03 TEMPORARY UTILITIES

A. Sanitary Facilities: In accordance with the General Conditions of the Contract, the Contractor shall not permit any workers to use any of the Owner's existing facilities, including lavatories and toilets other than those designated by the Owner.

1. Temporary toilets: The Owner may allow the use of certain toilets within the building during the course of work. The Contractor shall maintain these toilets in sanitary conditions, and, upon the completion of the work, be responsible for removing the temporary toilets from the property if not provided by the Owner. If temporary toilets are provided by the Owner, the Contractor must surrender them to the Owner in as good condition as found.

B. In accordance with the General Conditions of the Contract, the Contractor shall provide and pay for all labor, materials, equipment and machinery, rigging, water, heat, utilities, light, transportation, and other facilities and services necessary for proper execution and completion of its work, whether temporary or permanent and whether or not incorporated or to be incorporated in its work.

C. Telephone Service: Owner's telephones are not available for use by Contractor personnel.

1.04 CONSTRUCTION AIDS

A. Installation and maintenance for construction aids in accordance with applicable New York State Labor Laws, OSHA regulations, and other federal, state, and local laws, and maintenance of construction aids in safe condition shall remain exclusive responsibility of the Contractor providing construction aid.

B. Ramps, Ladders, and Runways:

1. Comply with New York State Labor Laws, OSHA regulation, and other applicable federal, state, and local laws.

2. Remove as soon as possible and replace with permanent facilities where appropriate.

C. Material Lifting Equipment: Provide equipment as required complying with New York State Labor Laws, OSHA regulations, and other applicable federal, state, and local laws.

D. Scaffolding and Platforms: Provide equipment as required complying with New York State Labor Laws, OSHA regulations, and other applicable federal, state, and local laws.

E. Rubbish Chutes:

1. Install and maintain wooden to steel chute(s) terminating in hopper or rubbish container, properly fastened to building, and enclosed over full length with openings as required for access.

2. Provide protective covering for building wall beneath and at least 2 ft. on both sides of chute extending full length of chute.

1.05 BARRIERS AND ENCLOSURES

A. Interior Temporary Partitions and Closures: Provide temporary partitions and ceilings as required to separate work areas from Owner-occupied areas, to prevent penetration of dust and moisture from construction areas into Owner-occupied areas, and to prevent damage to existing areas and equipment.

1. Construction with steel studs and 5/8" thick Type ‘X’ gypsum board on both sides with taped joints.

2. Locate partitions as shown on drawings; if not shown on drawings, review location of partitions with the Architect and the Owner before beginning installation.

3. Partitions are to carry a minimum of a 1-HR fire rating and prohibit the passage of smoke.

4. Partitions shall not impede the existing exit routes and exit access.

B. Temporary closures and barricades, as may be required to maintain and protect the new and existing work and to protect the public from danger, shall be provided.

C. Protect temporary closures and barricades to guard new and existing work from vandalism during and after working hours.

D. Removal: Upon completion of construction at site, remove barriers, fencing, and closures/ enclosures, and patch existing surfaces to match adjacent undisturbed surfaces.

1.06 TEMPORARY CONTROLS

A. Construction Cleaning and Rubbish Removal:

1. Provide continuous cleaning of rubbish, construction debris, and waste material resulting from construction work; place rubbish chutes or covered containers, located convenient to the Contractor's construction areas as approved by Owner.

a. Definition of "rubbish, construction debris, and waste materials": Material not intended or necessary for completion of the project, including, but not limited to, such as packing materials, lunch papers, drinking cups, and similar items.

b. Frequency of cleaning: At least daily during construction, clean up rubbish, construction debris, and waste materials around bottom of chutes or containers, within structure, and around site and access routes.

c. Comply with local and state ordinances, regulations, and laws, and with OSHA anti-pollution laws regarding clean up and disposal operations.

d. Where surfaces are to be cleaned, use materials recommended by manufacturer.

e. Remove debris and rubbish from pipe chases, plenums, attics, and crawl spaces prior to closing space.

f. Vacuum clean interior areas prior to start of surface finishing and continuous cleaning as required as finishing progresses.

g. Control cleaning operations so that dust and other particulates will not adhere to wet or newly-coated surfaces. Sprinkle dust rubbish with water.

2. Lower waste material in controlled manner with as few handlings as possible; do not drop or throw from heights.

3. At least once a week, remove from site all rubbish, construction debris, and waste materials, including contents of containers, and dispose of legally.

a. Remove rubbish, construction debris, and waste materials more frequently if such materials present hazard or interfere with construction of other Contractors.

b. Do not burn or bury rubbish, construction debris, and waste materials on site.

c. Do not dispose of volatile fluid waste (i.e. mineral spirits, oil, paint thinner, and similar materials) in storm or sanitary sewer systems or into streams or waterways.

B. Dust Control: Provide methods to minimize raising dust from construction operations. Provide positive means to prevent airborne dust from dispersing into atmosphere.

C. Fire Protection and Prevention:

1. Each Contractor shall take all precautions required to prevent fires as a result of its operations.

2. Store volatile waste in covered metal containers and remove from premises daily in compliance with local and state ordinances and laws and with OSHA requirements.

3. Locate and maintain gasoline and fuel oil storage facilities in full compliance with local and state ordinances and laws with OSHA requirements.

4. Take all precautions required to prevent fires as a result of construction operations; operate flame cutting torches, blow torches, welding tools, and similar equipment in strict accordance with applicable safety rules and regulations.

a. Contractor using welding tools or torches of any type shall provide and maintain in usable condition at all times in the immediate vicinity of operations a fire extinguisher of the "Multi-Purpose Type ABC". The fire extinguishers shall be provided and maintained by said Contractor in usable condition at all times.

5. Each Contractor shall provide fire extinguishers in working order located at intervals throughout construction operations which shall not be removed from their mounting except to be tested or for purpose of fighting fire.

a. Relocate as necessary as work progresses.

b. Fire extinguishers remain the property of the Contractor providing them.

c. Keep fire hydrants on or adjacent to the work accessible to fire fighting equipment at all times.

D. Vehicle Parking: Locate vehicles used on project site in locations which will not introduce exhaust gases into portions of building occupied by Owner and not involved in the project.

1. Parking on site will be at the Owner's discretion and written approval only.

2. Protect existing roads and repair damage caused to road or site.

1.07 FIELD OFFICES AND SHEDS

A. Contractor's Field Offices and Sheds:

1. Each Contractor shall provide and maintain such offices, storage sheds, and similar temporary buildings and trailers on site as required for its own use.

a. Existing grass or paved areas at the site shall be designated by Owner as the Contractor staging area, including location of material storage and field offices: review requirements with Owner prior to moving onto site.

b. Contractors are advised that space within existing buildings will not be available for their use for storage of materials or similar uses.

2. Upon completion of construction at site, remove offices, storage sheds, and similar temporary buildings and trailers in site and patch existing surfaces to match adjacent undisturbed surfaces.

1.08 RESTORATION OF PREMISES

A. Walls and floor areas and any other surfaces that are broken, damaged, pitted, or otherwise defective as a result of receiving, handling, or storage of materials or the performance of any work under any Contract, or by reason of neglect of any Contractor, shall be fully restored to the satisfaction of the Owner, and the full cost, therefore, shall be borne by the Contractor.

B. Sites shall be cleaned daily and restored to original condition at completion of construction operations.

C. Roll-offs shall be located so as not to interfere with school operations, and paving or landscaping shall be restored when removals are completed.

1.09 CUTTING AND PATCHING

A. Cutting and patching covers adjustment to, necessary reworking, or removal of elements of construction in both new and existing work to comply with work of the Contract documents. The following definitions for cutting and patching apply:

1. Cutting: Physical modification or removal of construction work (walls, floors, ceilings, roofs, etc.) or installed materials (doors, windows, panels, etc.), both new, factory-finished, and existing.

2. Patching: Restoration or replacement of construction work (walls, floors, ceilings, roofs, etc.), both new, factory-finished, and existing. Patching shall include installation of new finish, materials, and reconstruction of walls, floors, etc. All patching shall match adjacent materials and finishes unless otherwise indicated.

B. Each Contractor, unless otherwise indicated, shall hire a qualified General Contractor to provide all equipment, labor, material, and incidentals necessary for cutting and patching as required for the installation of its work in new or existing walls, floors, and ceilings.

C. Each Contractor will be held responsible for its own and its Subcontractors' work in cutting and patching and the correction of the work of other Contractors if damaged by him.

D. Each Contractor shall bear the expense of all cutting, patching, repairing, or replacing of the work of other trades made necessary by any fault, error, or tardiness on the part of or damage done by him. He shall employ and pay the Contractor whose work is involved.

E. In existing structures, each Contractor shall, unless otherwise indicated, hire a General Contractor to do all cutting, patching, repairing, or replacing of General Work required for the removal of existing work or installation of its new work. Secure approval before cutting.

F. In no case may floors, walls, or ceilings that are waterproofed be cut for the admission of any equipment or materials nor may any structural member be pierced without written permission.

G. Where roofing or waterproofing membranes must be cut to accommodate the work of any Contractor, such Contractor shall employ a qualified roofing Contractor to do all required cutting, patching, and repairs of the roofing or waterproofing, and then only after approval of the methods proposed by the Architect and/or any agency that may have a roof bond or guarantee/warranty in force.

1. Approval of all materials, methods, and roofing Contractor used in cutting, patching, and repairing existing roofing membrane shall be obtained from agency, or agencies, holding a roof bond or guarantee/warranty in force.

1.10 ROUGH OPENINGS AND ROUTINE ITEMS

A. Each Contractor will provide all openings, chases, recesses, lintels, and bucks in new or existing construction that are required for the admission of its work.

B. Each Contractor shall furnish all necessary information (i.e. location and size of openings, chases, etc., and other built-in field conditions) to the other Contractors in ample time for the installation of its work.

1. Ample time shall mean:
   a. In concrete work, before reinforcing is placed.
   b. In masonry, before wall construction reaches location of opening, chase, or other item.
   c. In drywall, before second or finish face is applied.

2. This paragraph shall not be construed to include any items in earth such as trenches, etc.

1.11 WATER TIGHTNESS

A. Each Contractor shall be held responsible for the water tightness of its respective products, materials, and workmanship as installed in the job. This includes all work either specified to be watertight or inferred by general practice to be watertight. All walls, roofs, glazing, windows, doors, sleeves, through foundation or walls, flashings, and other items shall be in a watertight condition before final payment is requested.

B. If a Contractor feels that the details or materials, as drawn or specified, are not satisfactory to produce a watertight job, it shall inform the Architect before installation. The Contractor shall submit its proposed substitution or alternative method of doing the work for the Architect's approval. Any approved change shall be executed by the Contractor and made watertight at no additional cost to the Owner.

C. Any proposed changes encountered during the bidding procedure may be submitted in the proper form and time to the Architect for consideration as a change to be covered by ADDENDA to these specifications.

1.12 MISCELLANEOUS REQUIREMENTS

A. Contractor shall verify all existing conditions prior to proceeding with new work installations.

B. Contractor shall be responsible for all verification of dimensions shown.

C. Contractor shall retain all existing fire exit locations with the school complex during construction as necessary to provide safe egress to all inhabitants as per State and Local Codes.

D. Contractor shall seal all areas of construction to prevent dust and debris from entering areas other than location of installation.

E. Contractor shall meet all OSHA requirements for sanding and sealing as required.

F. Contractor shall protect all existing walls, equipment, and apparatus from damage during the construction process.

G. Contractor shall construct Architect/O.S.H.A. approved, code compliant barricades and construction area separation between all proposed work and student occupied spaces. There shall be no interference with required educational capabilities during the construction of this project while classes are in session.

H. Contractor shall relocate any existing H.V.A.C. intake/discharge units as to prevent the distribution of any demolition/construction related fumes and dust during the course of the entire project. Relocate same to original functioning position upon project completion.

I. All construction materials, equipment, personnel, debris, dust, fumes, noise, smells, etc. shall be isolated from building occupants and other vehicular traffic by way of "special necessary construction" during the entire construction process. provide all required temporary stairs, ramps, fire alarm systems, fire extinguishers, illuminated exit signs, door hardware, and floor finishes needed to maintain all occupied spaces safe and code compliant at all times.

J. Contractor must provide schedules of work which include a minimum of 48 hours or manufacturer's recommended time for "baking out" and exhausting of volatile organic compounds used during construction prior to building occupancy. Provide and maintain at the site "MSDS" forms indicating safe times before occupancy of spaces.

K. The District must provide a continuously updated written emergency exit plan which provides for the relocation of all students and staff immediately upon a break in the above required "separation of construction areas" as to minimize exposure to all students and staff. Coordinate with all contractors, building staff, and students for their use.

PART 2 - PRODUCTS

Not used

PART 3 - EXECUTION

Not used

END OF SECTION

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 016000 – PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.02 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.

B. Related Sections:

1. Section 002113 – Instructions to Bidders
2. Section 004200 – Proposed Equivalent Form
3. Section 004300 – Proposed Substitution Form
4. Section 012300 – Alternates
5. Section 014219 – Applicable Standards

1.03 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," “assembly methods,” “manufacturer,” “brand,” “tradename,” or "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. “Or Equal” Product: Product that is demonstrated and approved 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.

4. Reference to be approved equal or similar terms mean that approval of the Architect is required.

B. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

C. Basis-of-Design Product Specification: A specification in which a specific manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification. If the Contractor chooses to furnish an alternately named manufacturer or product, a substitution request must be made in accordance with Section 002113 and Section 004300.

1.04 SUBMITTALS

A. “Or Equal” Product Requests: 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 "Or Equal” Section 2.02 in this Specification.

2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within 10 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later.

a. Form of Approval: As specified in Section – 013300 – Submittal Procedures.

b. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.

B. Basis-of-Design Product Specification Submittal: Comply with requirements in Section – 013300 – Submittal Procedures. Show compliance with requirements.

1.05 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.

1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.

2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.

1.06 PROOF OF COMPLIANCE

A. Whenever the Contract Documents require that a product be in accordance with Federal Specifications, ASTM Designation, ANSI Specification, or other Association Standard, the Contractor shall present an affidavit from the manufacturer of a proposed product certifying that it complies therewith.

B. Where requested or specified, submit supporting test data to substantiate compliance.

1.07 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 flammable, hazardous, 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. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather- protection requirements for storage.
6. Protect stored products from damage and liquids from freezing.
7. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.08 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall 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 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 Owner.

2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.

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. Refer to other Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Section 017000 – Contract Closeout.

PART 2 - PRODUCTS

2.01 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. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.

2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Architect will make selection.
5. Where products are accompanied by the term “as selected,” sample to be matched is the Architect’s.
6. Where products are accompanied by the term “match existing,” sample to be matched is material adjacent.
7. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
8. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Or Equal” Section 2.02 in this Specification to obtain approval for use of an unnamed product.

B. Product Selection Procedures:

1. Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience may not be considered.
2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience may not be considered.
3. Products:

    a. Restricted List: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will be considered if requested and documentation is submitted to Architect/ Engineer for review as required elsewhere in these specifications.
    b. Nonrestricted List: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with requirements in "Or Equal Products" Section 2.02 for consideration of an unnamed product.

4. Manufactures:

    a. Restricted List: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will be considered if requested and documentation is submitted to Architect/ Engineer for review as required elsewhere in these specifications.
    b. Nonrestricted List: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, that complies with requirements. Comply with requirements in "Or Equal Products" Section 2.02 for consideration of an unnamed manufacturer's product.

5. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Or Equal Products" Section 2.02 for consideration of an unnamed product by one of the other named manufacturers.

C. Visual Matching Specification: Where Specifications require "match Architect's sample", provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.

1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Instructions to Bidders Section "Substitution Procedures" for proposal of product.

D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

1. Architect is permitted to require a custom color, at no charge to the Owner, when a standard or premium finish does not align with an existing color match or with the intent of the Architect's color palette selections.

2.02 "OR EQUAL" PRODUCTS

A. Conditions for Consideration: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with these requirements:

1. Evidence that the proposed product does not require revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
3. Evidence that proposed product provides specified warranty.
4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
5. Samples, if requested.

2.03 INCLUSION IN SPECIFICATION OF NON-SPECIFIED PRODUCTS

A. If a Contractor has based his bid upon products, materials, or items not specifically described or named in the specifications, he may be required, prior to Award of Contract, to submit the names, types, brand, or manufacturer of products included in his bid for the specified items.

B. Supporting data documenting wherein the proposed materials, products, or equipment may vary from those specified may be required and will be the responsibility of the Contractor.

C. The risk of whether bid equivalents will be accepted will be borne by the Contractor.

2.04 CONSIDERATION OF EQUIVALENTS AFTER AWARD OF CONTRACT

A. Equivalent products will be considered after Award of Contract if:

1. Previously accepted or specified product is not available because of strike, lock out, bankruptcy, or discontinuance of its manufacture.

2. Specified performance or guarantee cannot be attained in the Contractor's judgement.

B. Additional products, when submitted for consideration, must be accompanied by documentation attesting to the foregoing and establish equivalency in the judgement of the Architect, the burden of proof for which shall be the Contractors.

C. Request for product changes, other than equivalents, if accepted, shall be affected by Change Order.

PART 3 - EXECUTION

Not used

END OF SECTION

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 017000 – CONTRACT CLOSEOUT

1.01 CONTENTS

1. Scope
2. Punch List and Final Inspection
3. Operations and Maintenance Instructions
4. Project Closeout Documents
5. Emergency Repairs
6. Contractor's Guarantee

1.02 SCOPE

A. Prior to the release of final accrued retainage monies, the Contractor shall comply with the procedures for closing out the Construction Contract and to effect the project's transition to the Owner as summarized herein below.

1.03 PUNCH LIST AND FINAL INSPECTION

A. Preparation of Punch List:

1. When the Contractor determines that the project is substantially complete, he shall prepare a "Punch List" of the last items to be completed or corrected and shall notify the Owner in writing through the Architect that the project will be ready for a final inspection on a definite date which shall be stated in such notice. Such notification shall be given at least ten (10) days prior to the date stated for final inspection.

2. It shall be noted here, and emphasized, that preparation of the "Punch List" is a responsibility of the Contractor and not the Architect. The Architect's sole role will be that of an observer to assure that the design intent is carried out, and as an administrator of the Construction Contract.

3. The Contractor’s failure to include an item of deficiency on the punch list issued to the Contractor shall not relieve the Contractor of its responsibility to perform its work in accordance with the Drawings and/or Specifications, and as such, the punchlist may be revised, updated, and/or reissued at any time.

B. Review and Substantial Completion:

1. The Architect will review the Contractor's "Unacceptable and Non-Conforming Work List / Punch List" and on the basis of his inspection will verify the condition of substantial completion and prepare the Certificate of Substantial Completion.

C. Completion and Final Inspection:

1. Written notice shall also be given to the Architect by the Contractor upon completion of any work which, on the above stated final inspection, was determined to be incomplete, incorrect, or unsatisfactory and not to the stage of substantial completion. On receipt of such notice, additional inspection(s) will be made until completion of all contract requirements are effected. If the Architect is required to inspect the Contractor’s work more than twice, the Contractor shall be liable to the Owner for the services performed by the Architect as a result of additional inspections.

2. The final inspection is intended to be a last review to determine that the work included in the contract has indeed been executed in accordance with all of the Contract Documents. Requests to render a final inspection of an incomplete building or to prepare the Contractor's "Punch List" will not be honored.

1.04 OPERATIONS AND MAINTENANCE INSTRUCTIONS

A. The Contractor shall start up, test, adjust, balance and otherwise place in a satisfactory working condition all items of mechanical and electrical systems, and shall fully instruct representatives of the Owner in the care and operation of such systems.

B. Instruction of the Owner's Maintenance Supervisor in the proper methods of cleaning and maintaining all the finished surfaces and the proper methods of replacement of the consumable items such as filters, light bulbs, washers, etc., shall be a part of this work.

1.05 CONTRACT CLOSEOUT DOCUMENTS

A. Prior to submittal of Final Application for Payments, the Contractor shall submit the following documents to the Architect:

1. Contractor's notarized affidavit that all payrolls, bill and materials, equipment, and other indebtedness connected with the work have been paid (AIA G706).

2. Notarized Certificates of Waiver of Liens for himself (AIA G706a), each Subcontractor, each material supplier or person furnishing materials or services to the project (AIA G706).

3. List of subcontractors and major material suppliers including address, telephone number, and name of individual to contact (AIA G705).

4. Validated warranties and notarized copies of all guarantees for equipment and materials specifically called for in the Contract Documents.

5. Consent of Surety to Final Payment (AIA G707).

6. Conformed Construction Drawings (As-builts), per section 017839.

7. Record digital copy of each shop drawing or installation diagram.

8. Operating manual (three (3) sets) assembled and bound, each containing:

    a. Explanatory brochures of all equipment.
    b. Catalog cut.
    c. Wiring diagrams.
    d. Instruction sheets for operation and maintenance.

9. Guarantees:

    a. Standard guarantee as per attached form.
    b. Additional specific guarantees required by Technical Section of Contract Documents.
    c. Manufacturer's warranties together with list of all items of equipment of material carrying warranty.

10. Attic Stock Receipts (where applicable). Refer to individual Specification Sections for requirements.

11. Fire Underwriters Certification (where applicable).

12. Asbestos Documents including Asbestos License, Transport, Manifest, Notifications & Logs (where applicable). Refer to Specification Section 028000.

13. In addition, Contractors shall refer to the Closeout Checklist following this section for additional requirements. Following the award of the contract the Architect will use this checklist to identify what items are required for Closeout of this project.

14. Contractor to submit a digital copy of all of the above documents in addition to hard copies as depicted.

B. Package all items properly indexed and deliver to Architect for review and transmittal to Owner.

1.06 EMERGENCY REPAIRS

A. During a valid warranty period, if the Contractor is unable or unwilling to respond immediately to make emergency repairs under conditions which the Owner may determine to be an emergency situation, the Owner reserves the right, and the Contractor recognizes such right, to make such emergency repairs and then to bill the Contractor for a fair and reasonable amount in reimbursement for such repairs.

1.07 CONTRACTOR'S GUARANTEE

A. The following two pages are the Contractor's Guarantee and shall be submitted along with the required Closeout Documents.

END OF SECTION

CONTRACTOR'S GUARANTEE

CONTRACTOR'S NAME AND ADDRESS

_____

_____

_____

OWNER'S NAME AND ADDRESS

_____

_____

PROJECT: _____

LOCATION: _____

CONTRACT FOR: _____

CONTRACT DATE: _____

The Contractor hereby guarantees that all Work performed and/or materials installed under the above referenced contract is of the quality that will comply with all specific requirements of the contract documents and hereby insures the Owner against all defects of material for two (2) years and workmanship for a period of two (2) years from and after the date of Final Payment. This does not waive stipulation of other clauses which specify guarantee periods in excess of the obligations herein.

It is further agreed that if, after due inspection, the Architect, as provided in the General Conditions of the Contract for Construction, shall decide that the replacement or repair of any of the Work is, in his opinion, necessary, such defective Work will be repaired or removed and replaced with New Work, meeting all requirements of the Contract Documents, same being done promptly and without expense to the Owner. Repairs and replacements are to include all costs of replacing or repairing other work damaged by the removal and replacements of the work covered by this guarantee and all costs necessary for restoring any portion of the building and its contents which are damaged due to defects in this Contractor's Work or materials.

The Contractor agrees to perform all corrective work necessary promptly upon receipt of written notification from the Owner unless the Owner has previously given the Contractor a written acceptance of such condition.

The Contractor stipulates and agrees that if he fails or neglects to carry out promptly the provisions of this guarantee or any part thereof, the Owner may cause all defects to be remedied and all repairs to be made without further notice to the Contractor and shall charge to and recover the expense thereof from the Contractor and/or Sureties.

Such decisions as the architect shall render in connection with this guarantee are subject to the provisions of the General Conditions.

CONTRACTOR: CORPORATE SEAL:

BY: _____

DATED: _____

STATE OF NEW YORK, COUNTY OF _____ ss:

On the _____ day of _____, 20___, before me personally came _____ _____, to me known, who being by me duly sworn, did depose and say that he resides at _____ _____, that he is the _____ of _____, the corporation described in and which executed the foregoing instrument; that he knows the seal of said corporation; that the seal affixed to said instrument is such corporate seal; that it was so affixed by order of the Board of said corporation, and that he signed his name thereto by like order.

STATE OF NEW YORK, COUNTY OF _____ ss:

On the _____ day of _____, 20___, before me personally came _____ _____, to me known, and known to me to be the individual described in, and who executed the foregoing instrument, and _____ acknowledged to me that _____ executed same.

_____

NOTARY PUBLIC, State of New York

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CLOSEOUT CHECKLIST

Line	Item	Required	Responsible	Date Complete
1	Change Orders & Allowances Fully Executed	☒	BBS	
2	UNC/Punch List Issued	☒	BBS	
3	SED Certification of Substantial Completion Issued	☒	BBS	
4	Final Inspection Performed	☒	BBS	
5	DOL Wage Rate Completion Form	☒	BBS	
6	Final Payment Application	☒	Contractor	
7	Release of Liens from Prime Contractor (AIA G706a)	☒	Contractor	
8	Affidavit of Payment Prime Contractor (AIA G706)	☒	Contractor	
9	List of Subcontractors and Suppliers (AIA G705)	☒	Contractor	
10	Release of Liens from Subs & Suppliers (AIA G706a)	☒	Contractor	
11	Consent of Surety to Final Payment (AIA G707)	☒	Contractor	
12	Contractor's Guarantee (017000)	☒	Contractor	
13	As-Built Drawings (017839)	☐	Contractor	
14	O&M Manuals (017000)	☐	Contractor	
15	Record Copy Submittals (017000)	☐	Contractor	
16	Attic Stock Receipt (various individual sections)	☐	Contractor	
17	Maintenance Bond (General Conditions)	☐	Contractor	
18	Electrical Inspection Certificate (017000/260810)	☐	Contractor	
19	Fire Alarm NFPA 72 System Record of Completion (284613/E0.01)	☐	Contractor	
20	Equipment Guarantees/Warranties (017000)	☐	Contractor	
21	Demonstration/Training Proof (various individual sections)	☐	Contractor	
22	HVAC Testing & Balancing (230593)	☐	Contractor	
23	Elevator Inspection (142100/142200)	☐	Contractor	
24	Cx Report (230800)	☐	Contractor	
25	Asbestos License, Transport, Manifest, Notifications, Logs (028000)	☐	Contractor	
26	Lead Renovation, Repair & Painting (RRP) Certification (029000)	☐	Contractor	
27	NYSDEC 375 Clean Fill Certification (310000)	☐	Contractor	
28	Public School Fire Safety Report	☐	Third Party	
29	Controlled/Special Inspection Results	☐	Third Party	
30	Asbestos License, Clean-Air, CoC, Location Plans, Lab Accreditations	☐	Third Party	
31	Lead Clearance Wipe Tests	☐	Third Party	
32	Lead in Water Test (New Faucets)	☐	Third Party	
33	SWPPP Notice of Termination	☐	Third Party	
34	Certificate of Occupancy	☐	AHJ	

Notes:

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 017423 – FINAL CLEANING

PART 1 - GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

A. Each Contractor shall at all times during the progress of the work keep the building and site free from accumulation of rubbish.

1. This includes broom sweeping with compound, vacuuming as required and removal of all trash daily. All Contractors shall provide this daily cleanup. Failure to comply with cleaning requirements will initiate the Owner to provide cleaning as required, all costs associated with this expense shall be backcharged to the individual Contractor or Contractors.

B. Each Contractor shall provide final cleaning of those areas of site and structure (exterior and interior) involved in the work of his respective contract immediately before final inspection.

1.02 PROTECTION AND CONTROL

A. Fire Protection:

1. Store volatile waste removed in final cleaning in covered metal containers, and remove from premises to comply with local and/or state ordinances and OSHA.

2. Gasoline and fuel oil storage facilities shall be located and maintained in full compliance with local and/or state ordinances and OSHA.

B. Pollution Control:

1. Conduct clean up and disposal operations to comply with local ordinances and/or state ordinances and OSHA anti-pollution laws.

2. Burning or burying of rubbish and waste materials on the project site is not permitted.

3. Disposal of volatile fluid wastes (such as mineral spirits, oil, or paint thinner) in storm or sanitary sewer systems or into streams or waterways is not permitted.

PART 2 - PRODUCTS

2.01 CLEANING MATERIALS

A. Use only cleaning materials recommended by manufacturer or surface to be cleaned.

B. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

PART 3 - EXECUTION

3.01 PREPARATION

A. Post signs to advise building occupants if wet and/or slippery floor conditions exist during cleaning operations.

3.02 FINAL CLEANING

A. General:

1. Use experienced workmen, or professional cleaners, for final cleaning.

2. Maintain cleaning until the building, or portion thereof, is occupied by the Owner.

B. Remove grease, dirt, dust, stains, labels, fingerprints, paint drips and runs, plastic coverings, tape, glue and other foreign materials, from interior and exterior surfaces.

C. Do not move dust from spot to spot. Remove directly from the surface on which it lies by the most effective mean such as appropriately treated dusting cloths or vacuum tools. When doing high cleaning, do not allow dust to fall from high areas onto furniture and equipment below.

D. Clean transparent and glossy materials to a polished condition; remove foreign substances. Polish reflective surfaces to a clear shine.

E. Clean resilient and hard surface floors as recommended by manufacturer.

F. Clean surfaces of equipment; remove excess lubrication.

G. Clean plumbing fixtures and toilet rooms to a sanitary condition.

H. Clean permanent filters of ventilating equipment and replace disposable filters when units have been operated during construction; in addition, clean ducts, blowers, and coils when units have been operated without filters during construction.

I. Remove waste, foreign matter, and debris from roofs, gutters and downspouts, areaways, and drainage systems.

J. Dismantle and remove all temporary structures, scaffolding, fencing, and equipment.

K. Remove waste materials, rubbish, lumber, block, tools, machinery, and surplus materials from site. Clean grounds; remove stains, spills and foreign substances from paved areas and sweep clean. Rake clean other exterior surfaces.

L. Perform the following prior to final payment:

1. Broom clean all exterior concrete surfaces and vacuum clean all interior concrete surfaces.
2. Dust and spot clean painted and vinyl covered walls.
3. Clean and polish all unpainted metal on doors such as trim, hardware, kickplates and doorknobs.
4. Vacuum clean carpets, mats and similar soft surfaces.
5. Vacuum clean acoustic ceilings.
6. Repair, patch, and touch-up marred surfaces to specified finish and to match adjacent surfaces.
7. Remove foreign material from exterior masonry.
8. Replace all broken and scratched glass and mirrors.
9. Replace all damaged insect screens.
10. Wash and clean interior and exterior window surfaces. All glass shall be clean and free of dirt, grime, streaks and excessive moisture. Wipe drippings and other marks from windowsills, sashes and woodwork. Do not use windowsills in lieu of ladders.
11. Clean furniture and equipment in accordance with manufacturers instructions.
12. Clean all paved roads, lots and drives which were paved as work under this Contract and all existing paved surfaces using a mechanical street cleaner.
13. Repair or repaint damaged pavement markings.

14. Vacuum and clean with a damp cloth light fixtures, including glass and plastic lenses, ceiling and wall mounted lights, cover panels, side panels, louvers, fixture frames and lamps.
15. Clean supply vents and exhaust grilles.
16. Remove all rust spots and stains from new and pre-existing concrete, painted surfaces, and all other surfaces.
17. Clean and polish all new toilet facilities constructed under this project.
18. Wash all existing floors that were in any way impacted by the construction operations.
19. Rake clean landscaped surfaces. Final mow all areas grassed and sodded during the work.
20. Inspect interior and exterior surfaces, and all work areas, to verify that the entire work is clean and ready for use by the Owner. The project will not be considered substantially complete until all final cleaning has been performed.
21. Fill in all holes in concrete that remain after temporary handrail is removed. Non-shrink grout shall be used.
22. Elevators: Clean all interior surfaces of the car including hoistway doors and services of the corridors on the side of the elevator. Polish all bright metal surfaces. Clean and spray buff resilient tiles. Dust and damp wipe elevator cab doors, walls and bright work.
23. Clean kitchens and kitchen equipment in accordance with Health Department requirements.

END OF SECTION

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 017839 – PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.01 GENERAL

A. Submit Conformed Construction Documents as required by Section 017000 herein specified and obtain written receipt from Architect.

B. Each Contractor shall, upon completion of the construction work, furnish the Owner with three (3) paper sets and two (2) electronic copies (both AutoCAD and PDF electronic files) of Conformed Construction Documents.

1. The Contractor shall either use and reproduce the documents they are entitled to via the contract or they shall request and pay for additional sets from the Architect.

a. Electronic drawing files, AutoCAD format, may be available, at the discretion of the Architect, for a cost of $25.00 per drawing. Contractors requesting this service will be required to sign a disclaimer. Request for electronic files must be made in writing to the Architects office. This request must include a specific list of drawings required in this format. In response, the architect will verify the drawings requested and will forward the disclaimer for signature. Electronic files will be released upon receipt of payment and a fully executed disclaimer. Payment shall be made by check, payable to BBS Architects, Landscape Architects & Engineers, P.C.

2. Incorporate all changes due to addenda modifications, change orders, field conditions and record actual locations of all items clearly and neatly with all changes bubbled or highlighted. Print each drawing, whether or not changes and additional information were noted. Submit prints when requested by the Architect for interim approval. Review may be made periodically during the job.

3. Each Drawing shall be dated and include the designation “PROJECT RECORD DRAWING” clearly and prominently located.

C. The Architect will review Conformed Construction Documents prior to transmittal to Owner. If in the Architect’s opinion, the submitted Conformed Construction Documents are lacking or inadequate, the Contractor shall revise and resubmit accordingly.

1.02 BUILDING CONSTRUCTION AND RECONSTRUCTION

A. General Construction:

1. Incorporate plan changes, structural changes, and general building layout changes. For buried construction, include tie dimensions.

B. Mechanical Construction:

1. Incorporate ductwork and revisions/re-routing, registers and diffusers, piping runs, valve locations and identification, pump locations and identification, and equipment location. For buried construction, include tie dimensions.

C. Electrical Construction:

1. Incorporate large conduit runs, switchgear and panel locations, equipment locations, and controls locations. For buried construction, include tie dimensions.

D. Plumbing Construction:

1. Incorporate above ground and underground piping runs, clean-outs, and valve locations and identification. For buried construction, include tie dimensions.

1.03 SITE WORK

A. Parking Lot, Pavement, Fields and General Site Construction:

1. Provide a survey, signed and sealed by NYS licensed Land Surveyor. Mark-ups of the Construction Documents will not be accepted unless agreed to in advance by the Architect for small-scope projects only.

a. If a land survey of existing conditions is provided in the Construction Documents, the contractor shall update that land survey as the basis of the as-built, utilizing the surveyor that performed said original survey.

2. Incorporate layout changes, drainage structure locations, piping locations, invert elevations, fences, and topography.

a. If site work is relevant to a new building or building addition, provide actual finish floor elevations at all doorways, and actual building perimeter locations and dimensions.

B. Utility Service Construction:

1. Provide a survey, signed and sealed by NYS licensed Land Surveyor. Mark-ups of the Construction Documents will not be accepted unless agreed to in advance by the Architect for small-scope projects only.

a. If a land survey of existing conditions is provided in the Construction Documents, the contractor shall update that land survey as the basis of the as-built, utilizing the surveyor that performed said original survey.

2. Incorporate layout changes, electrical primaries and secondaries, transformers, water services, gas services, sewer lines, and sanitary systems with leaching structure locations, piping locations, and invert elevations.

a. Include tie dimensions to visible above ground elements for buried construction.

END OF SECTION

DIVISION 02 – EXISTING CONDITIONS

SECTION 024119 – SELECTIVE DEMOLITION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and General Provision of Contract, including General and Supplementary Conditions and Division 01 - Specification Sections, apply to work of this Section.

B. The work must comply with the requirements of the following related specifications sections when applicable:

1. Section 013500 – Commissioner's Regulations
2. Section 013563 – LEED Requirements (For LEED Certified Projects)
3. Section 017419 – Construction Waste Management (For LEED Certified Projects)

1.02 SUMMARY

A. Section Includes:
1. Demolition and removal of selected portions of building or structure.
2. Demolition and removal of selected site elements.
3. Salvage of existing items to be reused or recycled.

B. Extent of selective demolition work is indicated on drawings and/or specified herein.

1.03 DEFINITIONS

A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.

B. Remove and Salvage: Carefully detach from existing construction, in a manner to prevent damage, and deliver to Owner ready for reuse.

C. Remove and Reinstall: Detach items from existing construction, prepare for reuse, and reinstall where indicated.

D. Existing to Remain: Existing items of construction that are not to be permanently removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.04 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition waste becomes property of Contractor.

B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition shall remain the property of Owner.

1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.05 PREINSTALLATION MEETINGS

A. Predemolition Conference: Conduct conference at Project site.

1. Inspect and discuss condition of construction to be selectively demolished.
2. Review structural load limitations of existing structure.
3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
5. Review areas where existing construction is to remain and requires protection.

1.06 INFORMATIONAL SUBMITTALS

A. Schedule: Submit schedule indicating proposed methods and sequence of operations for selective demolition work to Owner's Representative for review and approval prior to commencement of work.

B. See Section 013563 for additional submittal requirements for LEED Projects.

C. Qualification Data: For refrigerant recovery technician.

D. Proposed Protection Measures: Submit report, including drawings, that indicates the measures proposed for protecting the public, pedestrian access and circulation areas and property, for environmental protection, for dust control and, for noise control. Indicate proposed locations and construction of barriers.

E. Schedule of Selective Demolition Activities: Indicate the following:
   1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.
   2. Interruption of utility services. Indicate how long utility services will be interrupted.
   3. Coordination for shutoff, capping, and continuation of utility services.
   4. Use of elevator and stairs.
   5. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.

F. Inventory: Submit a list of items that have been removed and salvaged.

G. Predemolition Photographs or Video: Show existing conditions of adjoining construction, including finish surfaces, that may be damaged during demolition.

H. 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.

I. Warranties: Documentation indicated that existing warranties are still in effect after completion of selective demolition.

1.07 QUALITY ASSURANCE

A. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.

1.08 JOB CONDITIONS

A. Owner will be occupying areas of the building immediately adjacent to areas of selective demolition. Demolition work must be conducted in a manner to minimize disruption of normal Owner’s operations.

B. Exits: All exits must be kept clear and maintained.

C. Protection: Provide temporary barricades and other forms of protection as required to protect Owner's personnel, staff and General Public from injury due to selective demolition work and new construction.

1. Prevent dust and dirt from rising and entering the building.
2. Protect adjacent floor areas with suitable coverings.

D. All work in an Educational Facility must comply with the Commissioners Regulations and Uniform Safety Standards for School Construction and Maintenance Projects. Reference Section 013500 for additional information.

E. Project Waste: All project waste and rubbish to be disposed in containers provided by the Contractor for subsequent legal off site disposal in accordance with Specifications Sections 013563 and 017419. Container locations to be coordinated with the Owner. Off site disposal must be on a regular basis.

F. Damage: Promptly repair or replace areas that are to remain and are damaged by demolition or removal work.

G. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

H. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

I. Hazardous Materials: Hazardous materials are present in buildings and structures to be selectively demolished. A report on the presence of hazardous materials is on file for review and use and is included in Division 00 – Front End Documents of the Project Manual. Examine report and / or the appropriate specification section to become aware of locations where hazardous materials are present.

1. Hazardous material remediation is specified elsewhere in the Contract Documents.
2. Do not disturb hazardous materials or items suspected of containing hazardous materials except under procedures specified elsewhere in the Contract Documents.

J. Storage or sale of removed items or materials on-site is not permitted.

K. 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.
2. Contractor shall provide a Fire Watch or other method acceptable to the authority having jurisdiction should the existing fire protection facilities be required to be shut down during construction work.
3. Do not disable or disrupt building fire or life safety systems without (1) one week prior written notice to Architect or Construction Manager.

1.09 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials utilizing approved contractors so as not to void existing warranties. Notify warrantor before proceeding. Notify warrantor on completion of demolition, and obtain documentation verifying that existing system has been inspected and warranty remains in effect. Submit documentation at Project Closeout.

PART 2 - PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ANSI/ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting selective demolition operations.

B. Examine the areas and conditions under which work of this Section will be performed for any interferences, or conditions which will be detrimental to timely and proper completion of the work.

C. Report any interferences or unsatisfactory conditions to the Architect in writing. Do not proceed until interferences or unsatisfactory conditions have been removed or corrected.

D. Review Project Record Documents of existing construction or existing conditions and hazardous material information provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in the Project Record Documents.

E. Survey existing conditions and reference scope of work on Drawings to determine extent of selective demolition required.

F. Engage a professional engineer to perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective building demolition operations.

1. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

G. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs and/or video.

1. Inventory and record the condition of items to be removed and salvaged. Provide photographs of conditions that might be misconstrued as damage caused by salvage operations.

3.02 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

B. Existing Services/Systems to be removed, relocated, or abandoned: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.

1. Arrange to shut off indicated utilities with utility companies. Provide 1 week notice to the Architect prior to any utility shut-downs.
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 to be removed.

    a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap, plug or reconnect 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 operational.
    e. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
    f. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material and leave in place.

3.03 PROTECTION

A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

    1. Comply with requirements for access and protection specified in Section 015000 – Temporary Facilities and Controls.

B. 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. Maintain existing minimum required widths of egress pathways throughout.
    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. Erect and maintain dust-proof closures to prevent the spread of dust to adjacent areas.
    4. Cover and protect furniture, furnishings, and equipment that have not been removed.
    5. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Section 015000 – Temporary Facilities and Controls

C. 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. Provide engineered signed and sealed drawings prepared by a Professional Engineer.
    1. Strengthen or add new supports when required during progress of selective demolition.

3.04 SELECTIVE DEMOLITION, GENERAL

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

    1. Proceed with selective demolition systematically, from higher to lower level. Complete selective

demolition operations above each floor or tier before disturbing supporting members on the next lower level.
2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
5. Maintain fire watch during and for at least 2 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. 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 Owner.
4. Transport items to Owner's storage area designated by Owner or as indicated on Drawings.
5. Protect items from damage during transport and storage.

C. Removed and Reinstalled Items:
1. Clean and repair items to functional condition adequate for intended reuse.
2. Pack or create items after cleaning and repairing. Identify content of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports and miscellaneous materials necessary to make item functional for use indicated.

D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, 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

3.05 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

A. Concrete: Demolish in small sections. Using power-driven saw, cut concrete to a depth of at least 1 inch (25 mm) 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, then remove masonry between saw cuts.

C. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, then break up and remove.

D. Resilient Floor Coverings: Remove floor coverings and adhesive according to recommendations in RFCI's "Recommended Work Practices for the Removal of Resilient Floor Coverings." Do not use

methods requiring solvent-based adhesive strippers.

E. Roofing: Remove no more existing roofing than what can be covered in once day by new roofing and so that building interior remains watertight and weathertight. Refer to Roofing Specifications.

3.06 DISPOSAL OF DEMOLISHED MATERIALS

A. General: Except for items or materials indicated to be recycled, reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
4. Each day, remove debris, rubbish, and other materials resulting from demolition operations from building in accordance with Specifications Sections 013563 and 017419. Material to be disposed in containers provided by the Contractor. *(For LEED Certified Projects)*

B. Burning: Do not burn demolished materials.

3.07 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. Upon completion of demolition work, remove tools, equipment and all remaining demolished materials from site. Leave areas broom clean.

END OF SECTION

DIVISION 23 – HEATING, VENTILATING AND AIR CONDITIONING (HVAC)

SECTION 230000 – GENERAL PROVISIONS

PART 1 – GENERAL

1.01 SUMMARY OF ITEMS INCLUDED

A. This Section contains General Provisions related specifically to the Mechanical Work.

1. Quality Assurance.
2. Terminology.
3. Protection.
4. Coordination and Sequencing.
5. General Completion.
6. Demolition.
7. Cutting and Patching.
8. Excavation for Mechanical Work.
9. Concrete for Mechanical Work.

B. Drawings and General Provisions of Contract, including General and Supplementary Conditions, apply to this section.

1.02 QUALITY ASSURANCE

A. Laws, Permits, Inspections.

1. Comply with latest revisions of New York State Uniform Fire Protection and Construction Code, NYSED Manual of Planning Standards, any Local Codes or Regulations that apply.
2. Underwriters Laboratories label required for all electrical materials carrying 50 volts or more.
3. Comply with New York State Energy Conservation Construction Code.
4. Comply to requirements of drawings and specifications that are in excess of governing codes.
5. Comply with Section 1613 of the New York State Building Code for seismic requirements.
6. Do not install work as specified or shown if in conflict with governing code. Notify Engineer and request direction.
7. Pay all Inspection and Permit fees.
8. Provide Certificate of Inspection from all governing authorities.

B. Reference to technical society, organization, body or section made in accordance with the following abbreviations:

1. AIA American Institute of Architects
2. AMCA Air Moving and Conditioning Association, Inc.
3. ANSI American National Standards Institute.
4. ASHRAE American Society of Heating, Refrigerating and Air Conditioning Engineers
5. ASME American Society of Mechanical Engineers
6. ASTM American Society of Testing Materials
7. AWSC American Welding Society Code
8. AWWA American Water Works Association
9. IEEE Institute of Electric and Electronics Engineers
10. NEC National Electric Code
11. NEMA National Electrical Manufacturer's Association
12. NFPA National Fire Protection Association
13. NYBFU New York Board of Fire Underwriters
14. NYCRR - Codes, Rules and Regulations of the State of New York.

15. NSF - National Sanitation Foundation
16. PDI - Plumbing and Drainage Institute.
17. SMACNA Sheet Metal and Air Conditioning Contractors National Association
18. UL Underwriters' Laboratories, Inc.

C. Contractor submission of equivalent or substitute items other than those specified is at Contractor convenience only. If a substitution or equivalent is accepted, the Contractor shall coordinate the installation of the substitute or equivalent and make all associated changes required. The Contractor also waives any claim for additional costs associated with the substitute / equivalent which becomes apparent before, during or after installation. The Contractor agrees to bear any and all additional costs to all other contractors or subcontractors which are caused by the incorporation of the substitution / equivalent.

D. The Contractor shall, as part of his contract, furnish and install all equipment, materials, wiring accessories, and on-site installation of equipment as required by current standards of good practice.

E. All materials and equipment to be furnished and installed shall be new and of first quality and be free from all defects.

1.03 TERMINOLOGY

A. The following terminology and definitions are used on this project as related to the Mechanical Work.

1. Finished Spaces: Spaces other than mechanical and electrical equipment rooms, furred spaces, pipe and duct shafts, unheated spaces immediately below the roof, spaces above ceilings, unexcavated spaces, crawl spaces and tunnels.
2. Exposed Interior Installations: Exposed to view indoors. Examples include finished occupied spaces and mechanical equipment rooms.
3. Exposed Exterior Installations: Exposed to view outdoors, or subject to outdoor ambient temperatures and weather conditions. Examples include rooftop locations.
4. Concealed Interior Installations: Concealed from view and protected from physical contact by building occupants. Examples include above ceilings and in duct shafts.
5. Concealed Exterior Installations: Concealed from view and protected from weather conditions and physical contact by building occupants, but subject to outdoor ambient temperatures. Examples include installations within unheated shelters.
6. Sewers: Refer to underground connections from building to street mains. Sewers begin at points 5 feet outside building wall.
7. Service Connections: Refer to underground connections from 5 feet outside building wall to street mains.
8. Underground Lines: Refer to piping buried in earth inside and within 5 feet outside building.
9. Building Lines: Refer to all other lines.
10. For other definitions refer to latest issue of New York State Plumbing Code, and all revisions.

1.04 PROTECTION

A. Protect equipment from damage, including water, chemical, mechanical injury and theft.

B. Replace damaged equipment or components.

C. Close and waterproof between sleeves, openings, pipes and voids in walls, floors and foundations to prevent entrance of water or moisture.

D. Holes made in fire walls, partitions, fire stops, shall be patched to maintain fire rating integrity.

E. Deliver pipes and tubes with factory-applied end-caps. Maintain end-caps through shipping, storage and handling to prevent pipe-end damage and prevent entrance of dirt, debris and moisture.

F. Protect stored pipes and tubes from moisture and dirt. Elevate above grade. When stored inside, do not exceed structural capacity of the floor.

G. Protect flanges, fittings, and piping specialties from moisture and dirt.

H. Store plastic pipes protected from direct sunlight. Support to prevent sagging and bending.

I. If permanently installed air handler equipment/systems are used during construction, filtration media with a Minimum Efficiency Reporting Value (MERV) of 8 shall be used in each unit and at each return air grille/opening, as determined by ASHRAE 52.2 Replace all unit filtration media with a Minimum Efficiency Reporting Value (MERV) of 13 immediately prior to occupancy and verify ductwork cleanliness; if ductwork is found contaminated, clean ductwork and associated air handling equipment and replace filtration media.

1.05 COORDINATION AND SEQUENCING

A. Coordinate mechanical equipment installation with other building components.

B. Arrange for chases, slots and openings in building structure during progress of construction, to allow for mechanical installations.

C. Coordinate the installation of required supporting devices and set sleeves in poured-in-place concrete and other structural components, as they are constructed.

D. Sequence, coordinate, and integrate installations of mechanical materials and equipment for efficient flow of the Work. Coordinate installation of large equipment requiring positioning prior to closing in the building.

E. Coordinate connection of mechanical systems with exterior underground and overhead utilities and services. Comply with requirements of governing regulations, franchised service companies, and controlling agencies.

F. Coordinate requirements for access panels and doors where mechanical items requiring access are concealed behind finished surfaces. Access panels and doors shall be submitted and approved by the engineer.

G. Coordinate installation of identifying devices after completion of covering and painting, where devices are applied to surfaces. Install identifying devices prior to installation of acoustical ceilings and similar concealment.

H. Coordination with other trades: Right-of-Way as follows:

1. Light Fixtures.
2. Drain Pipes and Vents.
3. Ductwork.
4. HVAC Piping.
5. Domestic Water Piping.
6. Electrical Conduit.

I. Work in existing building.

1. Verify existing locations of pipe, ductwork equipment and conduit in field.

2. Extend existing systems as required for proper tie-in to new systems.
3. Leave existing equipment to be reused in satisfactory working order.
4. Remove from building all existing piping, ductwork, equipment and similar items which do not conform to new layout. Before disposing of these items, determine if Owner wishes to retain them.

J. Changeovers and continuity of services.

1. Make changeovers, tie-ins, removal, and perform similar work that affect operation of present building at times approved by Owner.
2. Make temporary connections required to keep present building systems and equipment in operation.
3. Prior to any shutdown of present building, have necessary materials at site.

1.06 GENERAL COMPLETION

A. Oiling Equipment.

1. Lubricate equipment and motors in accordance with manufacturer's requirements.

B. Instructions to Owner's Representative.

1. Give notice to Engineer when all systems are installed and operating.
2. Obtain name of Owner's Representative to receive instructions.
3. Schedule instructions of Owner's Representative by manufacturer's representative and instruct Owner in system installation and operation for:

a. Heating, Ventilating & Air Conditioning Equipment.
b. Fan equipment.
c. Pumps.
d. Temperature control.
e. Equipment lubrication.
f. Packaged systems.

C. Provide Operation and Maintenance manuals in accordance with the requirements of Division 01 "Project Closeout" Section. Provide an instructional video to the owner of the training / maintenance instruction sessions with the owner.

1.07 PAINTING AND FINISHING

A. Refer to "Painting" Section 099000 for field painting requirements.

B. Damage and Touch-up: Repair marred and damaged factory painted finishes with materials and procedures to match original factory finish.

1.08 DEMOLITION

A. Disconnect, demolish, and remove work specified under Division 23 and as indicated.

B. Where pipe, ductwork, insulation or equipment to remain is damaged or disturbed, remove damaged portions and install new products of equal capacity and quality.

C. Accessible Work: Remove indicated exposed pipe and ductwork in its entirety.

D. Abandoned Work: Cut and remove buried pipe abandoned in place, 2 inches beyond the face of adjacent construction. Cap and patch surface to match existing finish.

E. Removal: Remove indicated equipment from the project site.

F. Temporary Disconnection: Remove, store, clean, reinstall, reconnect, and make operational equipment indicated for relocation. Add cap off and pressure test prior to putting back in service.

1.09 CUTTING AND PATCHING

A. All cutting required to facilitate the proper installation of all work to be installed under Division 23, shall be done by the Mechanical Contractor.

B. Cut, channel, chase and drill floors, walls, partitions, ceilings and other surfaces necessary for mechanical installations in the maner specified and approved by the architect. Perform cutting by skilled mechanics of the trades involved.

C. Repair cut surfaces to match adjacent surfaces.

1.10 EXCAVATION FOR MECHANICAL WORK

A. Description of Work: Types of excavation for mechanical related work specified in this section include:

1. Underground mechanical utilities and services.
2. Underground tanks, casings and equipment enclosures.
3. Exterior water circulation and distribution systems.

B. Project Conditions.

1. Locate and protect existing utilities and other underground work in manner which will ensure that no damage or service interruption will result from excavating and backfilling. Liabilities arising out of performance of work is responsibility of Contractor doing excavation.
2. Protect persons from injury at excavations by barricades, warnings, and illumination.
3. Provide temporary covering or enclosure and temporary heat as necessary to protect bottoms of excavations from freezing and frost action. Do not install mechanical work on frozen excavation bases or subbases.

1.11 CONCRETE FOR MECHANICAL WORK.

A. Types of concrete for mechanical related work specified in this section include:

1. Lean concrete backfill to support mechanical work.
2. Encasement of mechanical work.
3. Mechanical equipment foundations and housekeeping pads.
4. Inertia bases for isolation of mechanical work.
5. Rough grouting in and around mechanical work.
6. Patching concrete cuts to accommodate mechanical work.
7. Thrust block.

1.12 REBATES

A. The Mechanical Contractor shall assist the Owner in applying for any available rebates from manufacturer’s, utility companies, etc. on equipment or materials installed under the contract. Provide all required documentation and assist in the completion of applications as required to complete the rebate process. All proceeds from rebates remain the property of the Owner.

PART 2 – PRODUCTS

Reference Section 033000.

PART 3 - EXECUTION

3.01 EXCAVATION - GENERAL

A. Do not excavate for mechanical work until work is ready to proceed without delay, so that total time lapse from excavation to completion of backfilling will be minimum.

B. Excavate with vertical sided excavations to greatest extent possible, except where otherwise indicated. Where necessary, provide sheeting and cross bracing to sustain sides of excavation. Remove sheeting and cross bracing during backfilling wherever such removal would not endanger work or other property. Where not removed, cut sheeting off at sufficient distance below finished grade to not interfere with other work.

C. Width: Excavate for piping with 6" to 9" clearance on both sides of pipe, except where otherwise shown or required for proper installation of pipe joints, fittings, valves and other work. Excavate for other mechanical work to provide minimum practical but adequate working clearances.

D. Depth for direct support: For work to be supported directly on undisturbed soil, do not excavate beyond indicated depths, and hand excavate bottom cut to accurate elevations, undercut at pipe hubs.

E. Depth for subbase support: For large piping (6" pipe size and larger), tanks, and where indicated for other mechanical work, excavate for installation of subbase material in depth indicated or, if not otherwise indicated, 6" below bottom of work to be supported.

F. Depth for unsatisfactory soil or rock conditions: Where directed, (because of unsatisfactory conditions at bottom of indicated excavation), excavate additional depth as directed to reach satisfactory conditions. Backfill with subbase material, compacted as directed, to indicated excavation depth.

G. Store excavated material (temporarily) near excavation, in manner which will not interfere with or damage excavation or other work. Do not store under trees (within drip line).

1. Dispose of excavated material which is either in excess of quantity needed for backfilling, or does not comply with requirements for backfill material.

    a. Remove unused material from project site, and dispose of in lawful manner.

3.02 WATER CONTROL

A. Maintain dry excavations for mechanical work, by removing water. Protect excavations from inflow of surface water. Pump inflow of ground water from excavations, protect excavations from inflow of ground water, by installing temporary sheeting and waterproofing as well as dewatering as required. Provide adequate barriers which will protect other excavations and below grade property from being damaged by water, sediment or erosion from or through mechanical work excavations. Need permit for dewatering – contractor to obtain and pay for.

3.03 BACKFILLING (REFERENCE 310000)

A. Do not backfill until installed mechanical work has been tested and accepted, wherever testing is indicated.

B. Install drainage fill where indicated, and tamp to uniform firm density.

C. Backfill with finely graded subbase material to 6" above wrapped, coated and plastic piping and tanks, and to centerline of other tanks.

D. Condition backfill material by either drying or adding water uniformly, to whatever extent may be necessary to facilitate compaction to required densities. Do not backfill with frozen soil materials.

E. Backfill simultaneously on opposite sides of mechanical work, and compact simultaneously, do not dislocate work from installed positions.

F. Backfill excavations in 8" high courses of backfill material, uniformly compacted to the following densities (% of maximum density, ASTM D1557), using power-driven hand operated compaction equipment.

1. Lawn and landscaped areas: 85% for cohesive soils, 90% for cohesionless soil.
2. Paved areas and roadways: 90% for cohesive soils, 95% for cohesionless soils.

G. Backfill to elevations matching adjacent grades, at time of backfilling excavations for mechanical work. Return surfaces to original condition.

H. After covering piping with 6" layer of approved fill, employ General Contractor to backfill, compact excavations beneath:

1. New foundations.
2. Slabs on grade.
3. Areas to be paved by General Contractor.

3.04 CONCRETE BASES

A. Construct concrete equipment bases of dimensions required, but not less than 4 inches larger in both directions than supported unit. Follow supported equipment manufacturer's setting templates for anchor bolt and tie locations.

3.05 CONCRETE GENERAL

Reference Section 033000.

3.06 CONCRETE CURING AND PROTECTION

Reference Section 033000.

3.07 MISCELLANEOUS CONCRETE ITEMS

A. Fill in holes and openings left in concrete structures for passage of work by trade unless otherwise shown or directed, after work of other trades is in place. Mix, place and cure concrete as herein specified, to blend with in-place construction. Provide other miscellaneous concrete filling shown or required to complete work.

3.08 CONCRETE SURFACE REPAIRS (REFERENCE 030130)

A. Repair and patch areas with epoxy or non-shrink grout immediately after removal of forms, when acceptable to Architect/Engineer.

B. Repair areas, except single holes not exceeding 1" diameter, by cutting out and replacing with fresh concrete. Remove areas to sound concrete with clean, square cuts and expose reinforcing steel with at least 3/4" clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding compound. Mix patching concrete of same materials to provide concrete of same type or class as original concrete. Place, compact and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.

C. Use epoxy-based mortar for structural repairs, where directed by Architect/Engineer.

D. Repair methods not specified above may be used, subject to acceptance of Engineer.

3.09 QUALITY CONTROL TESTING DURING CONSTRUCTION

A. Quality Control: Owner's acceptable testing laboratory will perform sampling and testing during concrete placement, which may include the following, as directed by Engineer. This testing does not relieve Contractor of responsibility of providing concrete in compliance with specifications. Contractor shall perform additional testing as necessary, at no expense to Owner, to ensure quality of concrete.

1. Sampling Fresh Concrete: ASTM.
2. Slump: ASTM, one test for each load at point of discharge.
3. Air Content: ASTM C 173, one for each set of compressive strength (specimens of freshly mixed concrete).
4. Compressive Strength: ASTM, one set for each 50 cu. yds. or fraction thereof of each class and type of concrete; 2 specimens tested at 7 days, 3 specimens tested at 28 days, and one retained for later testing if required.
5. Laboratory Cured Test Cylinders: ASTM.

END OF SECTION

DIVISION 23 – HEATING, VENTILATING AND AIR CONDITIONING (HVAC)

SECTION 230010 – CODES, STANDARDS, AND PERMITS

PART 1 – GENERAL

1.01 GENERAL

The entire installation shall be made in accordance with State rules and regulations and shall also conform with the Standards of the National Board of Fire Underwriters for this installation and the local Board of Fire Underwriters having jurisdiction. The installation shall also comply with air pollution requirements of the State of New York and Industrial Code Rule 4 of the State of New York Department of Labor, Board of Standards and Appeals, dated March 31, 1965, and all other ordinances having jurisdiction.

The Contractor shall submit to all authorities having jurisdiction all required applications and shall secure all necessary permits, tests, and inspections required for final approval.

Certain standard and staple materials are described by reference to standard specifications. These standards are as follows:

ASA-B9	Safety Code for Mechanical Refrigeration
ASHRAE	American Society of Heating, Refrigerating, and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society of Testing Materials
AWWA	American Water Works Association
CS	Commercial Standard
FS	Federal Specification
NEMA	National Electrical Manufacturer's Association
NFPA	National Fire Protection Association
NSF	National Sanitation Foundation
PDI	Plumbing and Drainage Institute
SMACNA	Sheet Metal and Air Conditioning Contractors Association
USASI	United States of America Standards Institute
UL	Underwriters' Laboratories
	New York State Uniform Fire Prevention and Building Code
A.A.B.C.	Associated Air Balance Council
N.E.B.B.	National Environmental Balancing Bureau
NYSED	Manual of Planning Standards (Latest Edition)

All new equipment shall bear U.L. label and conform to the latest edition of the National Electric code.

END OF SECTION

DIVISION 23 – HEATING, VENTILATING AND AIR CONDITIONING (HVAC)

SECTION 230300 – BASIC MECHANICAL MATERIALS AND METHODS

PART 1 – GENERAL

1.01 SUMMARY OF ITEMS INCLUDED

A. This Section includes the following basic mechanical materials and methods to complement other Division 23 Sections.

1. Submittals.
2. Welder certification.
3. Pipe joining materials and installation instructions common to piping systems.
4. Piping specialties: Escutcheons, dielectric fittings, sleeves and seals.
5. Identifying devices and labels.
6. Nonshrink grout for equipment installations.
7. Drip pans.
8. Fire stopping.
9. Pipe supports: Hangers, clamps, support spacing, building attachments, shields and saddles, flashing, miscellaneous materials, anchors.
10. Field fabricated metal and wood equipment supports.

B. Pipe and pipe fitting materials are specified in piping system sections.

1.02 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.03 SUBMITTALS

A. General - Submit the following in accordance with Conditions of Contract and Division 01 Specification Sections.

B. Product data for following piping specialties:

1. Mechanical sleeve seals.
2. Identification materials and devices.

C. Samples of color, lettering style and other graphic representation required for each identification material and device.

D. Shop drawings detailing fabrication and installation for metal and wood supports and anchorage for mechanical materials and equipment.

E. Coordination drawings for access panel and door locations.

F. Prepare coordination drawings to a 1/4 inch equals 1 foot scale or larger. Detail major elements, components and systems of mechanical equipment and materials in relationship with other systems, installations, and building components. Show space requirements for installation and access. Show where sequence and coordination of installations are important to the efficient flow of the Work. Include the following:

1. Proposed locations of piping, ductwork, equipment and materials. Include the following:

a. Planned piping layout, including valve and specialty locations and valve stem movement.
b. Planned duct systems layout, including elbows radii and duct accessories.
c. Clearances for installing and maintaining insulation.
d. Clearances for servicing and maintaining equipment, including space for equipment disassembly required for periodic maintenance.
e. Equipment service connections and support details.
f. Exterior wall and foundation penetrations.
g. Fire-rated wall and floor penetrations.
h. Sizes and location of required concrete pads and bases.

G. Floor plans, elevations and details to indicate penetrations in floors, walls and ceilings and their relationship to other penetrations and installations.

H. Reflected ceiling plans to coordinate and integrate installations, air outlets and inlets, light fixtures, communication systems components, sprinklers, and other ceiling-mounted items.

I. Submit weld procedure specifications.

1.04 WELD AND WELDER CERTIFICATION

A. Welder certificates signed by Contractor certifying that welders comply with requirements of this Section.

B. Qualify welding processes and operators for structural steel according to AWS D1.1 "Structural Welding Code - Steel".

1. Certify that each welder has passed AWS qualification tests for welding processes involved and that certification is current.

C. Qualify welding processes and operators for piping according to ASME "Boiler and Pressure Vessel Code", Section IX, "Welding and Brazing Qualifications".

1. Comply with provisions of ASME B31 Series "Code for Pressure Piping".

1.05 STANDARDS FOR MATERIALS AND WORKMANSHIP

A. All materials and workmanship shall, at a minimum be in accordance with (in no order of precedence):

1. New York State Codes – latest edition as adopted by the Authority Having Jurisdiction, unless otherwise noted.

2. State and municipal Building Codes and related subcodes.

3. Occupational and Safety Act (OSHA) Requirements.

4. Rules and Regulations of the Authority Having Jurisdiction applicable to the work.

5. National Electrical Standards Association Standard for Good Workmanship in Electrical Construction (NECA-1)

6. Serving utility’s rules and regulations for providing service.

7. Contract Drawings and Specifications.

8. Manufacturer recommended installation instructions, practices and procedures for the products being utilized or installed.

9. Where conflicts arise between the above, the more stringent requirement shall be adhered to.

PART 2 - PRODUCTS

2.01 PIPE AND PIPE FITTINGS

A. Refer to individual piping system specification Sections for pipe and fitting materials and joining methods. Joining methods and pipe installation shall be performed in complete accordance with section 1613 of the Building Code of New York State for building seismic type II, zone C.

B. Pipe Threads: ASME B1.20.1 for factory-threaded pipe and pipe fittings.

2.02 PIPE JOINING MATERIALS

A. Refer to individual piping system specification Sections in Division 23 for special joining materials not listed below.

B. Pipe Flange Gasket Materials: Suitable for the chemical and thermal conditions of the piping system contents.

1. ASME B16.21, nonmetallic, flat, asbestos-free, 1/8 inch maximum thickness, except where thickness or specific material is indicated.

    a. Full-Face Type: for flat-face, Class 125 cast-iron and cast-bronze flanges.
    b. Narrow-Face Type: for raised-face, Class 250 cast-iron and steel flanges.

2. ASME B16.20 for grooved, ring-joint, steel flanges. Note that grooved, ring joint piping / accessories may be used for sprinkler or condenser water piping systems only.

3. AWWA C110, rubber, flat face, 1/8 inch thick, except where other thickness is indicated; and full-face or ring type, except where type is indicated.

C. Flange Bolts and Nuts: ASME B18.2.1, carbon steel, except where other material is indicated.

D. Solder Filler Metal: ASTM B 32.

1. Alloy Sn95 or Alloy Sn94: Tin (approximately 95 percent) and silver (approximately 5 percent).
2. Alloy E: Tin (approximately 95 percent) and copper (approximately 5 percent).
3. Allow HA: Tin-antimony-silver-copper-zinc.
4. Alloy HB: Tin-antimony-silver-copper-nickel.
5. Alloy Sb5: Tin (95 percent) and antimony (5 percent).

E. Brazing Filler Metals: AWS A5.8.

1. BCuP Series: Copper-phosphorus alloys.
2. BAg1: Silver alloy.

F. Welding Fill Metals: Comply with AWS D10.12 for welding materials appropriate for wall thickness and chemical analysis of steel pipe being welded.

G. Flanged, Ductile-Iron Pipe Gasket, Bolts and Nuts: AWWA C110, rubber gasket, carbon steel bolts and nuts.

H. Couplings: Iron body sleeve assembly, fabricated to match outside diameters of plain-end, pressure pipes.

1. Sleeve: ASTM A 126, Class B, gray iron.
2. Followers: ASTM A 47, Grade 32510 or ASTM A 536 ductile iron.
3. Gaskets: Rubber.
4. Bolts and Nuts: AWWA C111.
5. Finish: Enamel paint.

2.03 PIPING SPECIALTIES

A. Escutcheons: Manufactured wall, ceiling and floor plates; deep-pattern type, where required to conceal protruding fittings and sleeves.

1. Inside Diameter: Closely fit around pipe, tube and insulation of insulated piping.
2. Outside Diameter: Completely cover opening.
3. Cast Brass: One-piece, with set-screw.

    a. Finish: Rough brass.
    b. Finish: Polished chrome plate.

4. Cast Brass: Split casting, with concealed hinge and set-screw.

    a. Finish: Rough brass.
    b. Finish: Polished chrome plate.

5. Stamped Steel: One-piece, with set screw and chrome plated finish.
6. Stamped Steel: One-piece with spring clips and chrome plated finish.
7. Stamped Steel: Split plate with concealed hinge, set-screw, and chrome plated finish.
8. Stamped Steel: Split plate with concealed hinge, spring clips and chrome plated finish.
9. Cast-Iron Floor Plate: One piece casting.

B. Dielectric Fittings: Assembly or fitting having insulating material isolating joined dissimilar metals, to prevent galvanic action and stop corrosion.

1. Description: Combination of copper alloy and ferrous; threaded, solder, plain, and weld neck end types and matching piping system materials.
2. Insulating Material: Suitable for system fluid, pressure and temperature.
3. Dielectric Unions: Factory-fabricated, union assembly, for 250 psig minimum working pressure at 180 deg F temperature.
4. Dielectric Flanges: Factory-fabricated, companion-flange assembly, for 150 or 300 psig minimum pressure to suit system pressures.
5. Dielectric-Flange Insulation Kits: Field-assembled, companion-flange assembly, full face or ring type. Components include neoprene or phenolic gasket, phenolic or polyethylene bolt sleeves, phenolic washers and steel backing washers.

    a. Provide separate companion flanges and steel bolts and nuts for 150- or 300-psig minimum working pressure to suit system pressures.

6. Dielectric Couplings: Galvanized steel coupling, having inert and non-corrosive, thermoplastic lining, with threaded ends and 300 psig minimum working pressure at 225 deg F temperature.

7. Dielectric Nipples: Electroplated steel nipple, having inert and non-corrosive, thermoplastic lining, with combination of plain or threaded end types and 300 psig working pressure at 225 deg F temperature.

C. Mechanical Sleeve Seals: Modular, watertight, mechanical type. Components include interlocking synthetic rubber links shaped to continuously fill annular space between pipe and sleeve. Connecting bolts and pressure plates cause rubber sealing elements to expand when tightened.

D. Sleeves: The following materials are for wall, floor, slab and roof penetrations.

1. Steel Sheet-Metal: 24 gage or heavier, galvanized sheet metal, round tube closed with welded longitudinal joint.
2. Steel Pipe: ASTM A53, Type E, Grade A, Schedule 40, galvanized, plain ends.
3. Cast-Iron: Cast or fabricated "wall pipe" equivalent to ductile-iron pressure pipe, having plain ends and integral water stop, except where other features are specified.
4. Wall Penetration Systems: Wall sleeve assembly, consisting of housing, gaskets and pipe sleeve, with 1 mechanical-joint end conforming to AWWA C110 and 1 plain pipe-sleeve end.

    a. Penetrating Pipe Deflection: In accordance with the Building Code of New York State (latest edition), Chapter 16: seismic requirements, without leakage.
    b. Housing: Ductile-iron casting having waterstop and anchor ring, with ductile-iron gland, steel studs and nuts, and rubber gasket conforming to AWWA C111 of housing and gasket size as required to fit penetrating pipe.
    c. Pipe Sleeve: AWWA C151, ductile-iron pipe.
    d. Housing-to-Sleeve Gasket: Rubber or neoprene, push-on type, of manufacturer's design.

5. Cast-Iron Sleeve Fittings: Commercially-made, sleeve having integral clamping flange, with clamping ring, bolts and nuts for membrane flashing.

    a. Underdeck Clamp: Clamping ring with set screws.

2.04 IDENTIFYING DEVICES AND LABELS

A. General: Manufacturer's standard products of categories and types required for each application as referenced in other Division 23 Sections. Where more than single type is specified for listed application, selection is Installer's option, but provide single selection for each product category.

B. Equipment Nameplates: Metal nameplate with operational data engraved or stamped; permanently fastened to equipment.

1. Data: Manufacturer, product name, model number, serial number, capacity, operating and power characteristics, labels of tested compliances, and similar essential data.
2. Location: An accessible and visible location.

C. Snap-On Plastic Pipe Markers: Manufacturer's standard pre-printed, semi-rigid snap-on, color-coded pipe markers, conforming to ASME A13.1.

D. Pressure-Sensitive Pipe Markers: Manufacturer's standard pre-printed, permanent adhesive, color-coded, pressure-sensitive vinyl pipe markers, conforming to ASME A13.1.

E. Plastic Duct Markers: Manufacturer's standard laminated plastic, color coded duct markers. Conform to following color code:

1. Green: Cold air.
2. Yellow: Hot air.
3. Yellow/Green: Supply air.
4. Blue: Exhaust, outside, return and mixed air.
5. For hazardous exhausts, use colors and designs recommended by ASME A13.1.
6. Nomenclature: Include following:

a. Direction of air flow.
b. Duct service (supply, return, exhaust, etc.).
c. Duct origin (from).
d. Duct destination (to).
e. Design cfm.

F. Engraved Plastic-Laminate Signs: ASTM D 709, Type I, cellulose, paper-base, phenolic-resin-laminate engraving stock: Grade ES-2, black surface, black phenolic core, with white (letter color) melamine subcore, except when other colors are indicated.

1. Fabricate in sizes required for message.
2. Engraved with engraver's standard letter style, of sizes and with wording to match equipment identification.
3. Punch for mechanical fastening.
4. Thickness: 1/16 inch, except as otherwise indicated.
5. Thickness: 1/8 inch, except as otherwise indicated.
6. Thickness: 1/16 inch, for units up to 20 square inches or 8-inches long; 1/8 inch for larger units.
7. Fasteners: Self-tapping stainless-steel screws or contact-type permanent adhesive.

G. Plastic Equipment Markers: Laminated-plastic, color-coded equipment markers. Conform to following color code:

1. Green: Cooling equipment and components.
2. Yellow: Heating equipment and components.
3. Yellow/Green: Combination cooling and heating equipment and components.
4. Brown: Energy reclamation equipment and components.
5. Blue: Equipment and components that do not meet any of above criteria.
6. For hazardous equipment, use colors and designs recommended by ASME A13.1.
7. Nomenclature: Include following, matching terminology on schedules as closely as possible:

a. Name and plan number.
b. Equipment service.
c. Design capacity.
d. Other design parameters such as pressure drop, entering and leaving conditions, and rpm.

8. Size: Approximately 2-1/2 by 4 inches for control devices, dampers, and valves; and 4-1/2 by 6 inches for equipment.

H. Underground Type Plastic Line Marker.

1. Manufacturer's standard permanent, bright colored, continuous printed plastic tape, intended for direct burial service, not less than 6" wide x 4 mils thick. Provide tape with printing which most accurately indicates type of service of buried pipe.

I. Lettering and Graphics: Coordinate names, abbreviations and other designations used in mechanical identification, with corresponding designations indicated. Use numbers, lettering and wording indicated for proper identification and operation/maintenance of mechanical systems and equipment.

1. Multiple Systems: Where multiple systems of same generic name are indicated, provide identification that indicates individual system number as well as service such as "Boiler No. 3", "Air Supply No. 1H", or "Standpipe F12".

2.05 GROUT

A. Nonshrink, Nonmetallic Grout: ASTM C1107, Grade B.

1. Characteristics: Post-hardening, volume-adjusting, dry, hydraulic-cement grout, nonstaining, noncorrosive, nongaseous, and recommended for interior and exterior applications.
2. Design Mix: 5000 psi, 28-day compressive strength.
3. Packaging: Premixed and factory-packaged.

2.06 DRIP PANS

A. Provide drip pans fabricated from corrosion resistant sheet metal with watertight joints, and with edges turned up 2-1/2 inches. Reinforce top, either by structural angles or by folding over according to size. Provide hole, gasket, and flange at low point for watertight joint and 1-inch drain line connection.

2.07 FIRE STOPPING

A. Refer to Specification Section 230680 for details.

2.08 HORIZONTAL PIPING HANGERS AND SUPPORTS

A. General: Except as otherwise indicated, provide factory fabricated horizontal piping hangers and supports. Supports and hangers in conformance with the Building Code of New York State (latest edition), Chapter 16: seismic requirements shall be used. Use only one type by one manufacturer for each piping service. Select size of hangers and supports to exactly fit pipe size for bare piping, and to exactly fit around piping insulation with saddle or shield for insulated piping. Provide copper plated hangers and supports for copper piping systems. Provide spring hangers where piping is subject to vibration movement.

B. Adjustable steel clevises.

1. Material: Carbon steel, copper plated for copper piping.
2. Finish: Black or copper plated.
3. Adjustment: Hanger to be adjustable for vertical height of pipe without removing the pipe.

2.09 VERTICAL PIPING CLAMPS

A. Two bolt riser clamp.

1. Material: Carbon steel copper plated for copper piping.
2. Finish: Black or copper plated.

2.10 HANGER ROD AND SPACING

ROD SIZE AND SPACING SCHEDULE (In accordance with NYSBC 1621)

PIPE SIZE	ROD DIAMETER
2" and smaller	3/8"
2-1/2" thru 3-1/2"	1/2"
4" thru 5"	5/8"
6" and over	3/4"

TYPE	MAXIMUM SPACING
Steel	10’ -0"
Copper	6’- 0"

Note: Cast Iron - support at every hub or coupling 5 ft. maximum spacing.

2.11 BUILDING ATTACHMENTS

A. General: Except as otherwise indicated provide factory fabricated building attachments of one of the following types listed, selected by Installer to suit building substrate conditions. Select size of building attachments to suit hanger rods. Provide copper plated building attachments for copper piping systems. Provide the following where approved by Building Code of New York State (latest edition), Chapter 16:

B. On Structural Steel:

1. For pipes 2" and smaller: C clamps with lock nuts similar to Grinnell figure 86.
2. For pipes 5" and larger: Use beam clamps similar to Grinnell figure 228 or 292.

C. On New Masonry:

1. Use concrete inserts similar to Grinnell figure 281.

D. On Existing Concrete:

1. Use expansion case similar to Grinnell figure 117.

E. On Wood:

1. Use coach screw rods Grinnell figure 111. Ceiling flanges Grinnell figure 153, or fabricated angle clips. Use wood drive screws or lag bolts as fasteners.

2.12 SHIELDS AND SADDLES (Where approved by the Building Code of New York State (latest edition), Chapter 16:)

A. General: For insulated piping.

B. Shields: 16 gauge galvanized metal.

Unsul Coustic Corp. "Insul-Shield"

C. Protection saddles:

1. Hardwood block
2. Steel saddle Grinnell 160 series

2.13 FLASHING MATERIALS

A. General: Provide flashings for each penetration of mechanical systems through roofs or waterproof membranes.

B. Molded Pipe Flashing: Compatible with single ply membranes with which it is used and manufactured by membrane manufacturer.

C. Copper flashing: Provide cold-rolled sheet copper (ANSI/ASTM B 370), of proper temper for applications shown and required forming, coated on one side with not less than 0.06 lbs. per sq. ft. of antimony (ANSI/ASTM B 101, Type I, Class A), weighing 1.06 lbs. per sq. ft., except as otherwise indicated.

D. Bituminous coating: FS TT-C-494, or MIL-C-18480, or SSPC-Paint 12, cold applied solvent type bituminous mastic coating for application in dry film thickness of 15 mils per coat.

2.14 MISCELLANEOUS MATERIALS

A. Metal framing: Provide products complying with NEMA STD ML 1.

B. Steel plates, shapes and bars: Provide products complying with ANSI/ASTM A 36.

C. Heavy duty steel trapezes: Fabricate from steel shapes selected for loads required, weld steel in accordance with AWS standards.

D. Pipe guides: Provide factory fabricated guides, of cast semi-steel or heavy fabricated steel, consisting of a bolted two section outer cylinder and base with a two section guiding spider bolted tight to pipe. Size guide and spiders to clear pipe and insulation (if any), and cylinder. Provide guides of length recommended by manufacturer to allow indicated travel.

2.15 ANCHORS

A. Fabricate pipe anchors from 3 x 3 x 1/2" angle.

B. Use pipe protection saddles one size larger than piping.

PART 3 - EXECUTION

3.01 PIPING SYSTEMS - COMMON REQUIREMENTS

A. General: All piping systems, components and their installation shall be in conformance with the Building Code of New York State (latest edition), Chapter 16: for seismic requirements. Install piping as described below, except where system Sections specify otherwise. Individual piping system specification Sections in Division 23 specify piping installation requirements unique to the piping system.

B. General Locations and Arrangements: Drawings (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, except where deviations to layout are approved on coordinate drawings.

C. Install piping at indicated slope.

D. Install components having pressure rating equal to or greater than system operating pressure.

E. Install piping in concealed interior and exterior locations, except in equipment rooms and service areas.

F. Install piping free of sags and bends.

G. Install exposed interior and exterior piping at right angles or parallel to building walls. Diagonal runs are prohibited, except where indicated.

H. Install piping tight to slabs, beams, joists, columns, walls and other building elements. Allow sufficient space above removable ceiling panels to allow for ceiling panel removal.

I. Install piping to allow application of insulation plus 1-inch clearance around insulation.

J. Locate groups of pipes parallel to each other, spaced to permit valve servicing.

K. Install fittings for changes in direction and branch connections.

L. Install couplings according to manufacturer's printed instructions.

M. Install pipe escutcheons for pipe penetrations of concrete and masonry walls, wallboard partitions and suspended ceilings according to the following:

1. Chrome-Plated Piping: Cast-brass, one-piece, with set-screw and polished chrome-plated finish. Use split-casting escutcheons where required, for existing piping.
2. Uninsulated Piping Wall Escutcheons: Cast-brass or stamped-steel, with set-screw.
3. Uninsulated Piping Floor Plates in Utility Areas: Cast-iron floor plates.
4. Insulated Piping: Cast-brass or stamped-steel, with concealed hinge, spring clips and chrome-plated finish.
5. Piping in Utility Areas: Cast-brass or stamped-steel with set-screw or spring clips.

N. Sleeves are required for core drilled holes.

O. Permanent sleeves are not required for holes formed by PE plastic (removable) sleeves.

P. Install sleeves for pipes passing through concrete and masonry walls, gypsum-board partitions, concrete floor and roof slabs and where indicated.

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. Extend cast-iron sleeve fittings below floor slab as required to secure clamping ring where specified.

2. Build sleeves into new walls and slabs as work progresses.

3. Install large enough sleeves to provide 1/4 inch annular clear space between sleeve and pipe or pipe insulation. Use the following sleeve materials:

    a. Steel Sheet-Metal Sleeves: For pipes 6 inches and larger, penetrating gypsum-board partitions.
    b. Cast-Iron Sleeve Fittings: For floors having membrane waterproofing. Secure flashing between clamping flanges. Install section of cast-iron soil pipe to extend sleeve to 2 inches above finished floor level. Flashing is specified in Division 7 Section "Flashing and Sheet Metal".
    c. Seal space outside of sleeve fittings with nonshrink, nonmetallic grout.

4. Except for below-grade wall penetrations, seal annular space between sleeve and pipe or pipe insulation, using elastomeric joint sealants specified in Division 7 Section "Joint Sealants".

Q. Above Grade, Exterior Wall, Pipe Penetrations: Seal penetrations using sleeve and mechanical sleeve seals. Size sleeve for 1 inch annular clear space between pipe and sleeve for installation of mechanical seals.

1. Install steel pipe for sleeves smaller than 6 inches.
2. Install cast-iron "wall pipes" for sleeves 6 inches and larger.
3. Assemble and install mechanical seals according to manufacturer's printed instructions.

R. Below Grade, Exterior Wall, Pipe Penetrations: Install cast-iron "wall pipes" for sleeves. Seal pipe penetrations using mechanical sleeve seals. Size sleeve for 1-inch annular clear space between pipe and sleeve for installation of mechanical seals.

S. Below Grade, Exterior Wall, Pipe Penetrations: Install ductile-iron wall penetration system sleeves according to manufacturer's printed installation instructions.

T. Verify final equipment locations for roughing-in.

U. Refer to equipment specifications in other Sections of these Specifications for roughing-in requirements.

V. Piping Joint Construction: Joint pipe and fittings as follows and as specifically required in individual piping system specification Sections.

1. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.
2. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.
3. Soldered Joints: Construct joints according to AWS "Soldering Manual", Chapter 22 "The Soldering of Pipe and Tube".
4. Brazed Joints: Construct joints according to AWS "Brazing Manual", Chapter 28 "Pipe and Tube".
5. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full inside diameter. Join pipe fittings and valves as follows:

    a. Note the internal length of threads in fittings or valve ends and proximity of internal seat or wall, to determine how far pipe should be threaded into joint.
    b. Apply appropriate tape or thread compound to external pipe threads (except where dry seal threading is specified).
    c. Align threads at point of assembly.
    d. Tighten joint with wrench. Apply wrench to valve end into which pipe is being threaded.
    e. Damaged Threads: Do not use pipe or pipe fittings having threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.

W. Welded Joints: Construct joints according to AWS D10.12 "Recommended Practices and Procedures for Welding Low Carbon Steel Pipe" using qualified processes and welding operators according to "Quality Assurance" article.

X. Flanged Joints: Align flange surfaces parallel. Select appropriate gasket concentrically positioned. Assemble joints by sequencing bolt tightening to make initial contact of flanges and gaskets as flat and parallel as possible. Use suitable lubricants on bolt threads. Tighten bolts gradually and uniformly using torque wrench.

1. Fitting Heat-Fusion Joints: Prepare pipe and fittings and join with heat-fusion equipment, according to manufacturer's printed instructions.

    a. Plain-End Pipe and Socket-Type Fittings: Socket-joining.

Y. Piping Connections: Except as otherwise indicated, make piping connections as specified below.

1. Install unions, in piping 2 inches and smaller, adjacent to each valve and at final connection to each piece of equipment having 2 inches or smaller threaded pipe connection.
2. Install flanges, in piping 2 1/2 inches and larger, adjacent to flanged valves and at final connection to each piece of equipment having flanged pipe connection.
3. Dry Piping Systems (Gas, Compressed Air, and Vacuum): Install dielectric unions and flanges to connect piping materials or dissimilar metals.
4. Wet Piping Systems (Water and Steam): Install dielectric coupling and nipple fittings to connect piping materials of dissimilar metals.

3.02 EQUIPMENT INSTALLATION - COMMON REQUIREMENTS

A. Install equipment to provide the maximum possible headroom, where mounting heights are not indicated. Equipment platforms, vibration isolation and restraints shall be provided and installed where described and shall be in conformance with Building Code of New York State (latest edition), Chapter 16:

B. Install equipment according to approved submittal data. Portions of the Work are shown only in diagrammatic form. Refer conflicts to the Architect.

C. Install equipment level and plumb, parallel and perpendicular to other building systems and components in exposed interior spaces, except where otherwise indicated.

D. Install mechanical equipment to facilitate servicing, maintenance and repair or replacement of equipment components. Connect equipment for ease of disconnecting, with minimum of interference with other installations. Extend grease fittings to an accessible location.

E. Install equipment giving right-of-way to piping systems installed at a required slope.

3.03 LABELING AND IDENTIFYING

A. Piping Systems: Install pipe markers on each system. Include arrows showing normal direction of flow.

1. Plastic markers, with application systems. Install on pipe insulation segment where required for hot non-insulated pipes.

2. Locate pipe markers as follows wherever piping is exposed in finished spaces, machine rooms, accessible maintenance spaces (shafts, tunnels, plenums) and exterior non-concealed locations.

    a. Near each valve and control device.
    b. Near each branch, excluding short take-offs for fixtures and terminal units. Mark each pipe at branch, where flow pattern is not obvious.
    c. Near locations where pipes pass through walls, floors, ceilings, or enter non-accessible enclosures.
    d. At access doors, manholes and similar access points that permit view of concealed piping.
    e. Near major equipment items and other points of origination and termination.
    f. Spaced at a maximum of 50 feet intervals along each run. Reduce intervals to 25 feet in congested areas of piping and equipment.
    g. On piping above removable acoustical ceilings, except omit intermediately spaces markers.

3. During back-filling/top-soiling of each exterior underground piping systems, install continuous underground type plastic line marker, located directly over buried line at 6-inches to 8-inches below finished grade. Where multiple small lines are buried in common trench and do not exceed overall width of 16-inches, install single line marker. For tile fields and similar installations, mark only edge pipe lines of field.

B. Equipment: Install engraved plastic laminate sign or equipment marker on or near each major item of mechanical equipment.

1. Lettering Size: Minimum 1/4 inch high lettering for name of unit where viewing distance is less than 2 feet, 1/2 inch high for distance up to 6 feet, and proportionately larger lettering for greater distances. Provide secondary lettering 2/3 to 3/4 of size of principal lettering.

2. Text of Signs: Provide text to distinguish between multiple units, inform operator of operational requirements, indicate safety and emergency precautions, and warn of hazards and improper operations, in addition to name of identified unit.

C. Duct Systems: Identify air supply, return, exhaust, intake and relief ducts with duct markers, or provide stenciled signs and arrows, showing duct system service and direction of flow.

1. Location: In each space where ducts are exposed or concealed by removable ceiling system, locate signs near points where ducts enter into space and at maximum intervals of 50 feet.

D. Adjusting: Relocate identifying devices which become visually blocked by work of this Division or other Divisions.

3.04 ERECTION OF METAL SUPPORTS AND ANCHORAGE

A. Provide and install in conformance with the Building Code of New York State (latest edition), Chapter 16: Cut, fit and place miscellaneous metal supports accurately in location, alignment and elevation to support and anchor mechanical materials and equipment.

B. Field Welding: Comply with AWS D1.1 "Structural Welding Code - Steel".

3.05 ERECTION OF WOOD SUPPORTS AND ANCHORAGE

A. Cut, fit and place wood grounds, nailers, blocking, and anchorage to support and anchor mechanical materials and equipment.

B. Select fastener sizes that will not penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood members.

C. Attach to substrates as required to support applied loads.

3.06 GROUTING

A. Install nonmetallic, nonshrink, grout for mechanical equipment base bearing surfaces, pump and other equipment base plates, and anchors. Mix grout according to manufacturer's printed instructions.

B. Clean surfaces that will come into contact with grout.

C. Provide forms for placement of grout, as required.

D. Avoid air entrapment when placing grout.

E. Place grout, completely filling equipment bases.

F. Place grout on concrete bases to provide a smooth bearing surface for equipment.

G. Place grout around anchors.

H. Cure placed grout according to manufacturer's printed instructions

3.07 DRIP PANS

A. Locate drip pans under piping passing over or within 3 ft. horizontally of electrical equipment, and elsewhere as indicated. Hang from structure with rods and building attachments, and weld rods to

sides of drip pan. Brace to prevent sagging or swaying. Connect 1-inch drain line to drain connection, and run to nearest plumbing drain or elsewhere as indicated.

3.08 FIRESTOPPING

A. See section 230680 for additional fire stopping requirements.

3.09 INSTALLATION OF BUILDING ATTACHMENTS

A. Install building attachments at required locations in concrete, in wood or on structural steel for proper piping support. Space attachments within maximum piping span length indicated. Install additional building attachments where support is required for additional concentrated loads, including valves, flanges, guides, strainers, expansion joints, and at changes in direction of piping. Install concrete inserts before concrete is placed, fasten insert securely to forms. Where concrete with compressive strength less than 2500 psi is indicated, install reinforcing bars through openings at top of inserts.

3.10 INSTALLATION OF HANGERS AND SUPPORTS

A. General: Install hangers, supports, clamps and attachments to support piping properly from building structure. Supports / hangers shall conform to the requirements of the Building Code of New York State (latest edition), Chapter 16: Arrange for grouping of parallel runs of horizontal piping to be supported together on trapeze type hangers where possible. Where piping of various sizes is to be supported together by trapeze hangers, space hangers for smallest pipe size or install intermediate supports for smaller diameter pipe. Do not use wire or perforated metal to support piping, and do not support piping from other piping.

B. Install hangers and supports complete with necessary inserts, bolts, rods, nuts, washers and other accessories. Install hangers and supports of same type and style for grouped piping runs.

C. Support fire water piping independently of other piping.

D. Prevent electrolysis in support of copper tubing by use of hangers and supports which are copper plated.

E. Provisions for movement: Building Code of New York State (latest edition), Chapter 16:

1. Install hangers and supports to allow controlled movement of piping systems and to permit freedom of movement between pipe anchors, and to facilitate action of expansion joints, expansion loops, expansion bends and similar units.
2. Load distribution: Install hangers and supports so that piping live and dead loading and stresses from movement will not be transmitted to connected equipment.
3. Pipe slopes: Install hangers and supports to provide indicated pipe slopes.

F. Adjust hangers and supports and place grout as required under supports to bring piping to proper levels and elevations.

3.11 SHIELDS AND SADDLES FOR INSULATED PIPING

A. 4" and below use 16 gauge x 12 inch long shield with oversized hanger outside insulation.

B. 6" and above use hardwood protection saddle with 16 gauge x 18 inch long shield with oversized hanger outside insulation.

C. 6" and above use steel protection saddle. Fill void between shield and pipe with insulation. Cover with vapor barrier. Protect barrier with 16 gauge x 18 inch long shield with oversized hanger outside assembly.

3.12 INSTALLATION OF ANCHORS

A. Install anchors at proper locations to prevent stresses and to prevent transfer of loading and stresses to connected equipment.

B. Fabricate and install anchor by welding steel shapes, plates and bars to piping and to structure.

C. Where expansion compensators are indicated, install anchors in accordance with expansion unit manufacturer's written instructions, to limit movement of piping and forces to maximums recommended by manufacturer for each unit.

D. Anchor spacings: Where not otherwise indicated, install anchors at ends of principal pipe-runs, at intermediate points in pipe-runs between expansion loops and bends. Make provisions for preset of anchors as required to accommodate both expansion and contraction of piping.

3.13 FLASHINGS

A. Manufacturer's recommendations: Except as otherwise shown or specified, comply with recommendations and instructions of manufacturer of sheet metal being installed.

B. Coat back side of flashings where in contact with concrete and other cementitious substrates, by painting surface in area of contact with heavy application of bituminous coating, or by other permanent separation as recommended by manufacturer of metal.

C. On vertical surfaces, lap flashings minimum of 3".

D. On sloping surfaces, for slopes of not less than 6" in 12", lap unsealed flashings minimum of 6".

E. For embedment of metal flashing flanges in roofing or composition flashing or stripping, extend flanges minimum of 6" for embedment.

END OF SECTION

DIVISION 23 – HEATING, VENTILATING AND AIR CONDITIONING (HVAC)

SECTION 230400 – PAINTING OF MECHANICAL WORK

PART 1 – GENERAL

1.01 SUMMARY OF ITEMS INCLUDED

A. Types of painting of mechanical related work specified in this section include the following:

1. Exposed piping systems.
2. Exposed ductwork systems.
3. Steel supports, hangers and rods.

B. The scope of painting to be applied as part of the work under Division 23 shall consist of the following:

1. Paint exposed mechanical work throughout entire project including piping, ductwork, and terminal HVAC equipment.
2. Paint uninsulated ductwork and equipment.
3. Paint exposed NON insulated pipe, black steel such as pipe hangers, supporting steel, tanks, and equipment having no prime or only a prime coat finish.

1.02 SUBMITTALS

A. Submit manufacturer's technical information, including analysis of ingredients and application instructions for products used in painting work.

B. Certification by the manufacturer that products supplied comply with State VOC Regulations

1.03 DELIVERY, STORAGE AND HANDLING

A. Deliver painting materials to job site in original, new and unopened containers bearing manufacturer's name and label showing the following information:

1. Name and title of material.
2. Manufacturer's stock number and date of manufacture.
3. Contents by volume, for major pigments and vehicles.
4. Thinning instructions.
5. Application instructions.
6. Color name and number.

B. Store materials in approved fire-safe location with adequate ventilation. Area must be kept clean.

1.04 PROJECT CONDITIONS

A. Comply with governing regulations concerning use of and conditions for application of paint. Comply with manufacturer's recommendations and instructions. Do not apply paint in unfavorable conditions of temperature, moisture (including humidity) or ambient contamination (dust and other pollutants).

PART 2 - PRODUCTS

2.01 GENERAL PAINTING PRODUCT REQUIREMENTS

A. Painting products based on a system by Rust-Oleum. Equivalent systems by Devoe and Pratt and Lambert are acceptable.

B. Steel surfaces - normal temperatures:

1. First Coat - Rust-Oleum or equal Red Primer.
2. Second Coat - Rust-Oleum or equal Zinc Chromate Rust-Inhibitive Primer.
3. Third Coat - Rust-Oleum industrial enamels, finish color as directed.

C. Steel surfaces - elevated temperatures above 150 deg. F.

1. First Coat - Rust-Oleum or equal heat resistant primer.
2. Second Coat - Rust-Oleum or equal heat resistant aluminum.
3. Machinery, equipment and apparatus having factory applied prime coat shall be painted as specified above except omit first coat.

D. Exposed canvas on pipe and equipment insulation:

1. First Coat - Primer, Rust-Oleum primer-sealer.
2. Second and third coats - Rust-Oleum Acrylic Series.
3. Colors as directed.

E. Vehicles and thinners: Comply with governing regulations and recognized safe practices in handling, use and drying of paint vehicles and thinners. Compatibility of paint products is the Contractor's exclusive responsibility. Select paint products to ensure freedom from problems relating to vehicles and thinners of type and within limits recommended by paint manufacturer.

PART 3 - EXECUTION

3.01 GENERAL

A. Clean surfaces before applying paint products. Remove oil and grease prior to mechanical cleaning. Comply with paint products manufacturer's instructions for surface cleaning and preparation.

B. Remove surface applied accessories which are not to be painted, and reinstall after completion of painting. Protect non-removable items not to be painted, by covering with paper or plastic film.

C. Ferrous metal surfaces: Remove mill scale and loose rust on surfaces which are not zinc coated or shop/factory prime coated.

1. Clean shop applied prime coats on metal surfaces, and repair (touch-up) prime coats wherever abraded or otherwise damaged, prior to application of paint system.

D. Zinc coated surfaces: Clean with non-petroleum based solvent. Wash with copper sulfate solution and flush with water, unless surface has been pre-treated, or unless treatment is not recommended by manufacturer of prime coat.

3.02 PAINT SYSTEM APPLICATION

A. Comply with manufacturer's recommendations for mixing or stirring paint products immediately before application.

B. Application limitations: Paint every accessible surface of each unit of work indicated to be painted, regardless of whether in location recognized as "concealed" or "exposed" except as otherwise indicated.

1. Omit painting of ductwork and insulated piping above removable ceilings, but apply paint system to pipe hangers, duct hangers and similar unprotected ferrous materials.
2. Omit painting on machined sliding surfaces and rotating shafts of equipment, and on nonferrous finished metals including chrome plate, stainless steel, special anodized aluminum, brass/bronze and copper, and on plastics and similar finished materials, except where specifically indicated to be color-coded by painting.
3. Omit painting on required name plates, labels, identification tags, signs, markers, printed instructions, performance ratings, flow diagrams and similar text and graphics, located within the scope of work indicated to receive paint application.
4. Omit specified prime coat of paint system for metal surfaces where surface has shop applied prime coat of equivalent quality. Apply prime coat on other surfaces to be painted, comply with paint manufacturer's instructions for prime coating where not otherwise indicated. Apply additional prime coats where suction spots or unsealed areas appear.

C. Apply paint in accordance with manufacturer's directions. Apply additional coats when undercoats, stains or other conditions show through final coat of paint, until paint film is of uniform finish, color and appearance.

D. Apply paint at edges, corners, joints, welds and exposed fasteners in manner which will ensure dry-film thickness equal to that of flat surfaces. Allow sufficient time between successive coats for proper drying (comply with manufacturer's drying instructions).

1. Number of coats: Number indicated is minimum number, apply as many coats as are necessary to cover.
2. Coating thickness: Apply paint in uniform coats without thinning in application thickness recommended by manufacturer for each coat.
3. Apply paint in smooth finish without noticeable texture, cloudiness, spotting, holidays, laps, brush marks, runs, sags, ripples, ropiness and other surface imperfections.

3.03 CLEAN UP AND PROTECTION, PAINTING

A. During progress of work, remove from site discarded paint materials, rubbish, cans and rags at end of each work day. Do not leave in paint storage area.

B. Spattered surfaces: Upon completion of painting work, clean paint spattered surfaces. Remove spattered paint by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.

C. Protection: Protect work of other trades, whether to be painted or not, against damage by painting work. Correct damage by cleaning, repairing or replacing and repainting as directed. Provide "Wet Paint" signs as required to protect newly painted finishes. Remove temporary protective wrappings installed for protection of work not to be painted, after completion of painting operations. At completion of work by other trades, touch up and restore damaged or defaced painted surfaces.

END OF SECTION

DIVISION 23 – HEATING, VENTILATING AND AIR CONDITIONING (HVAC)

SECTION 230513 – COMMON MOTOR REQUIREMENTS FOR HVAC EQUIPMENT

A. Internal electrical control devices that operate starters, controllers, etc. shall be furnished, installed, and wired under Division 23. Such devices shall be included but not necessarily limited to, devices connected to ducts, damper switches, float switches, electric thermostats, safety devices, limit switches, relays, push button controllers, selector switches, pilot lights, extra interlock contacts, etc.

B. Equipment starters and disconnects shall be provided by the mechanical contractor completely mounted and wired to internal controls and shall be wired to incoming and outgoing control connections. Should integral equipment starters, disconnects or control panels be shipped separately, the mechanical contractor shall be responsible for the proper installation and connections from equipment to same. Incoming and outgoing (line and load) power wiring to starters / disconnect switches shall be performed by the electrical contractor.

C. The integration of the existing temperature control system wiring and controls shall be the responsibility of the Contractor under Division 15. The Contractor shall be fully responsible for the satisfactory operation of new equipment with the temperature control system.

D. All control transformers, control devices, starters, and control wiring furnished shall be properly protected with fuse cutouts and fuses or circuit breakers to conform to the National Electric Code, latest edition. All work shall be performed by a licensed electrician.

E. Each piece of equipment shall be provided with permanent type laminated, black finish, white core, phenolic nameplate. Nameplates should indicate the name and number of the unit, voltage, and any interlock reference. Each starter furnished by the Contractor shall be provided with a permanent type laminated, black finish, white core phenolic nameplate. Nameplate shall indicate the name of the unit controlled and the voltage rating. Nameplate shall be secured with adhesives. Plastic tape type labels will not be accepted.

F. All equipment shall be provided with disconnect means (by Mechanical Contractor).

G. All wiring furnished and installed by the mechanical contractor shall be in strict accordance with the latest edition of the National Electrical Code and all State and Municipal Agencies having jurisdiction. Except as specified otherwise, minimum size wire shall be #14 AWG (control) and #12 AWG (power) and shall be run in rigid galvanized steel conduit except as noted hereinafter. All wire shall be Type THHN or as required by code. All conduit connections to motors shall be made with short lengths of neoprene jacketed galvanized flexible metallic conduit (liquitite).

H. All wire and cable shall be new, manufactured of soft drawn copper of not less than 98% conductivity, conforming to ASTM Specifications and the latest requirements of N.E.C. Wire, and cable shall have 600 volt insulation (unless otherwise noted or specified) of the type specified and shall be of the standard AWG sizes as called for on Drawings or specified.

I. The Contractor shall furnish all labor and material required for the installation of the systems. A brief description of the work is as follows:

   1. Furnish all electrical control wiring for the new equipment and controls.

   2. Contractor shall apply final finish to insure uniformity.

   3. All cutting, patching, and painting as required.

   4. All controls for units as hereinbefore specified and disconnect switches.

5. Testing of all mechanical contractor installed wiring as directed.

6. Contractor shall perform all work as stated on the documents for fire alarm fan shutdown for all new applicable equipment, unless noted otherwise.

7. Contractor shall obtain an approved independent electrical inspection certificate, covering all work performed by an electrical inspection agency serving the locality of the project.

END OF SECTION

DIVISION 23 – HEATING, VENTILATING AND AIR CONDITIONING (HVAC)

SECTION 230516 – EXPANSION COMPENSATION

PART 1 – GENERAL

1.01 SUMMARY OF ITEMS INCLUDED

A. Expansion compensation products required for this project shall be provided and installed in accordance with section 1621 of the New York State Building Code.

B. Expansion compensation products specified in this section include:

1. Fabricated Expansion Loops.

2. Flexible Ball Pipe Joints.

3. Expansion Compensators.

1.02 QUALITY ASSURANCE

A. Refer to Division 01, for requirements pertaining to substitute materials and equipment.

B. Comply with standards of the Expansion Joint Manufacturer's Association (EJMA).

1.03 SUBMITTALS

A. Product Data: Submit catalog cuts, specifications, installation instructions, and dimensioned drawings for each type of expansion compensation product. Submit schedule showing manufacturer's figure number, size, and location on project.

B. Shop Drawings: Submit shop drawings for fabricated expansion loops indicating location, dimensions, pipe sizes and location and method of attachment of anchors.

C. Maintenance Data: Submit maintenance data and spare parts list for each type of expansion compensation product. Include this data in Maintenance Manual.

PART 2 - PRODUCTS

2.01 EXPANSION LOOPS

A. General: Fabricate expansion loops as dimensioned and located on the Drawings and elsewhere as determined by installer to provide for adequate control of expansion of the installed piping system. Cold spring the loop prior to connecting to the anchored piping.

2.02 FLEXIBLE BALL PIPE JOINTS

A. General: Provide flexible ball pipe joints where indicated for piping systems, with materials and pressure/temperature ratings selected by Installer to suit intended service. Design joints for 360 degree rotation and with minimum of 30 degree angular flexing movement for sizes 1/4" to 6", 15 degrees for sizes 8" to 30". Provide 2 composition gaskets for each joint.

B. Certify carbon steel joints for environmental shock testing in accordance with MIL-S-4456 or MIL-S-901C.

C. Comply with Section II of ASME Boiler and Pressure Vessel Code and ANSI B31.1 Power Piping for materials and design of pressure containing parts and bolting.

D. Test each assembly with steam at working pressure of piping system for zero leaks before shipment.

E. Manufacturer: Subject to compliance with requirements, provide flexible ball pipe joints of the following:

1. Gustin-Bacon Div., Aeroquip Corp.

2.03 EXPANSION COMPENSATORS

A. Low Pressure: 70 psi, 3/4 inch to 3 inch copper pipe, 2 ply phosphor bronze bellows, brass shroud, male copper tube end.

B. High Pressure: 150 psi, 3/4 inch to 3/ inch steel pipe, 2 ply seamless stainless steel bellows, steel shroud and male thread end or psi, 3/4 inch to 3 inch copper pipe all bronze construction male thread or sweat ends.

C. Manufacturer: Subject to compliance with requirements, provide expansion compensators of one of the following:

1. Flexonics Div., UOP, Inc.
2. Keflex, Mfg. Div.
3. Metraflex Co.
4. Vibration Mountings and Controls, Inc.

2.04 PIPE ALIGNMENT GUIDES

A. General: Provide pipe alignment guides on both sides of expansion joints and elsewhere as indicated. Construct with 3 or 4 finger spider traveling inside a guiding sleeve, with provision for anchoring to building substrate.

B. Manufacturer: Subject to compliance with requirements, provide pipe alignment guides of the following:

1. Flexonics Div., UOP, Inc.
2. Keflex Mfg. Div.
3. Metraflex Co.

2.05 PIPE ANCHORS

A. General: Fabricated anchor, coupling with steel angle clips, teflon lined clamp sleeve, or shaped anchor for welding to pipe.

B. Manufacturer: Subject to compliance with requirements, provide anchors of the following:

1. Flexonics Div., UOP, Inc.
2. Keflex Mfg. Div.

PART 3 - EXECUTION

3.01 EXPANSION LOOPS

A. General: Fabricate expansion loops as indicated, in locations indicated, and elsewhere as determined by Installer for adequate expansion of installed piping system. Subject loop to cold spring which will absorb 50 percent of total expansion between hot and cold conditions. Provide pipe anchors and pipe alignment guides as indicated, and elsewhere as determined by Installer to properly anchor piping in relationship to expansion loops.

3.02 EXPANSION COMPENSATION FOR RISERS AND TERMINALS

A. General: Install connection between piping mains and risers with at least 5 pipe fittings including tee in main. Install connections between piping risers and terminal units with at least 4 pipe fittings including tee in riser.

3.03 PIPE ALIGNMENT GUIDES AND ANCHORS

A. General: Install alignment guides on both sides of each expansion joint or loop. Provide anchors secured to building structure as required.

END OF SECTION

DIVISION 23 – HEATING, VENTILATING AND AIR CONDITIONING (HVAC)

SECTION 230519 – METERS AND GAUGES FOR HVAC PIPING

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

A. Thermometers and gages specified in this section include the following:

1. Thermometers and fittings:
2. Pressure gages and fittings:

PART 2 - PRODUCTS

2.01 THERMOMETERS

A. Thermometers:

1. General: Provide and install adjustable, variable angle type thermometers of materials, capacities and ranges indicated.
2. Case: Die cast aluminum finished in baked epoxy enamel, glass front, 9 inches long.
3. Adjustable joint: 180 degree adjustment in vertical plane, 360 degree adjustment in horizontal plane, with locking device.
4. Tube and capillary: Blue liquid filled, magnifying lens, 1-percent scale range accuracy, shock mounted. (Mercury filled not acceptable).
5. Scale: Satin faced, non-reflective aluminum, permanently etched markings.
6. Stem: Copper plated steel, or brass, for separable socket.
7. Range: Conform to the following:

    a. Hot water: 30 to 240 degrees F with 2 degree F scale divisions.
    b. Chilled water: 30 to 180 degrees F with 2 degrees F scale divisions.

8. Manufacturer:

9. Wika
10. Trerice
11. Weiss
12. Or approved equal

B. Dial Thermometers:

1. General – Provide dial bimetal type adjustable angle thermometers of materials, capacities and ranges indicated, designed and constructed for use in service indicted.
2. Case – Type 300 series stainless steel hermetically sealed.
3. Dial – White finished aluminum with black and blue marking.
4. Pointer – balanced aluminum with black finish.
5. Stem – type 300 series stainless steel 1/4"o.d.internal bimetal coil silicone dampened.
6. Range – conform to the following:

    a. Hot water 20° to 240° F. scale divisions.

7. Manufacturer – subject to compliance with requirements, provide glass thermometers of one of the following:

a. Tel-Tru Mfg. Co.
b. Trerice (H.O.) Co.
c. Weiss Instrument Inc.

C. Thermometer wells:

1. General: Provide thermometer wells of brass or stainless steel, pressure rated to match piping system design pressure. Provide 2 inch extension for insulated piping. Provide cap nut with chain fastened permanently to thermometer well.

2. Manufacturer: Same as thermometers.

2.02 PRESSURE GAGES AND FITTINGS

A. Pressure gages:

1. General: Provide "AA" industrial rated liquid filled pressure gages of capacities and ranges indicated, designed and constructed for use in service indicated. All pressure gauges shall be liquid filled unless otherwise specified. Provide gauge cocks for all pressure gauges.
2. Type: General use, 1/2 percent accuracy, ANSI B 40.1 grade A, phosphor bronze bourdon type, bottom connection.
3. Case: Aluminum or brass, glass lens, 4 1/2 inch diameter.
4. Connector: Brass with 1/4 inch male NPT. Provide protective syphon when used for steam service.
5. Scale: White coated aluminum, with permanently etched markings.
6. Range: Conform to the following:

a. Water - 0 - 100 psi.

7. Manufacturer - subject to compliance with requirements, provide pressure gages of one of the following:

a. Ametek, U.S. Gage Div.
b. Trerice
c. Weiss

B. Pressure gage accessories:

1. Gage cocks: Brass cock with 1/4 inch female NPT on each end, and "T" handle brass plug.
2. Syphon: 1/4 inch straight coil constructed of brass tubing with 1/4 inch male NPT on each end.
3. Snubber: 1/4 inch brass bushing with corrosion resistant porous metal disc, through which pressure fluid is filtered. Select disc material for fluid served and pressure rating.
4. Manufacturer: Same as gages.

PART 3 - EXECUTION

3.01 INSTALLATION OF THERMOMETERS

A. General: Install temperature gages in vertical upright position, and tilted so as to be easily read by observer standing on floor.

B. Locations: Install in the following locations and elsewhere as indicated:

1. At inlet and outlet of each hydronic zone 3-way valve.
2. At inlet and outlet of each hydronic boiler and chiller.

3. At inlet and outlet of each hydronic coil in air handling units, and built-up central systems.
4. At inlet and outlet of each hydronic heat exchanger.
5. At inlet and outlet of each hydronic heat recovery unit.
6. At inlet and outlet of each thermal storage tank.
7. At outlet of domestic hot water heater.
8. Common boiler supply and return header.

C. Thermometer wells: Install in piping tee where indicated, in vertical upright position. Fill well with Thermal grease.

3.02 INSTALLATION OF PRESSURE GAGES

A. General: Install pressure gages in piping tee with pressure gage cock, located on pipe at most readable position.

B. Locations: Install in the following locations, and elsewhere as indicated:

1. At suction and discharge of each hydronic pump.
2. At discharge of each pressure reducing valve.
3. At water service outlet.
4. At inlet and outlet of water side for condensers, chillers, and cooling towers.
5. System makeup water line.
6. Accessible hihg point of hydronic piping systems.

C. Pressure gage cocks: Install in piping tee with snubber or syphon if steam.

END OF SECTION

DIVISION 23 – HEATING, VENTILATING AND AIR CONDITIONING (HVAC)

SECTION 230523 – GENERAL DUTY VALVES FOR HVAC PIPING

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and General Provisions of Contract, including General and Supplementary Conditions and Division 01 Specification sections, apply to work of this section.

1.02 DESCRIPTION OF WORK

A. Extent of valves required by this section is indicated on drawings and/or specified in other Division 23 sections.

B. Types of valves specified in this section include the following:

1. Gate valves.
2. Globe valves
3. Drain valves.
4. Ball valves.
5. Butterfly valves (where specifically approved by engineer only).
6. Check valves.

    a. Wafer Check (where specifically approved by engineer only).

1.03 QUALITY ASSURANCE

A. Marking of valves - comply with MSS SP-25.

B. Valve dimensions - for face-to-face and end-to-end dimensions of flanged or welding end valve bodies, comply with ANSI B16.10.

C. ASME Compliance: ASME 1331.9 for Building Services Piping.

D. Valve types. Provide valves of same type by same manufacturer.

1.04 SUBMITTALS

A. Product data - submit catalog cuts, specifications, installation instructions, and dimensioned drawings for each type of valve. Include pressure drop curve or chart for each type and size of valve. Submit valve schedule showing manufacturer's figure number, size, location and valve features for each required valve.

B. Maintenance data - submit maintenance data and spare parts lists for each type of valve. Include this data in Maintenance Manual.

1.05 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Handle valves and components carefully to prevent damage, breaking, denting and scoring. Do not install damaged valves or components, replace with new.

B. Store valves and components in clean dry place. Protect from weather, dirt, fumes, water, construction debris, and physical damage.

PART 2 - PRODUCTS

2.01 GENERAL

A. Provide factory fabricated valves recommended by manufacturer for use in service indicated. Provide valves of types and pressure ratings indicated, provide proper selection as determined by installer to comply with installation requirements. Provide sizes as indicated, and connections which properly mate with pipe, tube and equipment connections. Where more than one type is indicated, selection is engineer's option.

B. Valve Features

1. Bypass- when shown provide manufacturer's standard bypass piping and valving.
2. Drain - when shown provide threaded pipe plugs complying with Division 15 "Hot & Chilled water piping" section.
3. Flanged - valve flanged complying with ANSI B16.1 (cast iron), ANSI B16.5, (steel), or ANSI B16.24 (bronze).
4. Threaded - valve ends complying with ANSI B2.1
5. Solder joint - valve ends complying with ANSI B16.18.
6. Trim - fabricate pressure containing components of valve, including stems (shafts) and seats from brass or bronze materials, of standard alloy recognized in valve manufacturing industry.
7. Renewable seat - design seat of valve with removable disc, and assemble valve so disc can be replaced when worn.
8. Extended stem - increase stem length 2" minimum, to accommodate insulation applied over valve.

C. Valve Definitions

1. Mechanical actuator - factory fabricated gears, gear enclosure, external chain attachment and chain designed to provide mechanical advantage in operating valve.
2. Bonnet - part of gate or globe valve through which stem passes to valve body, and attached to valve body by screws, bolts union, or welding.
3. Solid wedge - one piece tapered disc in gate valve, designed for contact on both sides.
4. Outside screw and yoke (OS&Y) - stem and handwheel designed to rise out of bonnet or yoke as valve is operated from closed to open position.
5. Inside screw, non-rising stem - stem and handwheel designed to rotate without rising when valve is operated from closed to open position.
6. Tight shutoff - butterfly valve designed for flow regulation, and manufactured to be tight in closed position.

2.02 GLOBE VALVES

A. Packing - select valves designed for repacking under pressure when fully opened, equipped with packing suitable for intended service. Select valves designed so back seating protects packing and stem threads from fluid when valve is fully opened, and equipped with gland follower.

B. Composition discs - where required, provide suitable material for intended service. For stem throttling service, fit composition disc valve with throttling nut. For metal seated globe valves, provide hardened stainless steel disc and seat ring.

C. Comply with the following standards:

1. Cast iron valves - MSS SP-85.
2. Bronze valves - MSS SP-80.
3. Steel valves - ANSI B16.34.

D. For HVAC hot and chilled water service:

1. Threaded ends 2" and smaller - Class 150, bronze body, union bonnet, rising stem, composition disc.
2. Soldered ends 2" and smaller - Class 125, bronze body, screwed bonnet, rising stem, composition disc.
3. Flanged ends 2 1/2" and larger - Class 125, iron body, bolted bonnet, rising stem, OS&Y, renewable seat and disc.

E. Manufacturer - subject to compliance with requirements, provide globe valves of one of the following:

1. Jenkins Bros, A Corp.
2. Kennedy Valve
3. Stockham Valves and Fittings, Inc.

2.03 DRAIN VALVES

A. For low pressure drainage service:

1. Threaded ends 2" and smaller - Class 125, bronze body, screwed bonnet, rising stem, composition disc, 3/4" hose outlet connection.
2. Soldered ends 2" and smaller - Class 125, bronze body, screwed bonnet, rising stem, composition disc, 3/4" hose outlet connection.

B. Manufacturer - subject to compliance with requirements, provide drain valves of one of the following:

1. NIBCO, Inc.
2. Watts

2.04 BALL VALVES

A. Comply with the following standards:

1. Cast iron valves - MSS SP-72.
2. Steel valves - ANSI B16.34.

B. For HVAC hot and chilled water service:

1. Threaded ends 2" and smaller - Class 125, bronze 2 piece body, full port, bronze ball, bronze stem.
2. Soldered ends 2" and smaller - Class 125, bronze 2 piece body, full port, bronze ball, bronze stem.

C. Manufacturer - subject to compliance with requirements, provide ball valves of one of the following:

1. Jenkins Bros.
2. Stockham Valves & Fittings
3. Watts

2.05 BUTTERFLY VALVES (only where specifically approved by the engineer)

A. General - comply with MSS SP-67. Valves to be tight shutoff. Where butterfly valves are used as shutoffs for terminal or equipment removal or repair, select lug type valves. Select wafer type valves for other applications. Provide gear operators on butterfly valves 8" and larger.

B. For HVAC hot and chilled water service:

1. Lug type 3" and larger - Class 150, ductile iron body, lever operated, cadmium plated ductile iron disc, Type 316 stainless steel stem, EPT or EPDM seat.

C. Manufacturer - subject to compliance with requirements, provide butterfly valves of one of the following:

1. Demco Inc.
2. Jenkins Bros., A Corp.
3. Mark Controls Corp., MCC Centerline.
4. Stockham Valves and Fittings, Inc.
5. Crane Co., Valve Division

2.06 WAFER CHECK VALVES (only where specifically approved by the engineer)

A. General - provide wafer style, butterfly type, spring actuated check valves designed to be installed with gaskets between two standard Class 125 flanges. Construct iron body valves with pressure containing parts of materials conforming to ANSI/ASTM A-126, Grade B. Support hanger pins on both ends by removable side plugs.

B. For water service:

1. 2" and larger - Class 125, cast iron body, stainless steel trim, bronze disc, Buna-N seal.

C. Manufacturer - subject to compliance with requirements, provide wafer check valves of one of the following:

1. Bell & Gossett, ITT Fluid Handling Div.
2. Metraflex Co.
3. NIBCO, Inc.

PART 3 - EXECUTION

3.01 INSTALLATION

A. General - except as otherwise indicated, comply with the following requirements:

1. Install valves where required for proper operation of piping and equipment, including valves in branch lines where necessary to isolate sections of piping. Locate valves so as to be accessible and so that separate support can be provided when necessary.
2. Install valves with stems pointed up, in vertical position where possible, but in no case with stems pointed downward for horizontal plane unless unavoidable. Install valve drains with hose end adapter for each valve that must be installed with stem below horizontal plane.

B. Insulation - where insulation is indicated, install extended stem valves, arranged in proper manner to receive insulation.

C. Applications subject to shock - install valves with bodies of metal other than cast iron where thermal or mechanical shock is indicated or can be expected to occur.

D. Applications subject to corrosion - do not install bronze valves and valve components in direct contact with steel, unless bronze and steel are separated by dielectric insulator. Install bronze valves in steam and condensate service and in other services where corrosion is indicated or can be expected to occur.

E. Mechanical actuators - install mechanical actuators with chain operators where indicated, and where valves 4" and larger are mounted more than 7'-0" above floor in mechanical rooms, boiler rooms, and where recommended by valve manufacturer because of valve size, pressure differential or other operating condition making manual operation difficult.

F. Selection of valve ends (pipe connections) - except as otherwise indicated, select and install valves with the following ends or types of pipe/tube connections.

1. Copper tube size 2" and smaller - soldered joint valves except ball valves used in plumbing systems.
2. Steel pipe, size 2" and smaller - threaded valves.
3. Pipe size 2 1/2" and larger - flanged valves.

G. Valve system - select and install valves with outside screw and yoke stems, except provide inside screw non-rising stem valves where headroom prevents full opening of OS&Y valves.

H. Non-metallic disc - limit selection and installation of valves with non-metallic discs to locations indicated and where foreign material in piping system can be expected to prevent tight shutoff of metal seated valves.

I. Renewable seats - select and install valves with renewable seats, except where otherwise indicated.

J. Fluid control - except as otherwise indicated, install gate, ball, globe, and butterfly valves to comply with ANSI B31.1. Where throttling is indicated or recognized as principal reason for valve, install globe or butterfly valves.

K. Installation of Check valves: Wafer check valves – install between two flanges in horizontal or vertical position for proper direction of flow.

END OF SECTION

DIVISION 23 – HEATING, VENTILATING AND AIR CONDITIONING (HVAC)

SECTION 230548 – VIBRATION ISOLATION

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and General Provisions of Contract, including General and Supplementary Conditions and Division 01 Specification sections, apply to work specified in this section.

B. This section is a Division 23 Basic Materials and Methods section, and is a part of each Division 23 section making reference to vibration isolation products specified herein. Vibration isolation devices shall conform to the seismic requirements of the New York State Building Code. Isolators shall allow the amount of movement required by this code and shall be equipped with limit stops as required by this code.

1.02 DESCRIPTION OF WORK

A. Types of vibration isolation products specified in this section include the following:

1. Fiberglass Pad and Shapes
2. Neoprene Pads
3. Cork/Neoprene Pads
4. Equipment Rails
5. Fabricated Equipment Bases
6. Roof Curb Isolators
7. Isolation Hangers
8. Riser Isolators
9. Riser Support Isolators
10. Flexible Duct Connectors
11. Flexible Pipe Connectors

B. Vibration isolation products furnished as part of factory-fabricated equipment, are specified as part of the equipment assembly in other Division 23 sections.

C. Refer to other sections of these specifications for equipment foundations, hangers, sealants, gaskets and other work related to vibration isolation work.

1.03 QUALITY ASSURANCE

A. Product qualification - provide each type of vibration isolation unit produced by specialized manufacturer, with not less than 5 years successful experience in production of units similar to those required for this project.

1.04 SUBMITTALS

A. Product data - submit manufacturer's specifications, detailed drawings, performance characteristics data and installation instructions for each type of unit required.

1. Include data for each type and size of unit, showing isolation efficiency, stiffness, natural frequency and transmissibility at lowest operating speed of equipment.
2. Where required, include independent test agencies certified report of test results for each type of unit.

3. For spring units, show wire size, spring diameter, free height, solid-compression height, operating height, fatigue characteristics and ratio of horizontal to vertical stiffness.
4. For spring and pad type units, show basis of spring rate selection for range of loading weights.
5. Include performance certifications where required.

B. Shop drawings - submit shop drawings showing structural design and details of inertia bases, steel beam bases and other custom fabricated work not covered by manufacturer's submitted data.

1. Furnish templates to fabricators of equipment bases, foundations and other support systems, as needed for coordination of vibration isolation units with other work.

C. Submit shop drawings indicating scope of vibration isolation work and locations of units and flexible connections. Include support isolation points for piping and ductwork including risers, air housings and inertia bases.

1. Include schedule of units, showing size or manufacturer's part number, and weight supported and resulting deflection of each unit.

PART 2 - PRODUCTS

2.01 ISOLATION MATERIALS AND SUPPORT UNITS

A. Fiberglass pads and shapes - glass fiber of not more than 0.18 mil diameter, produced by multiple-flame attenuation process, molded with manufacturer's standard fillers and binders through 10 compression cycles at 3 times rated load bearing capacity, to achieve natural frequency of not more than 12 Hertz, in thicknesses and shapes required for use in vibration isolation units.

B. Neoprene pads - oil resistant neoprene sheets, of manufacturer's standard hardness and cross ribbed pattern, designed for neoprene in shear type vibration isolation, and in thicknesses required.

C. Cork/Neoprene pads - close grained composition cork sheet, laminated between 2 sheets of ribbed oil resistant neoprene, in thicknesses required.

D. Vibration isolation products furnished as part of factory-fabricated equipment, are specified as part of the equipment assembly in other Division 23 sections.

E. Refer to other sections of these specifications for equipment foundations, hangers, sealants, gaskets and other work related to vibration isolation work.

F. Equipment rails - where rails or beams are indicated for use with isolator units to support equipment, provide steel beams complying with ANSI/ASTM A36, with minimum depth of 6" or 0.08 x span of beam between isolators (whichever is greater). Provide welded bracket at each end of beams, and anchor each end to spring isolator unit. Provide bolt holes in beams matching anchor bolt holes in equipment. Provide beams of section modulus indicated or, if not indicated, selected for normal-weight equipment loading to limit static load stress to 16,000 psi.

1. Except as otherwise indicated, position equipment on equipment rails so that load will be equally supported by isolator units.

G. Fabricated equipment bases - where supplementary bases are indicated for use with isolator units to support equipment (base not integral with equipment), provide welded unit, fabricated of structural steel shapes, plates and bars complying with ANSI/ASTM A36, as shown. Provide welded support brackets at points indicated, and anchor base to spring isolator units.

H. Except as otherwise indicated, arrange brackets to result in the lowest possible mounting height for equipment. Provide bolt holes in base matching anchor bolt holes in equipment.

1. Where indicated, provide auxiliary steel base for support of motor, mounted on equipment base with slotted anchor bolt holes for adjustment of motor position.
2. Where sizes of base framing members are not indicated, fabricate base with depth of structure not less than 0.10 x longest span of base, rigidly braced to support equipment without deflections or distortions which would be detrimental to equipment or equipment performances.

I. Roof-curb isolators - fabricated frame units sized to match roof curbs as shown, formed with isolation springs between extruded aluminum upper and lower sections, which are shaped and positioned to prevent metal-to-metal contact. Provide continuous airtight and waterproof seal between upper and lower extrusions. Include provisions for anchorage of frame unit to roof curb, and for anchorage of equipment to unit.

J. Isolation hangers - hanger units formed with brackets and including manufacturer's standard compression isolators of type indicated. Design brackets for 5 times rated loading of units. Fabricate units to accept misalignment of suspension members, and for use with either rod or strap type members and including acoustical washers to prevent metal-to-metal contacts.

1. Provide vibration isolation spring with cap and pad type isolator, securely retained in unit.
2. Provide neoprene pad, securely retained in unit.
3. Provide fiberglass pad or shape, securely retained in unit, with threaded metal top plate.
4. Provide removable spacer in each unit, to limit deflection during installation to rated-load deflection.

K. Riser isolators - manufacturer's standard pad type isolator bonded to steel plate, formed for welding to pipe sleeve extension.

L. Riser support isolators - manufacturer's standard pad type isolator laminated between two formed steel plate members, one for welding to pipe sleeve extension and other for welding to pipe riser.

M. Flexible duct connectors - laminated flexible sheet of cotton duct and sheet elastomer (butyl, neoprene or vinyl), reinforced with steel wire mesh where required for strength to withstand duct pressure indicated. Form connectors with full faced flanges and accordian bellows to perform as flexible isolation unit, and of manufacturer's standard length for each size unless otherwise indicated. Equip each unit with galvanized steel retaining rings for airtight connection with ductwork.

N. Flexible pipe connectors:

1. For non-ferrous piping, provide bronze hose covered with bronze wire braid with copper tube ends or bronze flanged ends, brase-welded to hose.
2. For ferrous piping, provide stainless steel hose covered with stainless steel wire braid with NPT steel nipples or 150 psi ANSI flanges, welded to hose.
3. Rubber flexible pipe connectors - provide of rubber and butyl construction with integral full faced duck and butyl flanges, internally steel wire reinforced, and furnished complete with steel retaining rings. Select with temperature and pressure ratings to suit intended service.
4. Manufacturer - subject to compliance with requirements, provide vibration isolation products of one of the following:

a. Korfund Dynamics Corp.
b. Mason Industries, Inc.
c. Vibration Eliminator Co., Inc.
d. Vibration Mountings and Controls, Inc.

PART 3 - EXECUTION

3.01 PERFORMANCE OF ISOLATORS

A. General - comply with minimum static deflections recommended by the American Society of Heating, Refrigerating and Air Conditioning Engineers, including definitions of critical and noncritical locations, for selection and application of vibration isolation materials and units as indicated.

B. Manufacturer's recommendations - except as otherwise indicated, comply with manufacturer's recommendations for selection and application of vibration isolation materials and units.

3.02 APPLICATIONS

A. General - except as otherwise indicated, apply the following types of vibration isolators at indicated locations or for indicated items of equipment. Selection is Installer's option where more than one type is indicated.

B. Neoprene pad type isolators - install where the following equipment is indicated:

1. Floor mounted air handling units, in noncritical locations.
2. Rooftop units mounted on dunnage. (as well as internal spring isolator).

C. Equipment rails and spring isolators - install where the following floor mounted equipment is indicated:

1. Air handling units, 7 1/2 H.P. and larger.
2. Centrifugal fans, 7 1/2 H.P. and larger.

D. Fabricated equipment base and spring isolators - install where the following equipment is indicated:

1. Centrifugal fans.
2. Reciprocating refrigeration compressor, in noncritical locations.

E. Roof curb isolators - install where the following equipment is located on roof curbs over critical locations:

1. Air handling units.
2. Rooftop air conditioning units.
3. Fan or blower units, of more than 1.5 H.P.

F. Isolation hangers - install where the following suspended equipment is indicated:

1. Package air handling units.
2. Pipe over 1" pipe size, located in mechanical equipment rooms and each run connected to vibration isolation mounted equipment for a distance of 100 diameters but not less than 50' - 0".
3. Ductwork (except flexible ductwork), located in mechanical equipment rooms, and each run connected to vibration isolation mounted equipment for a distance of 50' - 0".
4. Sound traps in ductwork.
5. Ductwork, where air velocity is 3000 fpm or greater.

G. Riser isolators - install where the following risers pass through floors and roofs, provide support type where riser support is required:

1. Pipe risers.

2. Pipe risers, within 50' - 0" of connection with vibration isolation mounted equipment.
3. Pipe risers, in critical locations.
4. Pipe risers, 2" pipe size and larger, in critical locations.
5. Ductwork risers, in critical locations.
6. Ductwork risers, where air velocity is 3000 fpm or greater.
7. Ductwork risers, within 50' - 0" of connection with vibration isolation mounted equipment.

H. Flexible duct connectors - install at the following ductwork connections:

1. Connections with vibration isolation mounted air handling equipment.
2. Connections with fixed wall louvers for air intake and exhausts.
3. Where ductwork, 1.0 square foot and greater, changes directions in critical locations.

I. Flexible pipe connectors - install in piping systems at the following location:

1. Connections, 3/4" pipe size and larger, with vibration isolation mounted equipment.

3.03 INSTALLATION

A. General - except as otherwise indicated, comply with manufacturer's instructions for installation and load application to vibration isolation materials and units. Adjust to ensure that units do not exceed rated operating deflections or bottom out under loading, and are not short circuited by other contacts or bearing points. Remove space blocks and similar devices (if any) intended for temporary protection against overloading during installation.

B. Anchor and attach units to substrate and equipment as required for secure operation and to prevent displacement by normal forces, and as indicated.

C. Adjust leveling devices as required to distribute loading uniformly onto isolators. Shim units as required where leveling devices cannot be used to distribute loading properly.

D. Locate isolation hangers as near overhead support structure as possible.

E. Weld riser isolator units in place as required to prevent displacement from loading and operations.

F. Bond flanges of flexible duct connectors to ducts and housings to provide airtight connections. Seal seams and penetrations to prevent air leakage.

G. Flexible pipe connectors - install on equipment side of shutoff valves, horizontally and parallel to equipment shafts wherever possible.

3.04 DEFLECTION MEASUREMENTS

A. Upon completion of vibration isolation work, prepare report showing measured equipment deflections for each major item of equipment as indicated.

END OF SECTION

DIVISION 23 – HEATING, VENTILATING AND AIR CONDITIONING (HVAC)

SECTION 230593 – HVAC TESTING, ADJUSTING AND BALANCING

PART 1 – GENERAL

1.01 SUMMARY OF ITEMS INCLUDED

A. Scope: Extent of HVAC testing, adjusting and balancing work required by this Section is indicated on the drawings, in schedules, and by the requirements of this Section.

B. Testing, Adjusting and Balancing (TAB) contractor to meet or exceed all uniform code testing requirements. (e.g. ASHRAE, ASME, IMC, Etc.)

C. Systems: Testing, adjusting and balancing specified in this Section includes the following systems:

1. Air systems including supply, return and exhaust.
2. Hydronic systems including heating, chilled water.

D. Related Sections: Refer to other Division 23 sections for:

1. Fans
2. Air Terminal Units
3. Pumps
4. Hydronic Piping Systems
5. Ductwork
6. Boilers
7. Chillers and Cooling Towers

1.02 QUALITY ASSURANCE

A. Agency Qualifications

1. The qualifications of the TAB contracting firms shall be submitted, within 30 days of notice to proceed. Recent projects shall be listed and described for the company. Names and telephone numbers of the project contractors and facility managers will be provided.

2. The Owner must approve in writing the qualifications of both the company and the lead technician.

3. Qualifications of TAB Firm Personnel:

a. A minimum of one professional engineer with current registration is required to be in the permanent employment of the firm for supervision and direction in the work performed. This engineer shall be totally responsible for developing job site data as required for test procedures.

b. All personnel used on job site shall be either professional engineer or technicians, who shall have been permanent, full-time employees of firm for a minimum of six (6) months prior to start of work for that specified project.

c. The qualifications of the TAB lead site technician who will remain on site during all TAB work, within 30 days of notice to proceed. Recent projects shall be listed and described for the company. Names and telephone numbers of the project contractors and facility managers will be provided.

d. The Owner must approve in writing the qualifications of both the company and the lead technician.

B. Tester's Qualifications: A specialist certified by the National Environmental Balancing Bureau (NEBB) or Associated Air Balance Council (AABC) with at least 3 years of experience in those testing, adjusting and balancing requirements similar to those required for this project, who is not the installer of the system to be tested and is otherwise independent of the project.

C. Codes and Standards: Provide testing, adjusting and balancing conforming to American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE), American National Standards Institute (ANSI), and either NEBB or AABC the following:

1. American National Standards Institute (ANSI): Comply with the following:

a. S1.4Specification For Sound Level Meters
b. S1.11Specification for Octave-Band and Fractional-Octave-Band Analog and Digital Filters

2. American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE): Comply with ASHRAE recommendations pertaining to measurements, instruments, and testing, adjusting, and balancing.

3. NEBB or AABC: Comply with NEBB'S "Procedural Standards for Testing, Adjusting, Balancing of Environmental Systems" or comply with AABC MN-1 "National Standards," as applicable to mechanical air and hydronic distribution systems, and associated equipment and apparatus.

D. Calibration of Testing Instruments: All measurement instruments used for testing, adjusting, balancing, and commissioning shall be calibrated. The time between the most recent calibration data and the final test report date shall not be over 1 year.

1.03 SUBMITTALS

A. Test Reports: Provide certified test reports, signed by the test and balance supervisor who performed the work. The final reports shall include identification and types of instruments used, and their most recent calibration date and calibration date.

B. Standards: Deliver a copy of either NEBB or AABC standards for testing and balancing work associated with the project. This document shall serve as specific guidance to balancers as to minimum requirements.

C. Maintenance Data: Include, in maintenance manuals, copies of balance test reports and identification of instruments.

D. Qualifications: Submit the individual qualifications of all persons responsible for supervising and performing the actual work.

1.04 AGENDA

A. Agenda: A preliminary report and agenda shall be submitted and approved prior to the start of testing and balancing work.

1. Review Drawings and Specifications prior to installation of any of the affected systems, and submit a report indicating any deficiencies in the systems that would preclude the proper adjusting, balancing, and testing of the systems.

2. The agenda shall include a general description of each air and water system with its associated equipment and operation cycles for heating, intermediate, and cooling.

3. The agenda shall include a list of all air and water flow and air terminal measurements to be performed.

4. The agenda shall incorporate the proposed selection points for sound measurements, including typical spaces as well as sound sensitive areas.

5. The agenda shall also include specific test procedures and parameters for determining specified quantities (e.g. flow, drafts, sound levels) from the actual field measurements to establish compliance with contract requirements. Samples of forms showing application of procedures and calculations to typical systems shall be submitted.

6. Specific test procedures for measuring air quantities at terminals shall specify type of instrument to be used, method of instrument application (by sketch) and factors for:

    a. Air terminal configuration.
    b. Flow direction (supply or exhaust).
    c. Velocity corrections.
    d. Effective area applicable to each size and type of air terminal.
    e. Density corrections.

7. The agenda shall include identification and types of measurement instruments to be used, and their most recent calibration date and calibration date.

1.05 JOB CONDITIONS

A. General: Do not proceed with testing, adjusting and balancing work until the following conditions have been met.

1. Work has been completed and is operable. Ensure that there is no latent residual work yet to be completed on the tested equipment.

2. Work scheduled for testing, adjusting and balancing is clean and free from debris, dirt and discarded building materials.

3. All architectural openings (doors, windows, and other openings) which may affect the operation of the system to be tested, adjusted, and balanced shall at their normal states.

4. All related mechanical systems which may affect the operation of the system to be tested, adjusted, and balanced shall be at their normal operating conditions. Coordinate tests with Controls Contractor.

5. Air handling unit filters are not "loaded"; Mechanical Contractor shall replace, if required, prior to balancing.

PART 2 - PRODUCTS

2.01 PATCHING MATERIALS

A. Material: Seal, patch and repair ductwork, piping and equipment drilled or cut for testing purposes.

1. Plastic plugs with retainers may be used to patch drilled holes in ductwork and housings.

2. Piping shall be capped with materials the same as the piping system.

3. Insulation shall be neatly hemmed with metal or plastic.

2.02 TEST INSTRUMENTS

A. Standards: Utilize instruments and equipment of type, precision, and capacity as recommended in the following standards:

1. NEBB "Procedural Standards for Testing, Adjusting, and Balancing of Environmental Systems."

2. AABC Manual MN-1, "AABC National Standards".

B. Test Instruments: All instruments used for measurements shall be accurate and calibration histories for each instrument shall be available for examination. Each test instrument shall be calibrated by an approved laboratory or by the manufacturer. Owner's representative has the right to request instrument recalibration, or the use of other instruments and test methodology, where accuracy of readings is questionable.

C. Additional Instruments: Permanently installed measuring instruments, such as temperature and pressure gauges, shall be checked against transfer standard instruments. Any instrument which does not meet specification requirement shall be replaced or recalibrated.

D. Cone Instruments: Employ manufactured enclosure type cones, capable of air volume direct readings, for all diffuser air flow measurements. The readout meters shall meet calibration requirements.

PART 3 - EXECUTION

3.01 PROCEDURES AND INSTRUMENTS, GENERAL

A. Requirements: All systems and components thereof shall be adjusted to perform as required by drawings and specifications.

B. Test Duration: Operating tests of heating and cooling coils, fans, and other equipment shall be of not less than four hours duration after stabilized operating conditions have been established. Capacities shall be based on temperatures and air and water quantities measured during such tests.

C. Instrumentation: Method of application of instrumentation shall be in accordance with the approved agenda.

1. All instruments shall be applied in accordance with the manufacturer's certified instructions.

2. All labor, instruments, and appliances required shall be furnished by the balancer. Permanently installed instruments used for the tests (e.g., flow meters and Btu meters) shall not be installed until the entire system has been cleaned and ready for operation.

3.02 AIR SYSTEM PROCEDURES

A. Adjustments: Adjust all air handling systems to provide approximate design air quantity to or through, each component, and to maintain stable and comfortable interior temperatures, free of drafts or stagnant conditions. Adjusting and balancing of all systems shall be conducted during periods of the year approximating maximum seasonal operation. Verify operating parameters prior to start of balancing. Laboratory doors shall be closed and fume hood sashes full open, and all

other ancillary systems in simultaneous operation. Coordinate with automatic control system operation.

B. Balance: Flow adjusting (volume control) devices shall be used to balance air quantities (i.e., proportion flow between various terminals comprising system) to the extent that their adjustments do not create objectionable air motion or sound (i.e., in excess of specified limits).

1. Balancing between runs (submains, branch mains, and branches) generally shall be accomplished by flow regulating devices at, or in, the divided-flow fitting.

2. Restriction imposed by flow regulating devices in or at terminals shall be minimal. Final measurements of air quality shall be made after the air terminal has been adjusted to provide the optimum air patterns of diffusion.

C. Fan Adjustment: Total air system quantities, generally, shall be varied by adjustment of fan speeds or axial-flow fan wheel blade pitch. Damper restriction of a system's total flow may be used only for systems with direct-connected fans (without adjustable pitch blades), provided system pressure is less than 1/2-inch W.G. and sound level criteria is met.

D. Air Measurement: Where air quantity measuring devices are specified in other sections such systems shall be used as a cross-check of portable measuring equipment.

1. Except as specifically indicated herein, pitot tube traverses shall be made of each duct to measure air flow therein. Pitot tubes, associated instruments, traverses, and techniques shall conform to the ASHRAE "Handbook Fundamentals Inch Pound Edition."

2. For ducts serving modular office areas with movable partitions, which are subject to change, pitot tube traverses may be omitted provided the duct serves only a single room or space and its design volume is less than 2000 cfm. In lieu of pitot tube traverses, air flow in the duct shall be determined by totalling volume of individual terminals served, measured as described herein.

3. Where duct's design velocity and air quantity are both less than 1000 (fpm/cfm), air quantity may be determined by measurements at terminals served.

E. Test Holes: Test holes shall be in a straight duct, as far as possible downstream from elbows, bends, take-offs, and other turbulence generating devices, to optimize reliability of flow measurements.

F. Air Terminal Balancing: Generally, measurement of flow rates by means of velocity meters applied to individual terminals, with or without cones or other adapters, shall be used only for balancing. Measurement of air quantities at each type of air terminal (inlet and outlet) shall be determined by the method approved for the balancing agenda.

G. Air Motion: Air motion and distribution shall be as specified and indicated on Drawings.

3.03 WATER SYSTEM PROCEDURES

A. Adjustment: All heating, cooling and condensing water systems shall be adjusted to provide required quantity to or through each component. Verify operating parameters prior to start of balancing.

B. Metering: Water quantities and pressures shall be measured with calibrated meters.

1. Venturi tubes, orifices, or other metering fittings and pressure gauges shall be used to measure water flow rates and balance systems. Systems shall be adjusted to provide the approved

pressure drops through the heat transfer equipment (coils [except room units], converters, etc.) prior to the capacity testing.

2. Where flow metering fittings are not installed, in air/water type heat transfer equipment, flow balance shall be determined by measuring the air side energy differential across the heat transfer equipment. Measurement of water temperature differential shall be performed with the air system, adjusted as described herein, in operation.

C. Automatic Controls: Automatic control valves shall be positioned for full flow through the heat transfer equipment of the system during tests.

D. Flow: Flow through bypass circuits at three-way valves shall be adjusted to equal that through the supply circuit, when the valve is in the bypass position.

E. Distribution: Adjustment of distribution shall be effected by means of balancing devices (cocks, valves, and fittings) and automatic flow control valves as provided; service valves shall not be used.

1. Where automatic flow control valves are utilized in lieu of Venturi tubes, only pressure differential need be recorded, provided that the pressure is at least the minimum applicable to the tag rating.

F. Special Procedures: Where available pump capacity (as designed) is less than total flow requirements of individual heat transfer units of system served, full flow may be simulated by the temporary restriction of flow to portions of the system; specific procedures shall be delineated in the agenda.

3.04 HEAT EXCHANGER CAPACITY VERIFICATION

A. Air coil capacities shall be verified from air side measurement data. Capacities of coils shall be the difference of the energy carried by the air between the up stream and down stream of the coils.

B. The measured air flow rate for the fan may be used for air coil capacity calculations providing no ducted bypassing of coil is occurring.

C. Capacity verifications shall be performed after air and water systems have been balanced. Heat exchangers using steam as the exchange medium shall have the steam measured and adjusted to the specified pressure.

D. False load shall be applied if the upstream air or water does not meet the specified conditions at the time of test.

3.05 REPORTS

A. Submittals: Three copies of the reports described herein, covering air and water system performance, air motion (fpm), and sound pressure levels, shall be submitted prior to final tests and inspection.

B. Instrument Records: Types, serial numbers, and dates of calibration of all instruments shall be included.

C. Reports: Reports shall conspicuously identify items not conforming to contract requirements, or obvious malfunction and deficiencies.

3.06 AIR SYSTEM DATA

A. Report: The report shall include for each air handling system the data listed below.

1. Equipment (Fan or Factory Fabricated Station Unit):

    a. Installation data

        1) Manufacturer and model
        2) Size
        3) Arrangement, discharge and class
        4) Motor hp, voltage, phase, cycles, and full load amps
        5) Location and local identification data

    b. Design data

        1) Data listed in schedules on drawings and specifications.

    c. Fan recorded (test) data

        1) cfm
        2) Static pressure
        3) rpm
        4) Motor operating amps motor operating bhp

2. Duct Systems:

    a. Duct air quantities (maximum and minimum) - main, submains, branches, outdoor (outside) air, total air, and exhaust

        1) Duct size(s)
        2) Number of Pitot tube (pressure measurements)
        3) Sum of velocity measurements (Note: Do not add pressure measurements)
        4) Average velocity
        5) Recorded (test) cfm design cfm

    b. Individual air terminals

        1) Terminal identification supply or exhaust, location and number designation
        2) Type size, manufacturer and catalog identification applicable factor for application, velocity, area, etc., and designated area
        3) Design and recorded velocities- fpm (state "core," "inlet," etc., as applicable)
        4) Design and recorded quantities -cfm deflector vane or diffusion cone settings

3.07 WATER SYSTEM DATA

A. Report: The certified report for each water system shall include the data listed below.

1. Pumps:

    a. Installation data

        1) Manufacturer and model
        2) Size
        3) Type drive
        4) Motor hp, voltage, phase, and full load amps

    b. Design data

        1) gpm

2) Head
3) rpm, bhp, and amps

c. Recorded data

1) Discharge pressures (full-flow and no-flow)
2) Suction pressures (full-flow and no-flow) operating head
3) Operating gpm (from pump curves if metering is not provided) no-load amps (where possible)
4) Full-flow amps
5) No-flow amps

2. Air Heating and Cooling Equipment:

a. Design data

1) Load in Btu or MBh
2) gpm
3) Entering and leaving water temperature
4) Entering and leaving air conditions (DB and WB)

b. Recorded data

1) Type of equipment and identification (location or number designation)
2) Entering and leaving air conditions (DB and WB)
3) Entering and leaving water temperatures

3. Water Chilling Units:

a. Installation data

1) Manufacturer and model
2) Motor hp, voltage, cycles, phase, and full load amps
3) Part load amperes
4) gpm - chiller and condenser
5) Water pressure drop - chiller and condenser
6) Entering and leaving water temperature - chiller and condenser

b. Recorded data (chiller and condenser)

1) gpm
2) Water pressure drop
3) Entering and leaving water temperature
4) Amperes

3.08 FINAL COMMISSIONING TESTS, INSPECTIONS AND ACCEPTANCE

A. Scope: Test shall be made to demonstrate that capacities and performance of air and water systems comply with contract requirements.

1. At the time of final inspection, recheck random selection of data (water and air quantities, air motion, and sound levels) recorded in the balancing report. All laboratories shall be rechecked for satisfactory air flow and motion on vicinity of and through hoods.

2. Points and areas for recheck shall be selected by the Owner's Representative.

3. Measurement and test procedures shall be the same as approved for work forming basis of certified report.

4. Selections for recheck (specific plus random), in general, will not exceed 25 percent of the total number tabulated in the report, except that special air systems may require a complete recheck for safety reasons.

B. Retests: If random tests elicit a measured flow deviation of 10 percent or more from, or a sound level of 2 db or more greater than, that recorded in the report listings, as 10 percent or more of the rechecked selections, the report shall be automatically rejected. In the event the report is rejected, all systems shall be readjusted and tested, new data recorded, new certified reports submitted, and new inspection tests made, all at no additional cost.

C. Marking of Settings: Following final acceptance of balance reports, the settings of all valves, splitters, dampers, and other adjustment devices shall be permanently marked so that adjustment can be restored if disturbed at any time. Devices shall not be marked until after final acceptance.

END OF SECTION

DIVISION 23 – HEATING, VENTILATING AND AIR CONDITIONING (HVAC)

SECTION 230700 – HVAC INSULATION

PART 1 – GENERAL

1.01 WORK INCLUDED

A. Duct Insulation.

B. Pipe Insulation.

C. Equipment and Specialties Insulation.

D. Acoustical Wrap.

1.02 RELATED WORK

A. Division 23 – Mechanical, General

B. Division 23 – Hangers and Supports

C. Division 23 – Sleeves and Seals

D. Division 23 – Pumps

E. Division 23 – Refrigerant Piping System

F. Division 23 – Ductwork

1.03 DEFINITIONS

A. R: Thermal resistance of insulation, in units of hr-sf-deg F/Btu.

B. Run-out: Piping not more than 12 feet long that runs to an individual unit.

C. Subject to Damage: Items installed exposed less than 8 feet above the walking surface (i.e., floor platform, roof, grade, etc.) adjacent to the item.

1.04 QUALITY ASSURANCE

A. All insulation and materials shall have a fire hazard rating not to exceed 25 for flame spread and 50 for smoke development, as tested by ASTM E 84, NFPA 255, and UL 723.

1.05 SUBMITTALS

A. All submittals shall comply with Section 230000.

B. Provide product data on all insulation materials to be used. Indicate thickness to be used.

1.06 GENERAL REQUIREMENTS

A. Code Compliance: Contractor shall insulate all systems with the materials and thicknesses as required by code, but in no case shall the insulation be less than that specified herein. In some cases the specified insulation exceeds code, and shall be provided as specified. Not all systems

requiring insulation by code are specified but shall be provided with insulation where required by code.

B. Insulation at Hangers: Insulation shall be continuous through hangers on all insulated systems (except ductwork). Inserts at hangers are specified in Section 230300 and are considered as part of the hanger and support system. Inserts are required to be installed at the time of pipe installation and are intended to be installed by the Contractor installing the pipe hanger/supports. See Section 230300.

C. All adhesives, sealants, mastics and similar materials shall be low-VOC type and comply with Section 230000 Low-VOC requirements.

1.07 REFERENCES

A. ASTM A 653: Standard Specification For Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot Dip Process.

B. ASTM B 209: Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.

C. ASTM C 547: Standard Specification for Mineral Fiber Pipe Insulation.

D. ASTM C 1136: Standard Specifications for Flexible, Low Permeance Vapor Retarders for Thermal Insulation.

E. ASTM C 1290: Standard Specification for Flexible Fibrous Glass Blanket Insulation Used to Externally Insulate HVAC Ducts.

F. ASTM E 84: Standard Test Method for Surface Burning Characteristics of Building Materials.

G. NCIIS: National Commercial & Industrial Insulation Standards, published by Midwest Insulation Contractors Association, 5th Edition.

H. NFPA 255: Standard Method of Test of Surface Burning Characteristics of Building Materials.

I. UL 723: Tests For Surface Burning of Building Materials.

PART 2 – PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Products shall comply with Section 230000.

B. Insulation: Johns Manville, Armacell, Owens-Corning, Knauf, Pittsburgh Corning, GLT, Halstead, Thermal Pipe Systems.

C. Accessories: Johns Manville, Armacell, Owens-Corning, Knauf, Pittsburgh Corning, GLT, Halstead, Duro Dyne, Gustin Bacon, Childers, RPR, Tee Cee, JPS, Buckaroos.

D. Acoustical Wrap: Kinetics Noise Control.

E. Fire Protection Duct Wrap: 3M.

2.02 DUCT INSULATION

A. Flexible Glass Fiber:

B. Material: Inorganic glass fibers, bonded with a thermosetting resin.

C. Jacket: All-purpose, factory-applied, laminated glass-fiber- reinforced, flame-retardant kraft paper and aluminum foil having self-sealing lap.

D. Board: ASTM C 612, Class 2, semi-rigid jacketed board.

1. Thermal Conductivity: 0.23 Btu x inch/h x sq. ft. x deg F average maximum at 75 deg F mean temperature.

2. Density: 3 pcf average maximum.

E. Blanket: ASTM C 553, Type II, Class F-1, jacketed flexible blankets. (maximum 25% compression installed)

1. Thermal Conductivity: 0.23 Btu x inch/h x sq. ft. x deg F average maximum at 75 deg F mean temperature.

F. Adhesive: Produced under the UL Classification and follow-up service.

1. Type: Non-flammable, water-based.
2. Service Temperature Range: Minus 20 to 180 deg F (Minus 29 to 82 deg C).

G. Vapor Barrier Coating: Waterproof coating recommended by insulation manufacturer for outside service.

2.03 ACCESSORIES AND ATTACHMENTS

A. Glass Cloth and Tape: Woven glass fiber fabrics, plain weave, pre-sized a minimum of 8 ounces per sq. yd.

1. Tape Width: 4 inches
2. Cloth Standard: MIL-C-20079H, Type I.
3. Tape Standard: MIL-C-20079H, Type II.

B. Bands: 3/4 inch wide, in one of the following materials compatible with jacket:

1. Stainless Steel: Type 304, 0.020 inch thick.
2. Aluminum: 0.0070 inch thick.

C. Wire: 14-gauge nickel copper alloy, 16-gauge, soft-annealed stainless steel, or 16-gauge, soft annealed galvanized steel.

D. Corner Angles: 28-gauge (0.3 mm), 1 inch by 1 inch (25 mm by 25 mm) aluminum, adhered to 2 inches by 2 inches (51 mm by 51 mm) kraft paper.

E. Anchor Pins: Capable of supporting 20 pounds each. Provide anchor pins and speed washers of sizes and diameters as recommended by the manufacturer for insulation type and thickness.

2.04 SEALING COMPOUNDS

A. Vapor Barrier Compound: Water-based, fire-resistive composition.

1. Water Vapor Permeance: 0.08 perm maximum.
2. Temperature Range: Minus 20 to 180 deg F.

B. Weatherproof Sealant: Flexible-elastomer-based, vapor-barrier sealant designed to seal metal joints.

1. Water Vapor Permeance: 0.02 perm maximum.
2. Temperature Range: Minus 50 to 250 deg F.
3. Cooler: Aluminum.

C. Duct Insulation installed R values:

1. General: Provide insulation densities and thicknesses to achieve the following R values. R values are for the insulation only, in their installed thickness, considering installed duct wrap stretch and in accordance with code.

2. Lining: Where ducts have internal lining, the insulating properties of the lining may be credited toward meeting the required insulation R value.

3. Supply Air Ductwork:

   a. Inside Building and within conditioned space: No insulation required.

   b. Inside Building but not within conditioned space: R-6.

4. Return Air Ductwork:

   a. Inside Building and within conditioned space: No insulation required.

   b. Inside Building but not within conditioned space: R-6.

5. Outside Air Ductwork: Same insulation for ducts within conditioned space: R-8.

6. Exhaust and Relief Ductwork:

   a. Inside Building and within conditioned space: No insulation required except ductwork from the system's backdraft damper (or motorized damper) to outside the building shall be insulated with R-8 insulation.

   b. Inside Building but Not within conditioned space: R-6.

2.05 PIPE INSULATION

A. Glass Fiber:

1. Type: Rigid molded type, constructed of glass fibers bonded by a thermosetting resin, complying with ASTM C 1290, Type III. Insulation factory molded to match pipe size applied to. Johns Manville "Micro- Lok" (or approved).

2. Jacket: ASJ type, vapor proof, consisting of a white kraft paper cover reinforces with glass fiber and bonded to aluminum foil, with longitudinal self-sealing closure system. Provide with butt strips constructed of jacket material with adhesive to seal all joints. Water vapor permeance shall not exceed 0.02 perms.

3. Thermal Conductivity: Shall not exceed 0.24 Btu-in/hr-sq ft-deg F at 75° F.

4. Operating Temperature Limits: 0° F to 850° F.

B. Elastomeric Insulation:

1. Type: Flexible cellular elastomeric insulation, factory formed to match pipe sizes applied to, complying with ASTM C 534, Type 1. Armacell “AP/Armaflex SS”, Armaflex Shield (or approved equal).

2. Thermal Conductivity: Shall not exceed 0.27 Btu-in/hr-sq ft-deg F at 75° F.

3. Water Vapor Transmission: Water vapor permeance shall not exceed 0.08 perms.

4. Operating Temperature Limits: -20° F to 180° F.

5. Weather Protection: Where installed outdoors provide Zeston 2000 PVC cover.

C. Pipe Fittings:

1. Insulate with mitre cut or premolded fitting insulation of same material and thickness as pipe insulation.

D. Pipe Insulation Types:

1. Aboveground-Inside Building:

a. Hydronic Piping Systems: Glass fiber.

b. Cooling Coil Condensate: Glass fiber or elastomeric.

c. Refrigerant Piping: Elastomeric.

d. Other Systems: Glass fiber.

E. Pipe Insulation Thickness:

COLD SERVICE INSULATION MATERIAL SCHEDULE

TYPE	SERVICE AND TEMPERATURES	INSULATION MATERIAL	PIPE SIZES (INCHES)	MINIMUM (NOMINAL) INSULATION THICKNESS (INCHES)
A & B	Refrigerants, Brine, and Fluids below 40 F.	Flex. Elastomeric Foam	Less than 8 8 and Up	1 1-1/2
C	Chilled Water, domestic cold water, and other fluids 40 F to 80 F.	Flex. Elastomeric Foam or Fibrous Glass	All sizes	1

HOT SERVICE INSULATION MATERIAL SCHEDULE

	SERVICE AND TEMPERATURES	INSULATION MATERIAL	PIPE SIZES (INCHES)	MINIMUM (NOMINAL) INSULATION THICKNESS (INCHES)
D	Domestic Hot water, Domestic Hot Water recirculating, and other fluids 105 F to 140 F.	Flex. Elastomeric Foam or Fibrous Glass	Less than 1-1/2 1-1/2 &over	1 1-1/2
E	Heating hot water, and other fluids 141 F to 200 F.	Fibrous Glass	Less than 1-1/2 2 &over	1-1/2 2
F	Steam (LPS) to 15 psig 201 F-250 F	Fibrous Glass	Less than 4 4 & Up	2-1/2 3
G	Water and other fluids 251 F to 350 F.	Fibrous Glass	Less than 1 1 & Up	2 4-1/2
H	Water and other fluids Above 350 F.	Fibrous Glass	Less than 1 1 & Up	4-1/2 5

1. Provide minimum piping insulation thickness indicated, in inches.
2. Where a system operates over temperature ranges calling for different insulation thicknesses, the thicker insulation requirements shall be met.
3. Cooling system condensate piping (i.e., from a cooling coil) shall be considered to operate at 53° F.
4. Refrigerant piping (RG or RS piping) returning from an evaporator (i.e., cooling coil) to a compressor shall be considered to operate at 40° F.
5. Outdoor Piping: Piping exposed to outside air or located outside the building/thermal envelope, shall have insulation thickness increased by 0.5 inch from that indicated above.
6. Hydronic heat pump piping shall be considered to operate at 120° F (unless noted otherwise).
7. Cold water piping shall be considered to operate at 56° F (unless noted otherwise).

F. Underground piping:

1. Underground chilled water and hot water:

a. All underground pre-insulated pipe 1 1/2” – 12” shall be similar to thermal pipe systems, inc. heat-tite® piping with ring-tite joints.

b. Steel carrier pipe shall be black steel of the type, grade, and class specified by the design engineer. the pipe shall be suitable for use at maximum hydrostatic working pressure of 150 psi at 250ºf.

c. Each joint shall automatically provide for expansion and contraction through the ethylene propylene diene monomer (epdm) sealing rings in the grooves of the pre-insulated ductile iron coupling.

d. Casing pipe shall be [polyvinyl chloride (pvc) meeting the minimum classification requirements of astm d-1784] or [high density polyethylene (hdpe)]. the thickness shall be in accordance with the thermal pipe systems published data.

e. The insulation shall be polyurethane foam completely encapsulated on each end by a compression rubber end seal.

f. The rubber end seals shall be an ethylene propylene diene monomer (epdm) heat resistant compound.

g. Fittings may be uninsulated using welded steel or ductile iron class 150 fitting with a groove and rubber ring. fittings may also be pre-insulated by thermal pipe systems, inc. using the same carrier pipe, insulation thickness, and casing as the straight lengths of pipe.

h. After completion of hydrostatic testing, joints shall be closed using factory supplied 30 mil high temperature tape. it shall be applied circumferentially around the seam between the coupling and pipe casing.

2. Underground steam and steam condensate piping:

a. All underground pre-insulated steam and condensate pipe 3” – 12” shall be similar to thermal pipe systems, inc. super temp-tite® piping with ring-tite joints.

b. Steel carrier pipe shall meet the requirements of astm a-53 or a-106, grade b. each end of the carrier pipe shall be machined and metalized to provide a non-corrosive surface for the sealing rings. the metalizing shall be high nickel alloy applied to an excess thickness and then machined to the required outside diameter.

c. Each joint shall automatically provide for expansion and contraction through the sealing rings in the grooves of the bronze joining coupling. the sealing rings shall be stainless steel spring loaded molded and machined teflon. pipe must be assembled with the lubricant supplied by thermal pipe systems, inc.

d. Casing pipe shall be fiberglass reinforced thermosetting resin pipe (rtrp) manufactured by a filament winding process. the pipe shall be wound to meet astm d2310 classified rtrp-12e.

e. The composite insulation shall be a twocomponent system. the initial insulation shall be calcium silicate satisfactory for temperatures to 1200ºf and shall conform to astm c-533 and mil spec mil-1-2781. the secondary insulation shall be polyurethane foam completely filling the void between the calcium silicate and casing.

f. The rubber end seals shall be a highly saturated hitrile (hsn) or ethylene propylene diene monomer (epdm) heat resistant compound.

g. Fittings shall be pre-insulated by thermal pipe systems, inc. using the same carrier pipe, insulation thickness, and casing as the straight lengths of pipe.

2.06 EQUIPMENT AND SPECIALTIES INSULATION

A. Flexible Glass Fiber:

1. Type: Flexible blanket insulation, constructed of inorganic glass fibers bonded by a thermosetting resin, complying with ASTM C 553, Type III. Johns Manville “812 Spin-Glas” (or approved).

2. Jacket: FSK type, vapor proof, consisting of an aluminum foil cover reinforces with glass fiber mesh, and laminated to kraft. Water vapor permeance shall not exceed 0.05 perms. Provide with joint sealing tape constructed of jacket material with adhesive to seal all joints.

3. Thermal Conductivity: Shall not exceed 0.24 Btu-in/hr-sq ft-deg F at 75° F.

4. Operating Temperature Limits: 40° F to 450° F.

5. Density: 1.5 lb/cu ft.

B. Elastomeric:

1. Type: Flexible cellular elastomeric insulation, complying with ASTM C 534, Type II.

2. Thermal Conductivity: Shall not exceed 0.30 Btu-in/hr-sq ft-deg F at 75° F.

3. Water Vapor Transmission: Water vapor permeance shall not exceed 0.08 perms.

4. Operating Temperature Limits: -20° F to 220° F.

5. Weather Protection: Where installed outdoors provide with manufacturer’s weather proof coating to protect from UV and weather exposure.

C. Removable Insulation Blankets:

1. Type: Flexible blanket insulation pads, for insulating valves, unions, strainers, and similar items. Constructed of exterior fabric enclosure sewn around interior insulation, held in position with a closure system that allows for removal of the blanket. Contractor or factory fabricated.

2. Enclosure:

a. Hot Applications: Glass fiber mat, ¼ inch thick, noncombustible, service temperature up to 1200° F. JPS Glass Fabrics “Glastex 2025” (or approved).

b. Cold Application: Silicone impregnated glass fiber cloth, water resistant, ¼ inch thick. Claremont “Claretex SL” (or approved).

3. Insulation: Thermal insulating wool, 1-inch thick, complying with ASTM C 553. Maximum thermal conductivity 0.22 Btu-in/hr-sq ft-deg F at 75° F. Provide in layers to give equivalent R value to the adjacent insulated piping. Owens Corning “Fiberglass Brand TIW, Type II”.

4. Closure System: Steel lacing anchors with spindles and self-locking washers, fabricated of minimum 14 gauge stainless steel, with stainless steel wire ties. AGM Industries “Series NLA” (or approved).

D. Metal Jacket:

1. Steel: Minimum 24 gauge galvanized steel complying with ASTM A 653. Provide with longitudinal slip joints and 2-inch laps.

2. Aluminum: Minimum 0.020-inch thick aluminum, alloy 3003 or 5005, complying the ASTM B 209. Provide with longitudinal slip joints and 2- inch laps.

E. Equipment and Specialties Insulation Types and Thickness:

1. Unless a specific type of insulation is specified or noted, any of the insulation materials specified in this specification section may be used provided such application is in conformance with NCIIS.

2. Insulation Thickness: Insulation thickness shall be the same as that specified for the piping or ductwork connected to item, or as specified for the system the item is installed in (unless noted otherwise). Insulation thickness shall in no case be less than 1 inch thick.

3. Valves:

a. 2 inches and Smaller: Insulate with same material as piping system.

b. 2-1/2 inches and Larger: Removable blanket insulation.

4. Control Valves: Removable blanket insulation.

5. All equipment and specialties where access is required shall have removable insulation blankets; other removable insulation materials per NCIIS may be used where pre-approved by the Engineer. Items requiring such removable insulation include, but are not limited to, the following:

a. Strainers.

b. Pumps.

c. Balancing valves.

d. Pressure/temperature/flow measuring devices.

e. Pump suction diffusers.

f. Heat exchanger heads.

2.07 ACCESSORIES

A. Adhesive, Caulks, Mastics, and Coatings: As recommended by insulation material manufacturer and suited for the application.

B. Bands: ½ inch wide, of stainless steel, galvanized steel, or aluminum construction, to match with materials used with.

C. Weld-Attached Anchor Pins and Washers: Copper-coated steel pin for capacitor- discharge welding and galvanized speed washer. Pin length shall be as required for insulation thickness used with. Welded pin holding capacity 100 lb., for direct pull perpendicular to the attached surface. Style and type to suit application.

D. Adhesive-Attached Anchor Pins and Speed Washers: Galvanized steel plate, pin, and washer manufactured for attachment to duct and plenum with adhesive. Pin length sufficient for insulation thickness used with. Adhesive as recommended by the anchor pin manufacturer as appropriate for surface temperatures and materials used with, and to achieve a holding capacity of 100 lb for direct pull perpendicular to the adhered surface. Style and type to suit application.

2.08 ACOUSTICAL WRAP

A. Type: Composite material having an outer foil faced sound barrier wrap with an internal sound decoupling insulation. Kinetics Noise Control KNM-100ALQ (or equal).

B. Construction: Outer sound barrier material shall be flexible 1.10 inch think, 1 lb/sf (minimum) barium sulfate loaded limp vinyl sheet, bonded to an outside layer of aluminum foil. Interior sound decoupling insulation shall be 1-inch-thick fiberglass batting quilted to a non-woven porous scrim-coated glass cloth in a 4-inch diamond stitch pattern. Material shall be suitable for temperatures form 40 to 200 degrees F.

C. Acoustic Rating: STC (sound transmission coefficient) 28 (or better).

D. Vibration Damping Material: Kinetics Noise Control KDD or DKC-E-162.

PART 3 – EXECUTION

3.01 GENERAL

A. Pre-Insulation Review: No covering materials shall be applied until systems to be covered have had all tests satisfactorily completed, have had all required inspections, and have been satisfactorily reviewed by the Architect-Engineer. All systems shall be examined by the Contractor to confirm cleanliness and other conditions are appropriate to allow for insulation installation.

B. Insulation Work Review: No insulated items shall be concealed in the building structure or buried until the insulation work has been satisfactorily reviewed by the Architect-Engineer, and has had all required inspections.

C. Standards: Materials shall be installed in accordance with manufacturers' written instructions, NCIIS, and shall comply with materials and methods specified herein. The more stringent requirements govern.

D. Joints/Seams: Joints shall be staggered on multi layer insulation. Locate seams and joints in least visible location.

E. Insulation Protection: Insulation shall be kept clean and dry and shall be protected from dirt, damage, and moisture. Insulation that becomes dirty, damaged, or wet and cannot be restored to like new condition will be rejected, and shall immediately be removed from the jobsite.

F. Insulation Interruptions: Insulation shall be neatly finished at all supports, protrusions and interruptions. Provide adhesive and tape seal to maintain vapor barrier integrity.

G. Equipment and Floor Protection: Cover existing equipment and finished floors to protect such items from insulation fiber and dust. Keep all such existing areas in a "broom clean" condition at the end

of each day. Take precautions in these areas to prevent glass fiber and insulation dust from entering ventilation systems or areas adjacent to the work.

H. Glass Fiber Insulation – General:

1. Finish all insulation ends with joint sealing tape or vapor barrier mastic, no raw edges allowed.

2. Joints: Tightly butt adjacent insulation sections together without any voids. Provide overlap of jacket material over all joints.

I. Items To Be Insulated: Provide insulation on all ductwork, all piping, all items installed in these duct and piping systems, all air and liquid energy conveying systems and components, all air and liquid energy storage, all equipment, and all energy consuming devices specified as part of Division 15, except where such insulation has been specifically excluded.

J. Items Excluded From Being Insulated:

1. Fire Sprinkler piping (except where heat traced).

2. Sanitary sewer drain lines (except traps at handicap accessible fixtures).

3. Factory pre-insulated underground piping.

4. Stops and risers at plumbing fixtures (except at handicap accessible fixtures).

5. Factory insulated water heaters (except for base on electric water heaters).

6. Factory insulated tanks.

7. Electric motors.

8. Fans.

9. Factory insulated or factory lined air handler (heat pumps).

10. Overflow condensate drains.

11. Pumps.

12. Relief valves and associated drain piping.

13. Hose bibs (except where used as drains hot water systems).

14. Water meter.

15. Underground cold water piping and associated underground items.

16. Underground hydronic system piping, 5 feet beyond building foundation wall.

3.02 DUCT INSULATION INSTALLATION

A. Types and Thickness: Insulate all ducts with insulation type and thickness (to provide the required R value listed in this specification.

B. General: Insulation shall be firmly butted at all joints. All longitudinal seams for flexible insulation shall overlap a minimum of 2 inches. All joints and seams shall be finished with appropriate joint sealing tape.

C. Attachment: For rectangular ducts over 24 inches wide, duct insulation shall be additionally secured to the bottom of the ductwork with mechanical fasteners on 18 inch centers to reduce sagging. Washers shall be applied without compressing the insulation. Protruding ends of fasteners shall be cut off flush after washers are installed. All seams, joints, penetrations, and damage to the facing shall be sealed with joint sealing tape or vapor retardant mastic or appropriate joint sealing tape.

3.03 PIPE INSULATION INSTALLATION

A. Types and Thickness: Insulate all piping with insulation type and thickness as specified in “Part 2 – Products”. All piping shall be insulated except where specifically excluded.

B. General: All ends shall be firmly butted together and secured with joint sealing tape. All jacket laps and joint sealing tape shall be secured with outward clinch staples at 4 inch spacing, or by use of a suitable adhesive. Seal all jacket penetrations with vapor barrier mastic.

C. Elastomeric Pipe Insulation: Flexible elastomeric cellular insulation shall be installed with seams and joints sealed with rubberized contact adhesive. Insulation with pre-applied adhesive is not permitted. Insulation exposed to weather and not shown to have jacketing shall be protected with UV resistant PVC jacketing as recommended by the manufacturer after the adhesive is dry and cured. A brush coating of adhesive shall be applied to both butt ends to be joined and to both split surfaces to be sealed. The adhesive shall be allowed to set until dry to touch but tacky under slight pressure before joining the surfaces. Insulation seals at seams and joints shall not be capable of being pulled apart one (1) hour after application. Insulation that can be pulled apart one (1) hour after installation shall be replaced.

D. Pipe Hangers: Provide insulation tight up to pre-insulated pipe supports at pipe hangers; seal all joints with joint sealing tape.

E. Pipe Sleeves: Run insulation continuous full size through sleeve. Coordinate work with fire seal work and confirm fire sealant system is approved for use with insulated pipes; see Division 23.

3.04 EQUIPMENT AND SPECIALTIES INSTALLATION

A. Types and Thickness: All equipment and items installed in insulated duct and piping systems shall be insulated except where specifically noted not to be; reference paragraph 3.01. Insulation type and thickness shall be as specified in “Part 2 – Products”.

B. General: Apply insulation as close as possible to equipment by grooving, scoring, and beveling as necessary. As required, secure insulation to equipment with studs, pins, clips adhesive, wires or bands. Fill joints, cracks, seams, and depressions with bedding compound to form smooth surface. Comply with NCIIS.

C. Removable: All equipment and specialties where access is required for maintenance, repair, service, or cleaning shall have insulation installed so that it can be easily removed and reinstalled without being damaged and without requiring new insulation.

D. Handicap Lavatories: Insulate P-trap and HW supplies below lavatory where exposed.

E. Nameplates: Do not insulate over nameplate or ASME stamps; bevel and seal insulation around.

F. Jacketing: Provide all equipment with vapor retardant jackets.

3.05 ACOUSTIC WRAP

A. Install in accordance with manufacturers written instruction and NCIIS.

B. On ductwork less than 20 gauge, apply vibration damping material on outside of duct before applying thermal insulation or acoustic wrap.

C. Overlap all interior sound insulation joints with a minimum 2 inch overlap of the exterior sound barrier.

D. Acoustical insulation shall not be compressed.

E. Where installed on ducts requiring thermal insulation, install thermal insulation over acoustic wrap.

END OF SECTION

DIVISION 23 – HEATING, VENTILATING AND AIR CONDITIONING (HVAC)

SECTION 230800 – COMMISSIONING OF HVAC

PART 1 – GENERAL

1.01 DESCRIPTION

A. The purpose of this section is to specify Division 23 responsibilities in the commissioning process.

B. The systems to be commissioned are shown on the Drawings and noted in Section 230590 and Section 230593.

C. Commissioning requires the participation of Division 23 to ensure that all systems are operating in a manner consistent with the Contract Documents. Division 23 shall be familiar with all parts of Division 01 and the commissioning plan issued by the CA and shall execute all commissioning responsibilities assigned to them in the Contract Documents.

D. The commissioning process shall be performed in accordance with the latest Energy Code of New York State.

E. An approved agency or design professional shall perform the commissioning. The Commissioning Agent shall not be affiliated with the Contractor.

1.02 RESPONSIBILITIES

A. Mechanical, Controls and TAB Contractors. The commissioning responsibilities applicable to each of the mechanical, controls and TAB contractors of Division 23 are as follows (all references apply to commissioned equipment only):

1. Construction and Acceptance Phases

    a. Include and itemize the cost of commissioning in the contract price.

    b. In each purchase order or subcontract written, include requirements for submittal data, commissioning documentation, O&M data and training.

    c. Attend a commissioning scoping meeting and other meetings necessary to facilitate the Cx process.

    d. Contractors shall provide the CA with normal cut sheets and shop drawing submittals of commissioned equipment.

    e. Provide additional requested documentation, prior to normal O&M manual submittals, to the CA for development of start-up and functional testing procedures.

        1) Typically this will include detailed manufacturer installation and start-up, operating, troubleshooting and maintenance procedures, full details of any owner-contracted tests, fan and pump curves, full factory testing reports, if any, and full warranty information, including all responsibilities of the Owner to keep the warranty in force clearly identified. In addition, the installation, start-up and checkout materials that are actually shipped inside the equipment and the actual field checkout sheet forms to be used by the factory or field technicians shall be submitted to the Commissioning Agent.

2) The Commissioning Agent may request further documentation necessary for the commissioning process.

3) This data request may be made prior to normal submittals.

f. Provide a copy of the O&M manuals and submittals of commissioned equipment, through normal channels, to the CA for review and approval.

g. Contractors shall assist (along with the design engineers) in clarifying the operation and control of commissioned equipment in areas where the specifications, control drawings or equipment documentation is not sufficient for writing detailed testing procedures.

h. Provide limited assistance to the CA in preparing the specific functional performance test procedures. Subs shall review test procedures to ensure feasibility, safety and equipment protection and provide necessary written alarm limits to be used during the tests.

i. Develop a full start-up and initial checkout plan using manufacturer's start-up procedures and the construction checklists from the CA for all commissioned equipment. Submit to CA for review and approval prior to startup. Refer to Section 230590 and Section 230593 for further details on start-up plan preparation.

j. During the startup and initial checkout process, execute the mechanical-related portions of the construction checklists for all commissioned equipment.

k. Perform and clearly document all completed startup and system operational checkout procedures, providing a copy to the CA.

l. Address current A/E punch list items before functional testing. Air and water TAB shall be completed with discrepancies and problems remedied before functional testing of the respective air- or water-related systems.

m. Provide skilled technicians to execute starting of equipment and to execute the functional performance tests. Ensure that they are available and present during the agreed upon schedules and for sufficient duration to complete the necessary tests, adjustments and problem-solving.

n. Provide skilled technicians to perform functional performance testing under the direction of the CA for specified equipment specified to be commissioned. Assist the CA in interpreting the monitoring data, as necessary.

o. Correct deficiencies (differences between specified and observed performance) as interpreted by the CA, OR and A/E and retest the equipment.

p. Prepare O&M manuals according to the Contract Documents, including clarifying and updating the original sequences of operation to as-built conditions.

q. During construction, maintain as-built red-line drawings for all drawings and final CAD as-builts for contractor-generated coordination drawings. Update after completion of commissioning (excluding deferred testing).

r. Provide training of the Owner's operating staff using expert qualified personnel, as specified.

s. Coordinate with equipment manufacturers to determine specific requirements to maintain the validity of the warranty.

2. Warranty Period

    a. Execute seasonal or deferred functional performance testing, witnessed by the CA, according to the specifications.

    b. Correct deficiencies and make necessary adjustments to O&M manuals and as-built drawings for applicable issues identified in any seasonal testing.

B. Mechanical Contractor. The responsibilities of the HVAC mechanical contractor, during construction and acceptance phases in addition to those listed in (A) are:

1. Provide startup for all HVAC equipment, except for the building automation control system.

2. Assist and cooperate with the TAB contractor and CA by:

    a. Putting all HVAC equipment and systems into operation and continuing the operation during each working day of TAB and commissioning, as required.

    b. Including cost of sheaves and belts that may be required by TAB.

    c. Providing test holes in ducts and plenums where directed by TAB to allow air measurements and air balancing. Providing an approved plug.

    d. Providing temperature and pressure taps according to the Construction Documents for TAB and commissioning testing.

3. Install a P/T plug at each water sensor, which is an input point to the control system.

4. List and clearly identify on the as-built drawings the locations of all airflow stations.

5. Prepare a preliminary schedule for Division 23 pipe and duct system testing, flushing and cleaning, equipment start-up and TAB start and completion for use by the CA. Update the schedule as appropriate.

6. Notify the OR or CA depending on protocol, when pipe and duct system testing, flushing, cleaning, startup of each piece of equipment and TAB will occur. Be responsible to notify the OR or CA, ahead of time, when commissioning activities not yet performed or not yet scheduled will delay construction. Be proactive in seeing that commissioning processes are executed and that the CA has the scheduling information needed to efficiently execute the commissioning process.

C. Temperature Controls Contractor. The commissioning responsibilities of the Temperature Controls Contractor, during construction and acceptance phases in addition to those listed in (A) are:

1. Sequences of Operation Submittals. The Temperature Controls Contractor's submittals of control drawings shall include complete detailed sequences of operation for each piece of equipment, regardless of the completeness and clarity of the sequences in the specifications. They shall include:

    a. An overview narrative of the system (1 or 2 paragraphs) generally describing its purpose, components and function.

    b. All interactions and interlocks with other systems.

c. Detailed delineation of control between any packaged controls and the building automation system, listing what points the BAS monitors only and what BAS points are control points and are adjustable.

d. Written sequences of control for packaged controlled equipment. (Equipment manufacturers' stock sequences may be included, but will generally require additional narrative).

e. Start-up sequences.

f. Warm-up mode sequences.

g. Normal operating mode sequences.

h. Unoccupied mode sequences.

i. Shutdown sequences.

j. Capacity control sequences and equipment staging.

k. Temperature and pressure control: setbacks, setups, resets, etc.

l. Detailed sequences for all control strategies, e.g., economizer control, optimum start/stop, staging, optimization, demand limiting, etc.

m. Effects of power or equipment failure with all standby component functions.

n. Sequences for all alarms and emergency shut downs.

o. Seasonal operational differences and recommendations.

p. Initial and recommended values for all adjustable settings, setpoints and parameters that are typically set or adjusted by operating staff; and any other control settings or fixed values, delays, etc. that will be useful during testing and operating the equipment.

q. Schedules, if known.

r. To facilitate referencing in testing procedures, all sequences shall be written in small statements, each with a number for reference. For a given system, numbers will not repeat for different sequence sections, unless the sections are numbered.

2. Control Drawings Submittal

a. The control drawings shall have a key to all abbreviations.

b. The control drawings shall contain graphic schematic depictions of the systems and each component.

c. The schematics will include the system and component layout of any equipment that the control system monitors, enables or controls, even if the equipment is primarily controlled by packaged or integral controls.

d. Provide a full points list with at least the following included for each point:

1) Controlled system
2) Point abbreviation

3) Point description
4) Display unit
5) Control point or setpoint (Yes / No)
6) Monitoring point (Yes / No)
7) Intermediate point (Yes / No)
8) Calculated point (Yes / No)

a) Key:
b) Point Description: DB temp, airflow, etc.
c) Control or Setpoint: Point that control equipment and can have its setpoint changed (OSA, SAT, etc.)
d) Intermediate Point: Point whose value is used to make a calculation which then controls equipment (space temperatures that are averaged to a virtual point to control reset).
e) Monitoring Point: Point that does not control or contribute to the control of equipment, but is used for operation, maintenance, or performance verification.
f) Calculated Point: "Virtual" point generated from calculations of other point values.

The Temperature Controls Contractor shall keep the CA informed of all changes to this list during programming and setup.

3. An updated as-built version of the control drawings and sequences of operation shall be included in the final controls O&M manual submittal.

4. Assist and cooperate with the TAB contractor in the following manner:

   a. Meet with the TAB contractor prior to beginning TAB and review the TAB plan to determine the capabilities of the control system toward completing TAB. Provide the TAB any needed unique instruments for setting terminal unit boxes and instruct TAB in their use (handheld control system interface for use around the building during TAB, etc.).

   b. For a given area, have all required construction checklists, calibrations, startup and selected functional tests of the system completed and approved by the CA prior to TAB.

   c. Provide a qualified technician to operate the controls to assist the TAB contractor in performing TAB, or provide sufficient training for TAB to operate the system without assistance.

5. Assist and cooperate with the CA in the following manner:

   a. Using a skilled technician who is familiar with this building, execute the functional testing of the controls system. Assist in the functional testing of all equipment. Provide two-way radios during the testing.

   b. Execute all control system trend logs.

6. The Temperature Controls Contractor shall prepare a written plan indicating in a step-by-step manner, the procedures that will be followed to test, checkout and adjust the control system prior to functional performance. At minimum, the plan shall include for each type of equipment controlled by the automatic controls:

   a. System name.

   b. List of devices.

   c. Step-by-step procedures for testing each controller after installation, including:

1) Process of verifying proper hardware and wiring installation.

2) Process of downloading programs to local controllers and verifying that they are addressed correctly.

3) Process of performing operational checks of each controlled component.

4) Plan and process for calibrating valve and damper actuators and all sensors.

5) A description of the expected field adjustments for transmitters, controllers and control actuators should control responses fall outside of expected values.

d. A copy of the log and field checkout sheets that will document the process. This log must include a place for initial and final read values during calibration of each point and clearly indicate when a sensor or controller has "passed" and is operating within the contract parameters.

e. A description of the instrumentation required for testing.

f. Indicate what tests on what systems should be completed prior to TAB using the control system for TAB work. Coordinate with the CA and TAB contractor for this determination.

7. Provide a signed and dated certification to the CA and OR upon completion of the checkout of each controlled device, equipment and system prior to functional testing for each piece of equipment or system, that all system programming is complete as to all respects of the Contract Documents, except functional testing requirements.

8. Beyond the control points necessary to execute all documented control sequences, provide monitoring, control and virtual points as specified in Section 230900.

9. List and clearly identify on the as-built duct and piping drawings the locations of all static and differential pressure sensors (air, water and building pressure).

D. TAB Contractor. The duties of the TAB contractor, in addition to those listed in (A) are:

1. Six weeks prior to starting TAB, submit to the OR the qualifications of the site technician for the project, including the name of the contractors and facility managers of recent projects the technician on which was lead. The Owner will approve the site technician's qualifications for this project.

2. Submit the outline of the TAB plan and approach for each system and component to the CA, OR and the Temperature Controls Contractor six weeks prior to starting the TAB. This plan will be developed after the TAB has some familiarity with the control system.

3. The submitted plan will include:

a. Certification that the TAB contractor has reviewed the construction documents and the systems with the design engineers and contractors to sufficiently understand the design intent for each system.

b. An explanation of the intended use of the building control system. The Temperature Controls Contractor will comment on feasibility of the plan.

c. All field checkout sheets and logs to be used that list each piece of equipment to be tested, adjusted and balanced with the data cells to be gathered for each.

d. Discussion of what notations and markings will be made on the duct and piping drawings during the process.

e. Final test report forms to be used.

f. Detailed step-by-step procedures for TAB work for each system and issue: terminal flow calibration (for each terminal type), diffuser proportioning, branch / submain proportioning, total flow calculations, rechecking, diversity issues, expected problems and solutions, etc. Criteria for using air flow straighteners or relocating flow stations and sensors will be discussed. Provide the analogous explanations for the water side.

g. List of all air flow, water flow, sound level, system capacity and efficiency measurements to be performed and a description of specific test procedures, parameters, formulas to be used.

h. Details of how total flow will be determined (Air: sum of terminal flows via BAS calibrated readings or via hood readings of all terminals, supply (SA) and return air (RA) pitot traverse, SA or RA flow stations. Water: pump curves, circuit setter, flow station, ultrasonic, etc.).

i. The identification and types of measurement instruments to be used and their most recent calibration date.

j. Specific procedures that will ensure that both air and water side are operating at the lowest possible pressures and provide methods to verify this.

k. Confirmation that TAB understands the outside air ventilation criteria under all conditions.

l. Details of whether and how minimum outside air cfm will be verified and set, and for what level (total building, zone, etc.).

m. Details of how building static and exhaust fan / relief damper capacity will be checked.

n. Proposed selection points for sound measurements and sound measurement methods.

o. Details of methods for making any specified coil or other system plant capacity measurements.

p. Details of any TAB work to be done in phases (by floor, etc.), or of areas to be built out later.

q. Details regarding specified deferred or seasonal TAB work.

r. Details of any specified false loading of systems to complete TAB work.

s. Details of all exhaust fan balancing and capacity verifications, including any required room pressure differentials.

t. Details of any required interstitial cavity differential pressure measurements and calculations.

u. Plan for hand-written field technician logs of discrepancies, deficient or uncompleted work by others, contract interpretation requests and lists of completed tests (scope and frequency).

v. Plan for formal progress reports (scope and frequency).

w. Plan for formal deficiency reports (scope, frequency and distribution).

4. A running log of events and issues shall be kept by the TAB field technicians. Submit hand-written reports of discrepancies, deficient or uncompleted work by others, contract interpretation requests and lists of completed tests to the CA and OR at least twice a week.

5. Communicate in writing to the Temperature Controls Contractor all setpoint and parameter changes made or problems and discrepancies identified during TAB which affect the control system setup and operation.

6. Provide a draft TAB report within two weeks of completion. A copy will be provided to the CA. The report will contain a full explanation of the methodology, assumptions and the results in a clear format with designations of all uncommon abbreviations and column headings. The report should follow the latest and most rigorous reporting recommendations by AABC, NEBB or ASHRAE Standard 111.

7. Provide the CA with any requested data, gathered, but not shown on the draft reports.

8. Provide a final TAB report for the CA with details, as in the draft.

9. Conduct functional performance tests and checks on the original TAB.

E. Commissioning Team: The commissioning process will require cooperation of the Contractor, sub-contractors, vendors, Architect/ Engineer, Commissioning Agent, LEED Consultant (if applicable) and Owner.

1. The commissioning team shall be comprised of the following:

a. Contractor

1) Project Manager
2) Test Engineer

b. Subcontractors: As appropriate to product or system being commissioned.

c. Commissioning Agent

1) Project Manager
2) Project Engineers

d. Owner’s Representative(s)

e. LEED Consultant (if applicable)

f. Architect/ Engineer

1) Architect
2) MEP Engineers

PART 2 - PRODUCTS

2.01 TEST EQUIPMENT

A. Division 23 shall provide all test equipment necessary to fulfill the testing requirements of this Division.

PART 3 - EXECUTION

3.01 SUBMITTALS

A. Division 23 shall provide submittal documentation relative to commissioning as required in this Section Part 1, Section 013300.

3.02 STARTUP

A. The HVAC mechanical and Temperature Controls Contractors shall follow the start-up and initial checkout procedures listed in the Responsibilities list in this section and in Section 230590 and Section 230593. Division 23 has start-up responsibility and is required to complete systems and sub-systems so they are fully functional, meeting the design objectives of the Contract Documents. The commissioning procedures and functional testing do not relieve or lessen this responsibility or shift that responsibility partially to the commissioning agent or Owner.

B. Functional testing is intended to begin upon completion of a system. Functional testing may proceed prior to the completion of systems or sub-systems at the discretion of the CA and OR. Beginning system testing before full completion, does not relieve the Contractor from fully completing the system, including all construction checklists as soon as possible.

3.03 TAB

A. Refer to the TAB responsibilities in Part 1.02 above.

3.04 PRE-FUNCTIONAL CHECKLIST

A. A list of items to inspect and elementary component tests to conduct to verify proper installation of equipment, provided by the Commissioning Agent to the contractor. Pre-functional checklists are primarily static inspections and procedures to prepare the equipment or system for initial operation (e.g., belt tension, oil levels OK, labels affixed, gages in place, sensors calibrated, etc.). However, some pre-functional checklist items entail simple testing of the function of a component, a piece of equipment or system (such as measuring the voltage imbalance on a three-phase pump motor of a chiller system). The word “pre-functional” refers to before functional testing. Pre-functional checklists augment and are combined with the manufacturer’s start-up checklist.

3.05 FUNCTIONAL PERFORMANCE TESTS

A. Test the dynamic function and operation of equipment and systems using manual (direct observation) or monitoring methods. Functional testing is the dynamic testing of systems (rather than just components) under full operation (e.g., the chiller pump is tested interactively with the chiller functions to see if the pump ramps up and down to maintain the differential pressure setpoint). Systems are tested under various modes, such as during low cooling or heating loads, high loads, component failures, unoccupied, varying outside air temperatures, etc. The systems are run through all the control system’s sequences of operation and components are verified to be responding as the sequences state. Traditional air or water test and balancing (TAB) is not functional testing, in the commissioning sense of the word. TAB’s primary work is setting up the system flows and pressures as specified, while functional testing is verifying that which has already been set up. The Commissioning Agent develops the functional test procedures in a sequential written form, coordinates, oversees and documents the actual testing, which is usually performed by the installing contractor or vendor. Functional Performance Tests are performed after pre-functional checklists and startup are complete.

3.06 DEFICIENCY REPORT AND RESOLUTION RECORD

A. Deficiency Report and Resolution Record: Document items of non-compliance in materials, installation, or operation.

B. Non-Conformance. Non-conformance and deficiencies observed shall be addressed immediately, in terms of notification to responsible parties, and providing recommended actions to correct deficiencies.

1. Corrections of minor deficiencies identified may be made during the tests at the discretion of the Commissioning Agent. In such cases the deficiency and resolution shall be documented on the procedure form.

2. For identified deficiencies:

a. If there is no dispute on the deficiency and the responsibility to correct it:
   1) The Commissioning Agent documents the deficiency and the adjustments or alterations required to correct it. The contractor corrects the deficiency and notifies the Commissioning Agent that the equipment is ready to be retested.
   2) The Commissioning Agent reschedules the test and the test is repeated.

b. If there is a dispute about a deficiency or who is responsible:
   1) The deficiency is documented on the non-compliance form and a copy given to the Consultant.
   2) Resolutions are made at the lowest management level possible. Additional parties are brought into the discussions as needed. Contractor shall have responsibility for resolving construction deficiencies. If a design revision is deemed necessary and approved by Owner, Architect/Engineer shall have responsibility for providing design revision.
   3) The Commissioning Agent documents the resolution process.
   4) Once the interpretation and resolution have been decided, the appropriate party corrects the deficiency and notifies the Commissioning Agent that the equipment is ready to be retested. The Commissioning Agent reschedules the test and the test is repeated until satisfactory performance is achieved.

3. Cost of Retesting: Costs for retesting shall be charged to the Contractor.

3.07 FINAL COMMISSIONING REPORTS

A. Two copies of the final commissioning reports must be provided to the engineer of record and owner.

B. Division 23 shall compile and prepare documentation for all equipment and systems covered in the O&M manuals, according to this section prior to the training of owner personnel.

C. The components of the Commissioning Report shall include the following and are defined as follows:

1. Executive summary of process and results of commissioning – including observations, conclusions and outstanding items.
2. History of any system deficiencies and how resolved.
   a. Include outstanding deficiencies and plans for resolution.
   b. Include plans for seasonal testing scheduled for a later date.
3. System performance test results and evaluations.
4. Summary of training completed and scheduled.
5. Attach commissioning process documents.

a. Commissioning Plan
b. OPR – Owner's Project Goals
c. BOD – Basis of Design
d. Executed installation checklists
e. Executed functional performance test compliance documents.
f. Recommendations for end-of-warranty review activities.

3.08 OPERATION AND MAINTENANCE (O&M) MANUALS

A. The following O&M manual requirements do not replace O&M manual documentation requirements elsewhere in these specifications.

B. Division 23 shall compile and prepare documentation for all equipment and systems covered in Division 23 and deliver this documentation to the GC for inclusion in the O&M manuals, according to this section.

C. The CA shall receive a copy of the O&M manuals for review.

D. Special Control System O&M Manual Requirements. In addition to documentation that may be specified elsewhere, the Temperature Controls Contractor shall compile and organize at minimum the following data on the control system in labeled 3-ring binders with indexed tabs.

1. Four copies of the controls training manuals in a separate manual from the O&M manuals.

2. Operation and Maintenance Manuals containing:

a. Specific instructions on how to perform and apply all functions, features, modes, etc. mentioned in the controls training sections of this specification and other features of this system. These instructions shall be step-by-step. Indexes and clear tables of contents shall be included. The detailed technical manual for programming and customizing control loops and algorithms shall be included.

b. Full as-built set of control drawings (refer to Submittal section above for details).

c. Full as-built sequence of operations for each piece of equipment.

d. Full points list. In addition to the updated points list required in the original submittals (Part 1 of this section), a listing of all rooms shall be provided with the following information for each room:

1) Floor
2) Room number
3) Room name
4) Air handler unit ID
5) Reference drawing number
6) Air terminal unit tag ID
7) Heating and/or cooling valve tag ID
8) Minimum cfm
9) Maximum cfm

e. Full print out of all schedules and set points after testing and acceptance of the system.

f. Full as-built print out of software program.

g. Electronic copy on disk of the entire program for this facility.

h. Marking of all system sensors and thermostats on the as-built floor plan and mechanical drawings with their control system designations.

i. Maintenance instructions, including sensor calibration requirements and methods by sensor type, etc.

j. Control equipment component submittals, parts lists, etc.

k. Warranty requirements.

l. Copies of all checkout tests and calibrations performed by the Contractor (not commissioning tests).

3. The manual shall be organized and subdivided with permanently labeled tabs for each of the following data in the given order:

a. Sequences of operation
b. Control drawings
c. Points lists
d. Controller / module data
e. Thermostats and timers
f. Sensors and DP switches
g. Valves and valve actuators
h. Dampers and damper actuators
i. Program setups (software program printouts)

4. Field checkout sheets and trend logs should be provided to the CA for inclusion in the Commissioning Record Book.

E. Special TAB Documentation Requirements. The TAB will compile and submit the following with other documentation that may be specified elsewhere in the Specifications.

1. Final report containing an explanation of the methodology, assumptions, test conditions and the results in a clear format with designations of all uncommon abbreviations and column headings.

2. The TAB shall mark on the drawings where all traverse and other critical measurements were taken and cross reference the location in the TAB report.

F. Review and Approvals. Review of the commissioning related sections of the O&M manuals shall be made by the A/E and by the CA.

3.07 TRAINING OF OWNER PERSONNEL

A. Division 23 Contractor shall be responsible for training coordination and scheduling and ultimately to ensure that training is completed.

B. The CA shall be responsible for overseeing and approving the content and adequacy of the training of Owner personnel for commissioned equipment.

C. Mechanical Contractor. The mechanical contractor shall have the following training responsibilities:

1. Provide the CA with a training plan two weeks before the planned training.

2. Provide designated Owner personnel with comprehensive orientation and training in the understanding of the systems and the operation and maintenance of each piece of HVAC

equipment including, but not limited to, pumps, boilers, furnaces, chillers, heat rejection equipment, air conditioning units, air handling units, fans, terminal units, controls and water treatment systems, etc.

3. Training shall normally start with classroom sessions followed by hands-on training on each piece of equipment, which shall illustrate the various modes of operation, including startup, shutdown, fire/smoke alarm, power failure, etc.

4. During any demonstration, should the system fail to perform in accordance with the requirements of the O&M manual or sequence of operations, the system will be repaired or adjusted as necessary and the demonstration repeated.

5. The appropriate trade or manufacturer's representative shall provide the instructions on each major piece of equipment. This person may be the start-up technician for the piece of equipment, the installing contractor or manufacturer's representative. Practical building operating expertise as well as in-depth knowledge of all modes of operation of the specific piece of equipment are required. More than one party may be required to execute the training.

6. The Temperature Controls Contractor shall attend sessions other than the controls training, as requested, to discuss the interaction of the controls system as it relates to the equipment being discussed.

7. The training sessions shall follow the outline in the Table of Contents of the operation and maintenance manual and illustrate whenever possible the use of the O&M manuals for reference.

8. Training shall include:

    a. Use of the printed installation, operation and maintenance instruction material included in the O&M manuals.

    b. A review of the written O&M instructions emphasizing safe and proper operating requirements, preventative maintenance, special tools needed and spare parts inventory suggestions. The training shall include start-up, operation in all modes possible, shut-down, seasonal changeover and any emergency procedures.

    c. Discussion of relevant health and safety issues and concerns.

    d. Discussion of warranties and guarantees.

    e. Common troubleshooting problems and solutions.

    f. Explanatory information included in the O&M manuals and the location of all plans and manuals in the facility.

    g. Discussion of any peculiarities of equipment installation or operation.

    h. The format and training agenda in The HVAC Commissioning Process, ASHRAE latest Guideline is recommended.

    i. Classroom sessions shall include the use of overhead projections, slides, video/audio-taped material as might be appropriate.

9. Hands-on training shall include start-up, operation in all modes possible, including manual, shut-down and any emergency procedures and preventative maintenance for all pieces of equipment.

10. The mechanical contractor shall fully explain and demonstrate the operation, function and overrides of any local packaged controls, not controlled by the central control system.

11. Training shall occur after functional testing is complete, unless approved otherwise by the Project Manager.

12. Duration of Training. The mechanical contractor shall provide training on each piece of equipment according to the following schedule.

Hours	System
8	Chillers and System
8	Boilers and System
3	Piping Systems
4	Chemical Treatment
12	Air Handler Units
8	VRF Systems
12	Rooftop Units
4	Heat Exchangers
1	Spot Unit Heaters
2	Air Terminal Units
1	Central Exhaust Systems
2	Supplementary Fans
2	Pumps
16	Controls System
16	Control system Follow-up
4	Humidifiers

D. Temperature Controls Contractor. The Temperature Controls Contractor shall have the following training responsibilities:

1. Provide the Commissioning Agent, Architect/ Engineer and CM with a training plan four weeks before the planned training.

2. The Temperature Controls Contractor shall provide designated Owner personnel training on the control system in this facility. The intent is to clearly and completely instruct the Owner on all the capabilities of the control system.

3. Training manuals. The standard operating manual for the system and any special training manuals will be provided for each trainee, with three extra copies left for the O&M manuals. In addition, copies of the system technical manual will be demonstrated during training and three copies submitted with the O&M manuals. Manuals shall include detailed description of the subject matter for each session. The manuals will cover all control sequences and have a definitions section that fully describes all relevant words used in the manuals and in all software displays. Manuals will be approved by the CA. Copies of audiovisuals shall be delivered to the Owner.

4. The trainings will be tailored to the needs and skill-level of the trainees.

5. The trainers will be knowledgeable on the system and its use in buildings. For the on-site sessions, the most qualified trainer(s) will be used. The Owner shall approve the instructor prior to scheduling the training.

6. During any demonstration, should the system fail to perform in accordance with the requirements of the O&M manual or sequence of operations, the system will be repaired or adjusted as necessary and the demonstration repeated.

7. The Temperature Controls Contractor shall attend sessions other than the controls training, as requested, to discuss the interaction of the controls system as it relates to the equipment being discussed.

8. There shall be three training sessions:

   a. Training I. Control System. This training may be held on-site or in the supplier's facility. If held off-site, the training may occur prior to final completion of the system installation. Upon completion, each student, using appropriate documentation, should be able to perform elementary operations and describe general hardware architecture and functionality of the system.

   b. Training II. Building Systems. The second session shall be held on-site and will consist of actual hands-on training after the completion of system commissioning. The session shall include instruction on:

      1) Specific hardware configuration of installed systems in this building and specific instruction for operating the installed system, including HVAC systems, lighting controls and any interface with security and communication systems.

      2) Security levels, alarms, system start-up, shut-down, power outage and restart routines, changing set points and alarms and other typical changed parameters, overrides, freeze protection, manual operation of equipment, optional control strategies that can be considered, energy savings strategies and set points that if changed will adversely affect energy consumption, energy accounting, procedures for obtaining vendor assistance, etc.

      3) All trending and monitoring features (values, change of state, totalization, etc.), including setting up, executing, downloading, viewing both tabular and graphically and printing trends. Trainees will actually set-up trends in the presence of the trainer.

      4) Every screen shall be completely discussed, allowing time for questions.

      5) Use of keypad or plug-in laptop computer at the zone level.

      6) Use of remote access to the system via phone lines or networks.

         a) Setting up and changing an air terminal unit controller.
         b) Graphics generation
         c) Point database entry and modifications
         d) Understanding DDC field panel operating programming (when applicable)

   c. Training III. The third training (Follow-up Training) will be conducted on-site six months after occupancy. The session will be structured to address specific topics that trainees need to discuss and to answer questions concerning operation of the system.

E. TAB The TAB contractor shall have the following training responsibilities:

1. TAB shall meet for 2 hours with facility staff after completion of TAB and instruct them on the following:

   a. Go over the final TAB report, explaining the layout and meanings of each data type.

   b. Discuss any outstanding deficient items in control, ducting or design that may affect the proper delivery of air or water.

c. Identify and discuss any terminal units, duct runs, diffusers, coils, fans and pumps that are close to or are not meeting their design capacity.

d. Discuss any temporary settings and steps to finalize them for any areas that are not finished.

e. Other salient information that may be useful for facility operations, relative to TAB.

3.08 DEFERRED TESTING

A. Unforeseen Deferred Tests:

1. If a test cannot be completed due to the building structure, required occupancy condition, of other deficiency, the functional testing may be delayed upon recommendation of the Commissioning Agent and the approval of the Owner. These tests are conducted in the same manner as the seasonal tests as soon as possible.

B. Seasonal Testing:

1. Schedule, coordinate, observe and document additional testing for seasonal variation in operations and control strategies during the opposite season to verify performance of the HVAC system and controls. Complete testing during the warranty period to fully test all sequences of operation.

C. Update O&M manuals and Record Documents as necessary due to testing.

3.09 WRITTEN WORK PRODUCTS

A. Written work products of Contractors will consist of the start-up and initial checkout plan and the filled out start-up, initial checkout and construction checklists.

END OF SECTION

Division 15 - Mechanical

Section 23 09 23 - AUTOMATIC TEMPERATURE CONTROL SYSTEMS

PART 1 - GENERAL

1.01 GENERAL

A. Furnish and install all temperature controls including all devices and accessories required for the installation / modification to a "Johnson" Metasys energy management and control system. All required work is to be performed by an authorized Johnson Metasys installer.

B. There is an existing Johnson Metasys DDC front-end system, currently serviced by the local factory Johnson branch. All new controls shall be Johnson Controls, Inc. DDC, as a seamless extension of the existing BMS. The controls contractor will provide all network wiring between the existing BMS and the new controls, and will provide all graphics, front-end programming to map up the new controls. The contractor will include all licenses as necessary to accommodate the new controls.

C. All new controls shall be of the DDC type unless specified otherwise. All DDC controls shall be manufactured by Johnson Controls Inc. The design make for the web-based front-end controller and all local DDC controllers is Johnson Controls Inc.

D. The ATC contractor shall be authorized by the system manufacturer and shall submit training certificates and current proof that the contractor is a *certified Johnson Controls Inc. Metasys installer / integrator*.

E. Control systems shall be complete in all respects, including all labor, materials, equipment and service necessary. The controls shall be of the DDC type unless otherwise specified.

F. Systems shall include, but not be limited to, all application specific controllers, transducers, transformers, cabinets, valves and operators, dampers and operators, relays, sensors, switches, wiring and terminals.

G. Installation shall include all control components, installation of all control wiring and pneumatic tubing. All wiring required for interlocking and interfacing controls with the equipment to be controlled, whether low voltage or line voltage; calibration and adjustment of all controls, dampers, linkages, etc. is part of this contract. 120v power wiring to controls is to be included under this contract.

H. All control wiring concealed in walls or run in open areas of machine rooms shall be in conduit. In other locations, plenum rated cable shall be used.

I. The ATC Contractor shall provide PDF submittal showing how he proposes to complete the work specified herein. In this book, the ATC Contractor shall submit description of operation and schematic drawings, produced in AutoCAD, showing the wiring and pneumatic tubing (if applicable) of the entire control system to the District for review before starting any work. Bulletins describing each item of control equipment or component shall be included.

J. Upon completion of his work, the ATC Contractor shall provide PDF Operation & Maintenance Manuals showing exactly how each component of the system was installed, specifically noting any changes from the submittal book, and who authorized the change. Schematic drawings, sequences of operation and technical literature must be provided for all components of the system.

K. All automatic temperature control work completed under this Contract shall be covered under a one (1) year warranty and service contract effective on date of acceptance. Scheduled maintenance service shall be provided to attend to the normal maintenance required for proper system operation in the building.

L. It is the Contractor's responsibility to inspect the buildings, their existing systems and the project drawings to verify exact quantities of devices and controls required for the systems specified. No allowance will be made if the Contractor fails to make such an examination.

M. Provide nameplates on all devices, whether mounted on the face of the central and local control panels. In occupied areas, nameplates shall be concealed beneath covers of room type instruments, to describe functions.

N. All control panels shall include wire markers for each wire, with an identifying wiring diagram.

O. The Control Contractor shall provide a minimum of two (2) one-hour training classes on the system operation and maintenance. This is to include both classroom and on-site training to ensure that the District’s custodial and maintenance personnel have adequate knowledge of the control system’s features as well as operation and maintenance requirements. The Contractor will provide printed documentation to all persons attending the training sessions.

1.02. **VALVES**

1. All automatic control valves shall be fully proportioning unless otherwise specified, quiet in operation, and shall be arranged to fail-safe in either a normally open or normally closed position in the event of power failure. The open or closed position shall be as specified or as required to suit job conditions. Valves shall be capable of operating at varying rates of speed to correspond to the exact dictates of the controller and variable load requirements. Provisions shall be made for valves operating in sequence with other valves or damper operators to have adjustable operating ranges and starting points to provide flexibility of adjustment, sequencing and throttling range.

2. Valves shall be sized by the ATC Contractor and guaranteed to meet the heating or cooling requirements as specified, and as indicated on the drawings. Unless otherwise specified, control valves shall have 125 psig cast iron bodies with flanged connections on valves 2 1/2" or larger. Unless otherwise specified, valve bodies shall have the same pressure characteristics as the piping in which they are installed.

3. No single valve, except zone valves, shall be larger than 2" in size. Where the capacity of equipment to be controlled requires a valve larger

than 2", two (2) valves shall be installed in parallel with the smaller valve sized for a maximum of 1/3 of the total capacity.

4. All control valves, unless otherwise noted, shall be of the globe valve type.

5. Actuators shall be electronic. They shall be mechanically fail-safe. **Capacitor-based fail-safe actuators are not acceptable.**

1.03. **CONTROL PANELS**

1. All control panels for this project will meet the following requirements **as a minimum**:

    1. The control panel shall be a fully enclosed cabinet, of baked enamel, steel or aluminum material construction and shall meet the requirements of NEMA 1 enclosures.
    2. The panel will have a hinged door with a locking latch.
    3. Each component on the front panel shall have an appropriate engraved nameplate fabricated from .062" or .125" thick phenolic material, with engraved permanent lettering. **Stick-on labels are not acceptable.**

1.04. **DDC SYSTEM WIRING**

A. All conduit, wiring, accessories and wiring connections required for the installation of the Building Automation System, as herein specified, shall be provided by the Controls Contractor unless specifically shown on the Electrical Drawings under Division 26 Electrical. The contractor shall provide, install and wire all repeaters, terminators as recommended by the BMS manufacturer. Power wiring for DDC control panels and other line voltage devices shall be included under the Mechanical / Temperature control contract.

B. All wiring shall comply with the requirements of applicable portions of Division 26 and all local and national electric codes, unless specified otherwise in this section.

C. All control wiring materials and installation methods shall comply with DDC system manufacturer's recommendations.

D. The sizing, type and provision of cable, conduit, cable trays, and raceways shall be the design responsibility of the Controls Contractor. If complications arise, however, due to the incorrect selection of cable, cable trays, raceways and/or conduit by the Controls Contractor, the Contractor shall be responsible for all costs incurred in replacing the selected components.

1.05. **QUALITY ASSURANCE**

A. There is an extensive installation of Johnson Controls Inc. Metasys DDC controls in the District and in this building. The District must have assurance that the Mechanical contractor has solicited a quote for all controls work from an authorized Johnson Metasys branch.

Section 2 –Sequences of Operation.

A. **Johnson Metasys DDC Front-end**

a. Furnish and install all temperature controls including all devices and accessories required for the installation of a complete Johnson Metasys web-based energy management and control system for the new chillers. The contractor shall network and map up all new DDC controls to the existing Johnson Controls BMS system. The contractor will expand the existing system as necessary, including all hardware, software, licenses, and additional Controllers/Servers as necessary to provide the sequences and points lists specified.

b. This contractor will furnish and install as many master controllers as required to accommodate all new equipment, and maintain a free Java heap of at least 10MB, with 25% spare capacity for future expansion. If the controller cannot accommodate the new controls while still maintaining 10% expansion capability and at least 10MB free heap, an additional controller and dedicated Server with Server PC shall be provided at no additional cost to the owner. ***The contractor will be required to demonstrate this front-end capacity during training and in the O&M documentation.***

c. The existing front-end is networked to a districtwide energy monitoring Server. The Controls Contract will ensure that all new controls added to this project, including any master controllers, will be compatible with the existing Server and all new trends added to this project will be mapped up to the existing Server to match existing trend recording cycles.

d. The Controls Contractor will provide schedules for all equipment, zoned by different areas of the building as designated by the Owner. Providing a separate dedicated schedule for each piece of equipment is not acceptable unless specifically directed by the Owner.

e. This contractor will modify the BMS floor plan of the entire building, with links to all DDC controlled equipment. Upon completion of this project, all DDC controlled equipment will be one seamless DDC front-end with graphical interface for each piece of equipment. Simply putting hyperlinks or data tables to represent the new controls is not acceptable. Graphics shall match existing graphics in all respects.

f. The controls subcontractor will provide all network wiring and will provide all graphics, front-end programming to map up the new controls. The contractor will include all additional licenses as necessary to accommodate the new controls.

g. Override and offline Indication: All overridden points/setpoints will be displayed on the graphic in the same color background as the existing graphics, with text to match the existing graphics. All points operating under normal control logic will be in colors to match existing. All points that are offline will be indicated similar to existing.

h. Alarm Indication: Alarms shall be programmed to display on a customized graphical alarm screen indicating when any alarm occurs

at any of the new chillers.. An Alarm notification image will indicate on the home page and on every graphical page indicating an unacknowledged alarm condition. The flashing alarm notification will disappear once the user has acknowledged the alarm, but the alarm will remain in the alarm history database.

i. All DDC points indicated in the points list to be trended will be recorded at 1-hour intervals (or change of value).

j. Optimal Start: An adaptive optimal start algorithm shall be used to enable the new equipment to cool the space prior to occupancy time, necessary to achieve zone occupied temperature setpoints by the start of scheduled occupied period. The learning adaptive algorithm shall compare the zone temperature to its setpoint at beginning of scheduled occupied period and shall automatically adapt the cooling response time for the next unoccupied period. The maximum cool down start time will be adjustable at the DDC front-end. At no later than the scheduled occupancy time, the units will transition to occupied mode. When the unit comes on during optimal start and/or cool down mode, the central plant will be indexed to day mode settings to ensure the pumps, control valves are in day mode to allow optimal start/cool down sequence to occur.

B. Software

a. All controllers shall be programmed using licensed original software. Supervisory controllers shall be programmed using manufacturer's software, and controllers shall be programmed with manufacturer's software. All software shall be at current versions compatible with the hardware, including all patches and updates.

C. New Air Cooled Chillers, High School & Middle School Sections

a. Cooling, Unoccupied: During the unoccupied mode, the chillers may be programmed to be locked out or to operate at a higher discharge water temperature, depending upon owner preference.

b. Cooling, Occupied: During the occupied cycle, chillers shall be enabled based upon a programmable outdoor air setpoint. If the outdoor air is warmer than setpoint, the chillers will be enabled and each chiller's respective chilled water pump shall be started. Flow shall be proven. If flow is not proven, the chiller(s) shall be locked out and an alarm sent to the head end describing the nature of the lockout. Once chilled water flow has been established, the chillers shall be controlled by each chillers on-board controller to satisfy leaving chilled water temperature. Provide for a chilled water reset schedule to automatically adjust leaving chilled water temperature based upon outdoor air temperature. Each chiller shall modulate it's own compressor(s) in response to delta T between supply and return water.

All functions of each chiller controller shall be mapped up to the BMS. Alarms to be mapped up as read-only points with full descriptions as to the nature of the alarm. Chilled water supply setpoints / chilled water reset schedules shall be mapped up to each chiller as read – write points.

Section 3 – Dynamic Color Graphics Requirements

The color graphics that the user will see to operate the system shall be resident in the web-based front-end controller. PC-based systems are not acceptable. The main graphic shall be a three-dimensional floor plan of the building with links to each room and its HVAC system. The display will provide links to all DDC equipment in the building. Links to data trends and schedules shall be located on each system's graphic screen. The minimum point information that is to be mapped to the front-end panel and shown in the color graphic screens is as follows:

New Air Cooled Chillers				
Description	**Point**	**History**	**Alarm**	**Totalize**
Chiller Enable / Disable	Bin.	X	X	
Chilled Water Pump Enable	Bin.	X	X	
Chilled Water Flow	Ana.	X	X	
Leaving Chilled Water Temperature	Ana.	X		
Chilled Water Return Temperature	Ana.	X		
Chilled Water Supply Pressure	Ana.	X	X	
Chilled Water Return Pressure	Ana.	X	X	
Chilled Water Pump Flow Alarm / Lockout	Bin.	X	X	
Chilled Water Reset Schedule Value	Ana.	X		
Chiller Compressor Operation %	Ana.	X		
Chiller Low Side Pressure Value	Ana.	X	X	
Chiller High Side Pressure Value	Ana.	X	X	
Chiller Run Status	Bin.	X	X	
Chiller Occupied / Unoccupied Status	Bin.	X		

VRF Equipment: Show all space setpoints, H&V unit status, valve positions, damper positions, VRF interlock status, VRF indoor unit status, VRF unit mode.

Section 4 – Historical Data Trending Requirements

All the points listed will be trended in the Metasys front-end to record historical data for a period of 7 days, trended once per hour, and archived at the Server daily. The District intends to track these data for improving efficiency and occupancy conditions.

Section 5 – Hardware requirements:

A. General Description:

1. The Building Automation System (BAS) shall use an open architecture and where applicable support a multi-vendor environment. To accomplish this effectively, the BAS shall not be limited to a single open communication protocol standard, but to also integrate third-party devices and applications via additional protocol and through the latest software standards. The system configuration shall be available for use

on the Internet, or intranets using off the shelf, industry standard technology compatible with other owner provided networks.

2. The Building Automation System shall consist of the following:
   a. DDC Controllers (HVAC, etc.)
   b. Input, Output Modules
   c. Local Display Devices
   d. Portable Operator's Terminals – Portable PC's
   e. Distributed User Interfaces
   f. Network processing, data storage and communications equipment
   g. Other components required for a complete and working BAS.
3. The system shall be modular in nature and shall permit expansion of both capacity and functionality through the addition of sensors, actuators, controllers and operator devices, while re-using existing controls equipment.
4. The system architectural design shall eliminate dependence upon any single device for alarm generation and control execution. The failure of any single component or network connection shall not interrupt the execution of control strategies at other operational devices.
5. Acceptable Systems

   Johnson Controls Inc. Metasys

B. BAS Architecture – Automation Network

1. The automation network shall be configured as a Client/Server network with a web server operating on the Client's LAN/WAN. The web browser interface is extended over the LAN/WAN. Monitoring and control of the BAS is available using the web browser interface.
2. The automation network shall include the option of a PC industry standard of Ethernet TCP/IP. Where used, LAN controller cards shall be standard "off the shelf" products available through normal PC vendor channels.
3. The BAS shall network multiple user interface clients, system controllers and systems supervisors as required for systems operation.
4. The automation network option shall be capable of operating at a communication speed of 100 Mbps.
5. The automation network option will be compatible with other enterprise-wide networks. Where indicated, the automation network shall be connected to the enterprise network and share resources with it by way of standard networking devices and practices.

C. BAS Architecture – Control Network

1. Network Automation Controllers, (NAC) shall provide management over the control network(s) and shall support the following communications protocols:

   BACnet® Standard (ANSI/ASHRAE Standard 135-) MS/TP master.

   LonWorks® enabled devices using the free topology transceiver (FTT-1x).

   Modbus RTU and Modbus TCP.
2. The NAC shall be BTL (BACnet Testing Laboratories) listed as B-BC (BACnet Building Controller) and support the following data link options:

   BACnet Internet Protocol (IP) (Annex J).

   BACnet IP (Annex J) Foreign.

ISO 8802-3, Ethernet (Clause 7).

3. Control networks shall provide either "Peer-to-Peer," Master-Slave, or Supervised Token Passing communications, and shall operate at a minimum communication speed of 9600 baud.
4. Digital Controllers shall reside on the control network.
5. A BACnet Protocol Implementation Conformance Statement (PICS) shall be provided for each controller device (master or slave) that will communicate on the BACnet MS/TP Bus.
6. The PICS shall be submitted 10 days prior to bidding.

D. User Interface – Browser Based Interface

1. The system shall be capable of supporting an unlimited number of clients using standard Web browser such as Internet Explorer™ or Mozilla Firefox™. Systems requiring additional software (to enable a standard Web browser) to be resident on the client machine, or manufacture-specific browsers shall not be acceptable.
2. The Web browser software shall run on any operating system and system configuration that is supported by the Web browser. Systems that require specific machine requirements in terms of processor speed, memory, etc., in order to allow the Web browser to function with the Building Automation System (BAS), shall not be acceptable.
3. The Web browser client shall support at a minimum, the following functions:
    a. User log-on identification and password shall be required. If an unauthorized user attempts access, notice of access failure shall be displayed. Security using authentication and encryption techniques to prevent unauthorized access shall be implemented.
    b. HTML programming shall not be required to display system graphics or data on a Web page. HTML editing of the Web page shall be allowed if the user desires a specific look or format.
    c. Storage of the graphical screens shall be in the Network Automation Controller (NAC) or the server, without requiring any graphics to be stored on the client machine. Systems that require graphics storage on each client are not acceptable.
    d. Real-time values displayed on a Web page shall update automatically without requiring a manual "refresh" of the Web page.
    e. Users shall have administrator-defined access privileges. Depending on the access privileges assigned, the user shall be able to perform the following:
    f. Modify common application objects, such as schedules and setpoints in a graphical manner.
    g. Commands binary objects to start and stop.
    h. View logs and charts.
    i. View alarms.
4. Graphic screens on the Web Browser client shall support hypertext links to other locations on the Internet or on Intranet sites, by specifying the Uniform Resource Locator (URL) for the desired link.

E. User Interface – Alarms

1. Alarm feature shall allow user configuration of criteria to create, route, and manage alarms and events. It shall be possible for specific alarms from specific points to be routed to specific alarm recipients.

The alarm management portion of the user interface shall, at the minimum, provide the following functions:

a. Allow configuration to generate alarms on any numeric, binary, or data point in the system.
b. Generate alarm records that contain a minimum of a timestamp, original state, acknowledged state, alarm class and priority.
c. Allow the establishment of alarm classes that provide the routing of alarms with similar characteristics to common recipients.
d. Allow a user, with the appropriate security level, to manage alarms - including sorting, acknowledging, and tagging alarms.

F. User Interface – Reports and Summaries

1. Reports and Summaries shall be generated and directed to the user interface displays, with subsequent assignment to printers, or disk. As a minimum, the system shall provide the following reports:
   a. All points in the BAS
   b. All points in each BAS application
   c. All points in a specific controller
   d. All points in a user-defined group of points
   e. All points currently in alarm
   f. All BAS schedules
   g. All user defined and adjustable variables, schedules, interlocks and the like.
2. Reports shall be exportable to .pdf, .txt, or .csv formats.
3. The system shall allow for the creation of custom reports and queries.

G. User Interface – Schedules

1. A graphical display for time-of-day scheduling and override scheduling of building operations shall be provided. At a minimum, the following functions shall be provided:
   a. Regular schedules
   b. Repeating schedules
   c. Exception Schedules
2. Weekly schedules shall be provided for each group of equipment with a specific time use schedule.
3. It shall be possible to define one or more exception schedules for each schedule including references to calendars.
4. Monthly calendars shall be provided that allow for simplified scheduling of holidays and special days. Holidays and special days shall be user-selected with the pointing device or keyboard.

H. User Interface - Passwords

1. Multiple-level password access protection shall be provided to allow the system manager to assign user interface control, display, and database manipulation capabilities deemed appropriate for each user based on an assigned password.
2. Each user shall have the following: a username, a password, and access levels.
3. The system shall provide the capability to require a password of minimum length and require a combination of characters and numerical or special characters.
4. When entering or editing passwords, the system shall not echo the actual characters for display on the monitor.

5. The system shall provide unlimited flexibility with access rights. A minimum of four levels of access shall be provided along with the ability to customize the system to provide additional levels.
6. A minimum of 100 unique passwords shall be supported.
7. Operators shall be able to perform only those commands available for their respective passwords. Display of menu selections shall be limited to only those items defined for the access level of the password used to log-on.
8. The system shall automatically generate a report of log-on/log-off and system activity for each user.
9. All log data shall be available in .pdf, .txt, and .csv formats.

I. User Interface – Dynamic Color Graphics

1. The graphics application program shall be supplied as an integral part of the User Interface.
2. The graphics applications shall include a create/edit function and a runtime function. The system architecture shall support an unlimited number of graphics documents (graphic definition files) to be generated and executed.
3. The graphics shall be able to display real-time data that is acquired, derived, or entered.
4. Graphics runtime functions –Each graphic application shall be capable of the following functions:
5. All graphics shall be fully scalable.
6. The graphics shall support a maintained aspect ratio.
7. Multiple fonts shall be supported.
8. Unique background shall be assignable on a per graphic basis.
9. Operation from graphics – It shall be possible to change values (setpoints) and states in systems-controlled equipment within the Web browser interface.
10. Graphic editing tool – A graphic editing tool shall be provided that allows for the creation and editing of graphic files. The graphic editor shall be capable of performing/defining all runtime binding.

J. Historical Data Collection

1. All numeric, binary or data points in the system database shall allow their values to be logged over time (trend log). Each historical record shall include the point’s name, a time stamp including time zone, and the point’s value.
2. The configuration of the historical data collection shall allow for recording data based on change of value or on a user-defined time interval.
3. The configuration of the historical data collection shall allow for the collection process to stop or rollover when capacity has been reached.
4. A historical data viewing utility shall be provided with access to all history records. This utility shall allow historical data to be viewed in a table or chart format.
5. The history data table view shall allow the user to hide/show columns and to filter data based on time and date. The history data table shall allow exporting to .txt, .csv, or .pdf file formats.
6. The historical data chart view shall allow different point histories to be displayed simultaneously and provide panning and zooming capabilities.

K. Audit Log

1. For each log entry, provide the following data:
    a. Time and date
    b. User ID
    c. Change or activity: i.e., Change setpoint, add or delete objects, commands, etc.

L. Network Automation Controller (NAC)

The NAC must provide the following hardware features as a minimum:

1. Communications
    a. Two 10/100 Mb Ethernet Port – RJ-45 connections
    b. One RS-485 port (up to 57,600 baud)
    c. Expandable communications ports including LON, RS485, Modem, Wireless Terminal Equipment Control
    d. All required protocol drivers as required by the sequence of operation.
2. Battery Backup
    a. Battery backup provided for all on board functions including I/O
    b. Battery is monitored and trickle charged
    c. Battery maintains processor operation through power failures for a pre-determined interval, and then writes all data to flash memory, shuts the processor down, and maintains the clock for three months.
3. Environment
    a. Must be capable of operation over a temperature range of 0 °C to 50 °C (32 °F to 122 °F).
    b. Must be capable of withstanding storage temperatures of between 0 °C and 60 °C (32 °F to 140 °F).
    c. Must be capable of operation over a humidity range of 5% to 95% RH, non-condensing.

4. The Network Automation Controller (NAC) shall be a fully user-programmable device capable of providing all the capability described in Section 2.3 Part A.
5. Automation network – The Network Automation Controller (NAC) shall reside on the automation network. Each NAC shall support one or more sub-networks of controllers.
6. The Network Automation Controller shall have the capability to communicate directly with Modbus without the use of an additional gateway.
7. The Network Automation Controller shall have the capability to provide secure communications via SSL (Secure Socket Layer).
8. User Interface – Each Network Automation Controller (NAC) shall have the ability to deliver a web-based user interface as previously described. All computers connected physically or virtually to the automation network shall have access to the web-based UI.
9. Power Failure – In the event of the loss of normal power, The Network Automation Controller (NAC) shall continue to operate for a defined period after which there shall be an orderly shutdown of all programs to prevent the loss of database or operating system software. Flash memory shall be incorporated for all critical controller configuration data.

10. During a loss of normal power, the control sequences shall go to the normal system shutdown conditions.
11. Upon restoration of normal power and after a minimum off-time delay, the controller shall automatically resume full operation without manual intervention through a normal soft-start sequence.
12. Certification – All controllers shall be listed by Underwriters Laboratories (UL).

M. Input Device Characteristics

a. General Requirements: Installation, testing, and calibration of all sensors, transmitters, and other input devices shall be provided to meet the system requirements.
b. Temperature Sensors: Sensors and transmitters shall be provided, as outlined in the input/output summary and sequence of operations. The temperature sensor shall be of the resistance type and shall be either two-wire 1000-ohm nickel RTD, or two-wire 1000-ohm platinum RTD.
c. Room Temperature Sensors: Room sensors shall be constructed for either surface or wall box mounting.
d. Thermo wells: When thermo wells are required, the sensor and well shall be supplied as a complete assembly, including wellhead and Greenfield fitting. Thermo wells shall be pressure rated and constructed in accordance with the system working pressure. Thermo wells and sensors shall be mounted in a threadolet or ½-inch NFT saddle and allow easy access to the sensor for repair or replacement. Thermo wells shall be constructed of 316 stainless steel.
e. Outside Air Sensors: Outside air sensors shall be designed to withstand the environmental conditions to which they will be exposed. They shall also be provided with a solar shield. Sensors exposed to wind velocity pressures shall be shielded by a perforated plate that surrounds the sensor element. Temperature transmitters shall be of NEMA 3R construction and rated for ambient temperatures.
f. Control Relays: Control pilot relays shall be of a modular plug-in design with retaining springs or clips. Mounting bases shall be snap-mount. DPDT, 3PDT, or 4PDT relays shall be provided as appropriate for application. Contacts shall be rated for 10 amps at 120 VAC. Relays shall have an integral indicator light and check button. Acceptable manufacturers: Idec, Functional Devices
g. Electronic/Pneumatic Transducers: Electronic to Pneumatic transducers shall provide: Output: 3-15 psig,
h. Input: 4-20 mA or 0-10 VDC, manual output adjustment, pressure gauge external replaceable supply air filter. Acceptable manufacturers: Johnson Controls Inc., Mamac

N. APPLICATION SPECIFIC CONTROLLERS

1. General Purpose Programmable Controllers (PCG)

a) The General-Purpose Programmable Controller shall be a fully user-programmable, digital controller that communicates via BACnet MS/TP protocol.
b) Controller shall support BACnet Standard MS/TP Bus Protocol ASHRAE SSPC-135, Clause 9 on the controller network.
c) A BACnet Protocol Implementation Conformance Statement shall be provided for the controller.
d) The Conformance Statement shall be submitted 10 days prior to bidding.

e) The controller shall employ a finite state control engine to eliminate unnecessary conflicts between control functions at crossover points in their operational sequences. Suppliers using non-state based DDC shall provide separate control strategy diagrams for all controlled functions in their submittals.
f) The controller shall be factory programmed with a continuous adaptive tuning algorithm that senses changes in the physical environment and continually adjusts loop tuning parameters appropriately. Controllers that require manual tuning of loops or perform automatic tuning on command only shall not be acceptable.
g) The controller shall be assembled in a plenum-rated plastic housing with flammability rated to UL94-5VB.
h) The controller shall include a removable base to allow pre-wiring without the controller.
i) The controller shall include troubleshooting LED indicators to identify the following conditions:
    i. Power On
    ii. Power Off
    iii. Download or Startup in progress, not ready for normal operation
    iv. No Faults
    v. Device Fault
    vi. Field Controller Bus - Normal Data Transmission
    vii. Field Controller Bus - No Data Transmission
    viii. Field Controller Bus - No Communication
    ix. Sensor-Actuator Bus - Normal Data Transmission
    x. Sensor-Actuator Bus - No Data Transmission
    xi. Sensor-Actuator Bus - No Communication
j) The controller shall accommodate the direct wiring of analog and binary I/O field points.
k) The controller shall support the following types of inputs and outputs:
l) Universal Inputs - shall be configured to monitor any of the following:
    i. Analog Input, Voltage Mode
    ii. Analog Input, Current Mode
    iii. Analog Input, Resistive Mode
    iv. Binary Input, Dry Contact Maintained Mode
m) Binary Inputs - shall be configured to monitor either of the following:
    i. Dry Contact Maintained Mode
    ii. Pulse Counter Mode
n) Analog Outputs - shall be configured to output either of the following:
    i. Analog Output, Voltage Mode
o) Analog Output, current Mode
p) Binary Outputs - shall output the following:
    i. 24 VAC Triac
q) Configurable Outputs - shall be capable of the following:
    i. Analog Output, Voltage Mode
    ii. Binary Output Mode
r) The controller shall have the ability to reside on a Field Controller Bus (FC Bus).
    i. The FC Bus shall be a Master-Slave/Token-Passing (MS/TP) Bus supporting BACnet Standard protocol SSPC-135, Clause 9.
    ii. The FC Bus shall support communications between the controllers and the Supervisory Controller.
    iii. The FC Bus shall also support Expansion I/O (PCX) communications with the field controllers and with the Supervisory Controller.
s) The FC Bus shall operate at a maximum distance of 15,000 Ft. between the field controllers and the furthest connected device.

t) The field controllers shall have the ability to monitor and control a network of sensors and actuators over a Sensor-Actuator Bus (SA Bus).
   a) The SA Bus shall be a Master-Slave/Token-Passing (MS/TP) Bus supporting BACnet Standard Protocol SSPC-135, Clause 9.
   b) The SA Bus shall support up to 10 devices per trunk.
   c) The SA Bus shall operate at a maximum distance of 1,200 Ft. between the PCG and the furthest connected device.

u) The field controllers shall have the capability to execute complex control sequences involving direct wired I/O points as well as input and output devices communicating over the FC Bus or the SA Bus.

2. The field controllers shall support, but not be limited to, the following:
   a) Chilled water/central plant automation applications including but not limited to:
      i) the selection and sequencing of up to 8 chillers of different sizes
      ii) the selection and sequencing of up to 8 (each) primary and secondary chilled water pumps of varying pump capacities
      iii) the selection and sequencing of up to 8 condenser water pumps
      iv) the selection and sequencing of cooling towers and bypass valve, including single speed, multi-speed, and Vernier control.
      v) a proven and documented central cooling plant optimization program that incorporates custom equipment efficiency profiles, without rewriting software code, in order to meet the building load using the least amount of energy as calculated.
      vi) the use of advanced control algorithms that apply equipment specific parameters, including operational limits and efficiency profiles, in order to determine equipment, start and runtime preferences.
      vii) the identification of the most efficient equipment combination and automatic control of state and speed of all necessary equipment to balance runtime, optimize timing and sequencing and ensure the efficiency and stability of the central cooling plant.
      viii) the control definition for the chiller plant in a single controller, as supported by available memory and point Input/Output (I/O), or capable of being split across multiple controllers.
         a) Heating central plant applications
         b) Built-up air handling units for special applications
   1. Terminal and packaged units
   2. Special programs as required for systems control.

2. Programmable Controller Expansion I/O Modules

   a) The Programmable Controller Expansion I/O Module provides additional inputs and outputs for use in the field controllers.
   b) The I/O module shall communicate with the field controllers over the FC Bus or the SA Bus.
   c) The I/O module shall support BACnet Standard MS/TP Bus Protocol ASHRAE SSPC-135, Clause 9 on the controller network.
   d) A BACnet Protocol Implementation Conformance Statement shall be provided for the field controllers.
   e) The Conformance Statement shall be submitted 10 days prior to bidding.
   f) The I/O module shall be assembled in a plenum-rated plastic housing with flammability rated to UL94-5VB.
   g) The I/O module shall have a minimum of 4 points to a maximum of 17 points.
   h) The I/O module shall support the following types of inputs and outputs:

i. Universal Inputs - shall be configured to monitor any of the following:
   (i) Analog Input, Voltage Mode
   (ii) Analog Input, Current Mode
ii. Analog Input, Resistive Mode
iii. Binary Input, Dry Contact Maintained Mode
iv. Binary Inputs - shall be configured to monitor either of the following:
   (i) Dry Contact Maintained Mode
   (ii) Pulse Counter Mode
v. Analog Outputs - shall be configured to output either of the following:
   (i) Analog Output, Voltage Mode
   (ii) Analog Output, current Mode
vi. Binary Outputs - shall output the following:
   (i) 24 VAC Triac
vii. Configurable Outputs - shall be capable of the following:
   (i) Analog Output, Voltage Mode
   (ii) Binary Output Mode

3. The I/O module shall include troubleshooting LED indicators to identify the following conditions:
   (i) Power On
   (ii) Power Off
   (iii) Download or Startup in progress, not ready for normal operation.
   (iv) No Faults
   (v) Device Fault
   (vi) Normal Data Transmission
   (vii) No Data Transmission
   (viii) No Communication

(END OF SECTION)

DIVISION 23 – HEATING, VENTILATING AND AIR CONDITIONING (HVAC)

SECTION 232113 – HYDRONIC PIPING

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and General Provisions of Contract, including General and Supplementary Conditions and Division 01 Specification sections, apply to work of this section.

1.02 DESCRIPTION OF WORK

A. Extent of hot and / or chilled water piping systems work is indicated on drawings and schedules, and by requirements of this section.

B. Applications for hot/chilled water piping systems include the following:

1. Hot/chilled water piping systems for hot/chilled water heating/cooling terminal units.

2. Hot/chilled water piping systems for hot/chilled water coils in air handling units.

C. Refer to appropriate Division 23 sections for insulation required in connection with hot/chilled water piping systems.

1.03 QUALITY ASSURANCE

A. ANSI Compliance: Comply with applicable American National Standards pertaining to products and installation of hot/chilled water piping systems.

1.04 SUBMITTALS

A. Product Data: Submit manufacturer's data for hot/chilled water piping systems, materials and products.

B. Shop Drawings: Submit scaled layout drawings of installed hot/chilled water pipe and fittings including, but not necessarily limited to, pipe sizes, locations, elevations and slopes of horizontal runs, wall and floor penetrations, and connections. Show interface and spatial relationship between piping and proximate equipment.

PART 2 - PRODUCTS

2.01 HOT/CHILLED WATER PIPING MATERIALS AND PRODUCTS

A. General: Provide piping materials and factory-fabricated piping products of sizes, types, pressure ratings, temperature ratings and capacities as indicated. Where not indicated, provide proper selection as determined by engineer to comply with installation requirements.

B. Provide materials and products complying with ANSI B31.1 Code for Power Piping where applicable, base pressure rating on hot/chilled water piping systems maximum design pressures. Provide sizes and types matching piping and equipment materials used in hot/chilled water piping systems. Where more than one type of material or product is indicated, selection is engineer’s option.

2.02 BASIC IDENTIFICATION

A. General: Provide identification complying with Division 23 Basic Materials and Methods section "Mechanical Identification."

2.03 BASIC PIPE, TUBE AND FITTINGS

A. General: Provide pipe, tube and fittings complying with Division 15 Basic Materials and Methods section "Pipe, Tube and Fittings," in accordance with the following listing:

1. Hot/chilled water AND low pressure steam piping:

    a. Pipe size 2" and smaller: Black steel pipe.

        1) Pipe weight: Schedule 40.
        2) Fittings: Class 125 cast iron threaded.

2. Pipe size 2-1/2" and larger: Black steel pipe.

        1) Pipe weight: Schedule 40.
        2) Fittings: Wrought steel buttwelding.

2.04 BASIC PIPING SPECIALTIES

A. General: Provide piping specialties complying with Division 23 Basic Materials and Methods section "Piping Specialties."

2.05 BASIC SUPPORTS, ANCHORS AND SEALS

A. General: Provide supports, anchors and seals complying with Division 23 Basic Material and Methods section "Supports, Anchors, and Seals." Supports and anchors provided shall meet the requirements of section 1613 of the New York State Building Code; horizontal and vertical runs of pipe shall be securely supported in accordance with the New York State Building Code including seismic requirements.

2.06 BASIC VALVES

A. General: Provide valves complying with Division 23 Basic Materials and Methods section "Valves," in accordance with the following listings:

1. Sectional Valves:

    a. 2" and smaller: Ball valves (hot/chilled water only).
    b. 2-1/2” and larger: rising stem or O.S.&Y. type.
    c. 2-1/2: and larger: Butterfly valves

2. Shutoff Valves:

    a. 2" and smaller: Ball valves (hot/chilled water only)
    b. 2-1/2" and larger: Rising stem or O.S.&Y. valves. Butterfly valves may be used.

3. Heating/Cooling Terminal Outlet Valves:

    a. 2" and smaller: Balance valve (Globe type)(hot/chilled water only)
    b. 2-1/2" and larger: Rising Stem.(Globe type).

4. Drain Valves:

    a. 2" and smaller: Ball valves.

5. Check Valves:

    a. All sizes: Silent wafer type check valve, swing type check valve.

2.07 BASIC EXPANSION COMPENSATION

A. General: Provide expansion compensation products complying with Division 23 "Expansion Compensation," in accordance with the following listing:

1. Flexible ball pipe joints (hot/chilled water only) Use fabricated piping loops for low pressure steam or linear bellows type rated for steam service.
2. Pipe alignment guides and anchors.

2.08 BASIC THERMOMETERS AND GAUGES

A. General: Provide meters and gauges complying with Division 23 section "Thermometers and Gauges," in accordance with the following listing:

1. Temperature gauges and fittings.
2. Pressure gauges and fittings.
3. Flow measuring gauges.

2.09 HYDRONIC SPECIALTIES

A. General: Provide hydronic specialties complying with Division 23 section "Hydronic Specialties," in accordance with the following listing:

1. Balance valves.
2. Balance cocks.
3. Vent valves.
4. Flow control valves.
5. Diverting fittings.
6. Air separators.

2.10 UNDERGROUND PIPING

A. General:

1. All underground heating water lines shall be XTRU-THERM as manufactured by PERMA-PIPE. All straight sections shall be factory fabricated, insulated, and jacketed. The piping system design and manufacture shall be in strict conformance with ASME B31.1, latest edition. The piping manufacturer will be responsible for the design and thermal expansion of the system. Installation of the piping system shall be in accordance with the manufacturer’s instructions. Factory trained field technical assistance shall be provided for critical periods of installation, unloading, field joint instruction and testing.

B. Service Pipe:

1. The service pipe shall be ASTM A53 Schedule 40 Grade B Carbon Steel. Straight sections shall be supplied in 20 or 40-foot lengths with piping exposed at each end for field joint fabrication.

C. Insulation:

1. The service pipe insulation shall be polyurethane foam with 2 lb/ft^3 minimum density, 90% minimum closed cell content, minimum compressive strength of 40 psi and initial thermal conductivity of 0.18 Btu-in/hr/ft^2/^{O}F. The insulation shall completely fill the annular space between the service pipe and jacket and-shall be bonded to both. Systems using open cell insulation or a non- bonded design shall not be allowed. The polyurethane foam insulation shall be tested by the manufacturer for mechanical and thermal s to assure compliance with the above values. All test samples will be taken from production material, identified, tagged and tested in accordance with the table below. Test reports showing results will be furnished to the engineer for approval. Data supplied by the polyurethane foam chemical supplier is not acceptable.

Attribute	ASTM STD	Sample Frequency	Requirement
Insulation Density	D 1622	Once per shift	$\geq$ 2 lb/ft^3
Insulation Compression Strength	D 1621	Once per shift	$\geq$ 40 psi
Insulation Closed Cell Content	D 2856	Once per shift	$\geq$ 90%
Insulation Thermal Conductivity	C 518	Once per shift	< 0.18 Btu-in/hr/ft^2/°F

The insulation shall be provided to the minimum thickness specified below:

Pipe Size (in.)	Minimum Insulation Thickness (in.)	
	Chilled Water	Glycol Water
1 to 12	1.5	1.5

D. Insulation Jacket:

1. The outer protective insulation jacket shall be seamless high-density polyethylene (HDPE) in accordance with ASTM D3350, minimum cell classification PE345444C. PVC or tape materials are not allowed. The end of each straight section of pipe will have the jacket tapered down over the insulation and bonded to the service pipe. No mastic is allowed. The minimum thickness of the HDPE jacket shall be as follows:

Jacket OD (in.)	Minimum Jacket Thickness (in.)
OD < 12	0.120

E. Fittings:

1. All fittings shall be factory prefabricated and pre-insulated. Straight tangent lengths shall be added to all ends so that all field joints are at straight sections of pipe. Elbow jackets shall be molded HDPE. Tee jackets shall be extrusion welded or butt fusion welded HDPE. Gluing, taping or hot air welding shall not be allowed.

F. Field Joints:

1. The service pipe shall be hydrostatically tested to 150 psig or 1 1/2 times the design pressures whichever is greater. Insulation shall then be poured in place into the field joint area. All field-applied insulation shall be placed only in straight sections of pipe. The installer shall seal the field joint area with a heat shrinkable adhesive backed sleeve. Backfilling shall not begin until the heat shrink sleeve has cooled. All insulation and jacketing materials for the field joint shall be furnished by PERMA-PIPE.

G. Field Service:

1. The piping manufacturer will provide a factory field service technician to be present during critical periods of the installation. The factory field service technician will be employed by the piping manufacturer and will not be a sales representative.

H. Backfill:

1. A 4-inch layer of sand or fine gravel shall be placed and tamped in the trench to provide a uniform bedding for the pipe. The entire trench width shall be evenly backfilled with a similar material as the bedding in 6 inch compacted layers to a minimum height of 6 inches above the top of the insulated pipe. The remaining trench shall be evenly and continuously backfilled and compacted in uniform layers with suitable excavated soil.

PART 3 - EXECUTION

3.01 INSTALLATION OF BASIC IDENTIFICATION

A. General: Install mechanical identification in accordance with Division 23 Basic Materials and Methods section "Mechanical Identification."

3.02 INSTALLATION OF HOT/CHILLED WATER WATER DISTRIBUTION PIPING

A. General: Install water distribution piping in accordance with Division 23 Basic Materials and Methods section "Pipe, Tube and Fittings."

B. Install concentric reducers where pipe is reduced in size in direction of flow, with tops of both pipes and reducer flush.

C. Install piping with 1" minimum rise in 40' pipe run (0.2%) in direction of flow.

D. Connect branch feed piping to mains at horizontal center line of mains, connect run-out piping to branches at horizontal center line of branches.

E. Locate groups of pipes parallel to each other, spaced to permit applying full insulation and servicing of valves.

3.03 INSTALLATION OF PIPING SPECIALTIES

A. Install piping specialties in accordance with Division 23 section "Hydronic Specialties."

3.04 INSTALLATION OF SUPPORTS, ANCHORS AND SEALS

A. Install supports, anchors and seals in accordance with Division 15 Basic Materials and Methods and project drawings and details.

3.05 INSTALLATION OF VALVES

A. Install valves in accordance with Division 23 section "Valves."

B. Sectional valves: Install on each branch and riser, close to main, where branch or riser serves two or more heating terminals or equipment connections and elsewhere as indicated.

C. Shutoff valves: Install on inlet and outlet of each mechanical equipment item and on inlet of each heating/cooling terminal and elsewhere as indicated.

D. Heating/cooling terminal outlet valves: Install on outlet of each heating/cooling terminal and elsewhere as indicated.

E. Drain valves: Install on each mechanical equipment item located to completely drain equipment for service or repair. Install at base of each riser, at base of each rise or drop in piping system and elsewhere where indicated or required to completely drain hot/chilled water piping system.

F. Check valves: Install on discharge side of each pump and elsewhere as indicated.

3.06 INSTALLATION OF EXPANSION COMPENSATION PRODUCTS

A. Install expansion compensation products in accordance with Division 23 section "Expansion Compensation."

3.07 INSTALLATION OF THERMOMETERS AND GAUGES

A. Install thermometers and gauges in accordance with Division 23 section "Thermometers and Gauges."

3.08 INSTALLATION OF HYDRONIC SPECIALTIES

A. General: Install hydronic specialties in accordance with Division 23 "Hydronic Specialties" section.

3.09 EQUIPMENT CONNECTIONS

A. General: Connect hot/chilled water piping system to mechanical equipment as indicated and comply with equipment manufacturer's instructions where not otherwise indicated. Install shutoff valve and union on supply and return, drain valve on drain connection.

B. Hot/chilled water terminals: Install hot/chilled water terminals with heating/cooling terminal outlet valve and union on outlet, union, shutoff valve on inlet. Install automatic air vent valve on element in accordance with manufacturer's instructions. Locate valves and balancing cocks behind valve access doors for ease of maintenance. Where indicated, install automatic temperature control valve with unions between all ports of the control valve.

3.10 CLEANING, FLUSHING AND INSPECTING

A. General: Include coils, etc. See Division 23 Basic Materials & Methods.

3.11 TESTING AND BALANCING

A. General: See Division 23 "Testing, Adjusting and Balancing.

END OF SECTION

DIVISION 23 – HEATING, VENTILATING AND AIR CONDITIONING (HVAC)

SECTION 232116 – HYDRONIC SPECIALTIES

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 01 Specification sections, apply to work of this section.

1.02 DESCRIPTION OF WORK

A. Extent of hydronic specialties required by this section is indicated on drawings, and/or specified in other Division 23 hydronic piping system sections.

B. Types of hydronic specialties specified in this section include the following:

1. Balance valves.
2. Vent valves.
3. Flow control valves.
4. Diverting fittings.
5. Air separators.
6. Compression tanks.
7. Pump discharge valves.
8. Shot feeders.
9. Water relief valves.
10. Pressure reducing valves.
11. RPZ – Backflow Preventer

1.03 QUALITY ASSURANCE

A. Materials and equipment shall be provided by one of the manufactures listed in Part 2 - Products. Materials and equipment from other manufacturers may be accepted if proven equal to those specified. This contractor is liable for and shall pay for all architectural and engineering review and redesign costs for substitute materials and equipment. This contractor also is liable for all costs of changes in the work required by substitute equipment.

B. The length of time the manufacturer has been in business, the location and capability of complete repair facilities, availability of repair parts and annual maintenance contracts all will be considered in determining equality. Refer to requirements pertaining to substitute materials and equipment.

1.04 SUBMITTALS

A. Product data - submit catalog cuts, specifications, installation instructions and dimensioned drawings for each type of manufactured hydronic specialty. Include pressure drop curve or chart for each type and size of hydronic specialty.

B. Shop drawings - submit for fabricated specialties, indicating details of fabrication, materials and method of support.

C. Maintenance data - submit maintenance data and spare parts lists for each type of manufactured hydronic specialty. Include this data in maintenance manual.

D. Hydronic specialty types - provide hydronic specialties of same type by same manufacturer.

PART 2 - PRODUCTS

2.01 MANUFACTURED HYDRONIC SPECIALTIES

A. General - provide factory fabricated hydronic specialties recommended by manufacturer for use in service indicated. Provide hydronic specialties of types and pressure ratings indicated for each service, or if not indicated, provide proper selection as determined by the engineer to comply with installation requirements. Provide sizes as indicated and connections which properly mate with pipe, tube and equipment connections. Where more than one type is indicated, selection is the engineers' option, but more than one type cannot be used on project.

B. Balance valves:

1. General - provide balance valves as indicated, of one of the following types:

   a. Threaded ends 2" and smaller - Class 125, bronze body, ball valve with memory stop.
   b. Soldered ends 2" and smaller - Class 125, bronze body, ball valve with memory stop.
   c. Threaded, soldered, of flanged end globe style providing three (3) functions:

      1) Precise flow measurement
      2) Precision flow balancing
      3) Positive shut-off, no drip seat, Teflon disk, 1-1/2" to 2" size - drain connection with protective cap.
      4) Vernier-type setting with "hidden memory" feature to program valve for tamper-proof setting. Balance meter, valved connections. Manufacturer: Armstrong Pumps, Type CBV.

C. Vent valves:

1. Manual vent valves - provide manual vent valves designed to be operated manually with screwdriver or thumbscrew, 1/8" N.P.T. connection.

2. Automatic vent valves - provide automatic vent valves designed to vent automatically with float principle, stainless steel float and mechanisms, cast iron body, pressure rated for 125 psi, 1/2" N.P.T. inlet and outlet connections.

3. Manufacturer - subject to compliance with requirements, provide vent valves of one of the following:

   a. Bell & Gossett, ITT Fluid Handling Div.
   b. Taco, Inc.
   c. Armstrong Co.

D. Flow control valves:

1. General - provide flow control valves pressure rated for 125 psi, containing lift check assembly which will automatically open by means of pump flow pressure, and automatically close when pump is not operating. Provide with means to manually open in case of pump failure.

   a. Threaded ends 2" and smaller - cast iron body, bronze check mechanism, screw-in bonnet, straight or angle pattern.
   b. Soldered ends 1 1/4" and smaller - cast bronze body, bronze check mechanism, screw in bonnet, straight or angle pattern.
   c. Threaded ends 2 1/2" through 4" - cast iron body, bronze check mechanism, screw in bonnet, straight or angle pattern.

2. Manufacturer - subject to compliance with requirements, provide flow control valves of one of the following:

    a. Bell & Gossett, ITT Fluid Handling Div.
    b. Taco, Inc.
    c. Armstrong Pump Co.

E. Diverting fittings:

1. General - provide diverting fittings as indicated for one pipe hydronic piping systems. Construct fittings of cast iron with threaded ends or wrought copper with solder ends, pressure rated for 125 psi. Provide indication on fitting of direction of flow for supply or return applications. Furnish flow and pressure drop curves based on manufacturer's testing with submittal.

2. Manufacturer - subject to compliance with requirements, provide diverting fittings of one of the following:

    a. Armstrong Pumps, Inc.
    b. Bell & Gossett, ITT Fluid Handling Div.

F. Air Separators:

1. General – provide air separators pressure rated for 125 psi. Select capacity based on total system gpm.

2. Dip tube fittings – provide dip tube fittings in boilers as indicated to prevent free air collected in boiler from rising into system.

3. In-Line air separators – provide in-line air separators as indicated. Construct sizes 1 1/2” and smaller of cast iron, and sizes 2” and larger of steel complying with ASME Boiler and Pressure Vessel Code and stamped with” U” symbol. Furnish National board Form U-1 denoting compliance.

4. Combination separator/strainer – provide external combination air separators/strainers as indicated. Construct of steel complying with ASME Boiler and Pressure Vessel Code and stamped with “U” symbol. Furnish National Board Form U-1 denoting compliance. Provide galvanized steel integral strainer with 3/16” perforations and free area of not less than 5 times cross sectional area of connecting lines. Provide tangential inlet and outlet connections and internal stainless steel air collector tube designed to direct released air into compression tank. Provide blowdown connections.

5. Manufacturer – subject to compliance with requirements, provide air separators of one of the following:

    a. Armstrong Pumps, Inc.
    b. Bell & Gosett, ITT Fluid Handling Div.
    c. Taco, Inc.

G. Compression tank:

1. General – provide compression tanks of size and number as indicated. Construct of steel for 125 psi pressure rating complying with ASME Boiler and pressure Vessel Code and stamped with” U” symbol. Furnish National Board Form U-1 denoting compliance. Provide tappings in bottom of tank for tank fitting.

a. Tank fittings – provide tank fittings for compression tanks as indicated, sized for compression tank diameter. Design tank fittings for 125 psi pressure rating and include manual vent to establish proper air volume in tank on initial fill.

2. Manufacturer – subject to compliance with requirements, provide compression tanks and tank fittings of one of the following:

   a. Armstrong Pumps, Inc.
   b. Bell & Gossett, ITT Fluid Handling Div.
   c. Taco, Inc.

H. Diaphragm type compression tanks:

1. General – provide diaphragm compression tanks of size and number as indicated. Construct tank of welded steel, constructed, tested and stamped in accordance with Section VII of the ASME Boiler and Pressure Vessel Code for a working pressure of 125 psi. Furnish National Board Form U-1 denoting compliance. Support vertical tanks with steel legs or base, support horizontal tanks with steel saddles. Provide specially compounded flexible diaphragm securely sealed into tank to permanently separate air charge from system water, to maintain design expansion capacity. Provide pressure gauge and air charging fitting.

2. Manufacturer – subject to compliance with requirements, provide diaphragm type compression tanks of the following:

   a. Bell & Gossett, ITT Fluid Handling Div.
   b. Armstrong Pumps, Inc.

I. Pump discharge valves:

1. General – provide pump discharge valves as indicated. Provide Non-slam check valve with spring loaded disc and calibrated adjustment feature permitting regulation of pump discharge flow and shutoff. Provide flanged cast iron valve body, pressure rated for 175 psi, maximum operating temperature of 300 degrees F. Provide straight or angle pattern as required.

2. Manufacturer – subject to compliance with requirements, provide Pump discharge valves of one of the following:

   a. Armstrong Pumps, Inc.
   b. Bell & Gossett, ITT Fluid Handling Div.

J. Shot feeders:

1. General – provide shot feeders of 5 gallon capacity or otherwise as indicated, constructed of cast iron or steel, for introducing chemicals in hydronic system. Provide funnel and valve on top for loading drain valve in bottom, and recirculating valves on side. Construct for pressure rating of 125 psi.

2. Manufacturer – subject to compliance with requirements, provide shot feeders of one of the following:

   a. Culligan USA
   b. Laboratories, Subsidiary of Clow Corp.
   c. Mougul Div., The Dexter Corp.

K. Water relief valves:

1. General – provide water relief valves as indicated, of size and capacity as selected by Installer for proper relieving capacity, in accordance with ASME Boiler and Pressure Vessel Code.

   a. Combined pressure temperature relief valves – bronze body, test lever, thermostat, complying with ANSI Z21.22 listing requirements for temperature discharge capacity. Provide temperature relief at 210 degrees F (99 C) and pressure relief as indicated on drawing.
   b. Pressure relief valves – bronze body, test lever, ASME rated. Provide pressure relief at as indicated on drawing.

2. Manufacturer – subject to compliance with requirements, provide water relief valves of one of the following:

   a. Bell & Gossett, ITT Fluid Handling Div.
   b. Taco, Inc.
   c. Armstrong Pump Co.

L. Pressure Reducing Valves:

1. General – provide pressure reducing valves as indicated, of size and capacity as selected by Installer to maintain operating pressure on boiler system.

2. Construction – brass body, low inlet pressure check valve, inlet strainer removable without system shutdown, non-corrosive valve seat and stem, factory set at operating pressure.

3. Manufacturer – subject to compliance with requirements, provide pressure reducing valves of one of the following:

   a. Bell & Gossett, ITT Fluid Handling Div.
   b. Taco, Inc.
   c. Armstrong Pumps, Inc.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Balance valves:

1. General - Install on each hydronic terminal and elsewhere as indicated.

B. Vent valves:

1. Manual vent valves - install manual vent valves on each hydronic terminal at highest point, and on each hydronic piping drop in direction of low for mains, branches and runouts and elsewhere as indicated.

2. Automatic vent valves - install automatic vent valves at top of each hydronic riser and elsewhere as indicated. Install shutoff valve between riser and vent valve, pipe outlet to suitable plumbing drain, or as indicated.

C. Flow control valves:

1. General - install flow control valves on discharge of each pump serving a hot water heating system or zone and elsewhere as indicated. Install in upright position in a horizontal line with adequate clearance for service and replacement. Adjust flow sensitivity for automatic operation.

D. Diverting fittings:

1. General - install diverting fittings as indicated and in accordance with manufacturer's instructions. Position fittings on supply and return mains with proper orientation for flow.

E. Air separators:

1. Dip tube fittings – install dip tube fittings in boiler outlet in accordance with manufacturer's instructions. Run piping to compression tank pitched towards tank at 1" rise in 5' runs (1.7%).

2. In-Line air separators – install in-line air separators in pump suction lines. Connect inlet and outlet piping. Run piping to compression tank pitched towards tank at 1" rise in 5' run (1.7%). Install drain valve on units 2" and over.

3. Combination separator/strainer – install external combination separators/strainers in pump suction lines. Connect inlet and outlet piping. Run piping to compression tank pitched towards tank at 1" rise in 5' run (1.7%). Install blowdown valve and piping. Remove and clean strainer after 24 hours and again after 30 days of system operation.

F. Compression tanks:

1. General – install compression tanks on trapeze hangers sized for tank fully loaded, or otherwise as indicated. Install tank fitting and drain valve in tank bottom and charge tank in accordance with manufacturer's instructions.

G. Diaphragm type compression tanks:

1. General – install diaphragm type compression tanks on floor as indicated, in accordance with manufacturer's instructions. Vent and purge air from hydronic system, charge tank with proper air charge as recommended by manufacturer.

H. Pump discharge valves:

1. General – at engineers option, install pump discharge valves on each pump discharge line in lieu of separate shutoff valve, check valve, and balance cock. Install in horizontal or vertical position with stem in upward position, allow clearance above stem for check mechanism removal. After hydronic system has been completed, mark calibrated name plate with stripe of yellow lacquer to permanently mark final balanced position.

I. Shot feeders:

1. General – install shot feeders on each hydronic system at pump discharge and elsewhere as indicated. Install in upright position with top of funnel not more than 48" above floor. Install in pump discharge line as indicated.

J. Water relief valves:

1. General – Install on hot water generators and elsewhere as indicated. Pipe discharge to floor. Comply with ASME Boiler and Pressure Vessel Code. Cut discharge pipe at 45° angle.

K. Pressure reducing valves:

1. Install for each hot water boiler or heat exchanger as indicated, and in accordance with manufacturer's installation instructions.

END OF SECTION

DIVISION 26 – ELECTRICAL

SECTION 260500 – COMMON WORK RESULTS FOR ELECTRICAL

PART 1 – GENERAL

1.01 SUMMARY

A. This Section includes general, procedural, and administrative requirements, for electrical products, equipment, and installation practices applicable to this Division.

1.02 RELATED DOCUMENTS

A. All Contract drawings, Contract General and Supplementary Conditions, Division 01 Specification Sections, and Bidding Requirements apply to this section.

B. The requirements of this section shall apply to all other sections of Division 26.

C. The general electrical requirements of this division shall also apply to:

1. Division 23 – Heating, Ventilating and Air Conditioning
2. Division 27 – Communications
3. Division 28 – Electronic Safety and Security

1.03 SCOPE OF WORK

A. It is the declared intent of the project drawings and these specifications that the contractor shall provide for the complete installation of operational electrical circuits and systems as outlined in the project documents.

B. The Electrical Contractor shall provide all materials, equipment, labor, transportation, storage, etc., as necessary for, and incidental to, the completion of all electrical work as indicated on the Drawings and in these Specifications.

C. Included in the above is all related electrical demolition activities, temporary electrical facilities to support the work, final testing, adjusting training as applicable.

D. Before submitting his proposal, the Electrical Contractor shall be fully informed to the extent, character, and intent of the work to be done by him. No consideration will be granted for any misunderstanding of the material to be furnished or work to be performed.

1.04 USE AND INTERPRETATION OF DRAWINGS

A. The drawings are intended to be diagrammatic in nature and are for general electrical design and arrangement of circuits and components. Drawings do not detail every component of the electrical work, nor do they detail complete routing paths. Unless otherwise noted, the locations and elevations of electrical system components are approximate. Exact final locations are subject to the approval of the Owner's Representative. Additional minor adjustments may also be required to avoid conflicts with furniture or other obstructions or field condions. Similarly, the routing of services, feeders, branch circuits, system wiring, as indicated on the drawings, is not intended to be the exact routing. Verify routing with Owner’s Representative.

B. Unless specifically noted otherwise, branch circuit designations, i.e. “home run” designations, are for grouping purposes only to indicate the panelboard or interconnection box from which the branch circuit is served. Actual panel pole circuit numbers are to be determined in the field.

C. Drawings do not show all offsets, fittings, supports, pull or splice interferences, and elevation changes. Adjust installation of conduit, equipment location, etc. to accommodate work with the obstacles and interferences. Where a major and important rearrangement is necessary, report same to Architect for review. Obtain written approval for all major changes.

D. Cooperate with all other Contractors and Owners and determine the exact route of all raceways and location of all equipment the Drawings are diagrammatic and indicate the general arrangement of systems and equipment unless indicated otherwise by dimensions or details. Install work substantially as indicated. Exact equipment locations and raceway routing, etc. shall be governed by actual field conditions and/or instructions of the Engineer and/or Owner's Representative.

E. During the course of the work, should any ambiguities or discrepancies be found on the drawings or in the specifications, to which the Contractor has failed call attention before submission of his bid, then the Engineer shall interpret the intent of the drawings and specifications, and the Contractor hereby agrees to abide by the Engineer's interpretation and agrees to carry out the work in accordance with the decision of the Engineer. It is expressly stipulated that neither the drawings nor the specifications shall take precedence, one over the other, with the exception the more stringent requirement shall prevail, and it is further stipulated that the Engineer may interpret or construe the drawings and specifications of the work, and of that question, the Engineer shall be the sole judge.

1.05 COMPLETE SYSTEMS

A. The drawings and specifications are intended to provide for a complete, operational electrical installation. However, both the drawings and specifications are for the Electrical Contractor's guidance and are in no way intended to give every detail of the existing conditions or new installations, nor do they describe every fitting required for the installation of the work. The Electrical Contractor shall furnish, install, and place in workmanlike manner all equipment, accessories, supports, fittings, backboxes and all other material needed for a complete electrical and operational installation. The Electrical Contractor shall make all final connections to equipment. The Electrical Contractor shall prepare such additional drawings as necessary or required for any purpose and shall submit them for the approval of the Engineer.

1.06 APPLICABLE CODES, STANDARDS AND REGULATIONS

A. Comply with NFPA 70 (National Electrical Code (NEC)), version currently adopted by the Authority Having Jurisdiction (AHJ). Comply with NECA (National Electrical Contractor's Association) Standards for minimum professional installation methods and practices. Comply with all applicable federal, state and local laws, ordinances, codes, rules and regulations. Where the Contract Documents exceed these requirements, the Contract Documents shall govern. In no case shall work be installed contrary to or below minimum legal standards. Comply with local authorities having jurisdiction (AHJ) and resolve any conflicts. Where conflicts between codes and standards arise, the more stringent requirements shall be adhered to.

B. The current applicable rules, restrictions and requirements of the utility companies providing service to the project site/facilities shall be adhered to. Provide all required coordination.

C. Should any materials installed, or work performed, be found to be not in compliance with any of the listed codes and regulations, provide all materials, labor, and pay all costs necessary to correct the deficiencies at no additional cost.

1.07 REFERENCE CODES & STANDARDS

A. All work shall be in accordance with:

1. New York State Uniform Fire and Prevention Codes and Supplements (latest editions in effect at time of bid):

   a. New York State Building Code
   b. New York State Existing Building Code
   c. New York State Energy Conservation Code
   d. New York State Fire Code

2. The latest editions at time of bid (unless otherwise noted) of the below standards of the following:

a.	ADA	Americans with Disabilities Act
b.	ASA	American Standards Association
c.	ASTM	American Society for Testing Materials
d.	ETL	Electrical Testing Laboratories, Inc
e.	IES	Illuminating Engineering Society of North America.
f.	IEEE	Institute of Electrical and Electronic Engineers
g.	IPCEA	Insulated Power Cable for Engineers Association
h.	OSHA	Occupational Safety and Health Act
i.	NEC	National Electric Code (2017)
j.	NECA	National Electrical Contractor's Association
k.	NEMA	National Electrical Manufacturers Association
l.	NESC	National Electrical Safety Code
m.	NFPA	National Fire Protection Association
n.	UL	Underwiter's Laboratories

3. Listings: All equipment, materials and devices shall be listed and labelled by a Nationally recognized Testing Laboratory (NRTL), such as Underwriters Laboratories, Inc (UL) for the intended use and shall bear its label.

4. The Rules and Regulations of the local utilities providing service to the project location.

5. The Rules and Regulations of the local Authority Having Jurisdiction (AHJ).

6. The Directives of the Owner of the Facility where the work is being performed.

B. Before submitting his bid, the Electrical Contractor shall be familiar with the rules of the aforementioned Boards, Departments, Agencies, etc. having jurisdiction, applicable Codes. and shall notify the Engineer with his bid, if in his opinion any work or materials specified is contrary to any such rules. Otherwise, the Electrical Contractor shall be responsible for the approval of all work or materials and in case the use of any material specified is not permitted, a substitute approved by the authorities and by the Engineer shall be furnished and installed without additional cost to the Owner.

1.08 DEFINITIONS

As Specified	All materials, equipment including the execution thereof as called for/shown in the Contract Documents.
Code Requirements	Minimum requirements necessary for compliance with applicable codes.
Concealed	Work not readily visible, including, but not limited to that which is inside walls, above ceilings, below or within slabs, below grade, within pipe and duct shafts chases or recesses.
Exposed	Work readily visible, including, but not limited to, that which is installed on wall/ceiling surfaces, below ceilings, etc. or otherwise not concealed.

Acceptance	Owner acceptance of the project from Contractor upon certification by Owner's Representative.
Furnished by Others	Materials, equipment provided by others received and/or installed by the Electrical Contractor. It includes receiving delivery at job site.
Inspection	Visual observations by Owner, his Site Representative, Architect/Engineer, or another Agency.
Install	All labor and materials necessary, and incidental to, the mount or place equipment, etc., completely connect and make operational.
Labeled	Classification by a standards agency.
Provide	Furnish and install complete and operational.
Relocate	Disconnect, disassemble, and transport equipment to new locations, then clean, install and test and make ready for use. All necessary wiring and raceway extensions shall be considered incidental to the relocation process.
Remove	Disconnect, disassemble, dismount and dispose of off-site, including all associated appurtenances, wiring and raceway rendered unnecessary by the removal.
Reinstall	All labor and materials necessary, and incidental to, mount or place previously removed equipment at or near its pre-existing location. Clean completely connect and make operational. Includes minor wiring rework necessary.
Remove	Disconnect, disassemble and dispose. Includes demolition of associated wiring and conduit rendered unnecessary by removal of subject item.
Replace	Remove and provide new item.
Review	A general contractual conformance check of specified products.
Roughing	Conduit, backboxes etc. pursuant to equipment layout and installation.
Safe Off	De-energize, disconnect and make safe for removal or other work in the area by the Electrical Contractor or by Others.
Satisfactory	In conformance with and as specified in Contract Documents.
Site Representative	Owner’s designated Construction Manager or Inspector at the work site.

1.09 EXISTING CONDITIONS

A. The Electrical Contractor, before submitting his bid, shall examine the site to which this work is in any way dependent upon according to the intent of these specifications and accompanying drawings. He shall report to the Architect/Engineer, in writing, prior to bid, any conditions which prevent him from performing his work. No “Waiver of Responsibility” for inadequate, incomplete, or defective work will be considered by the Engineer unless written notice had been filed by the Electrical Contractor with his bid.

B. Where existing electrical systems of any voltage or purpose, or portions thereof, are to be re-used or modified, the Electrical Contractor shall test the affected portions for the purpose of identifying

pre-existing operational deficiencies. This shall include, but is not limited to, fire alarm, public address, security, CCTV, etc. Report any deficiencies, in writing, to the Owner or his designated representative. Deficiencies occurring after testing, not previously identified, shall be considered as a result of Contractor activities and shall be restored to working condition at no additional cost. If the Owner requests any of the pre-existing deficiencies be corrected by the Contractor, these shall be addressed at additional contract cost.

1.10 PERMITS, INSPECTIONS AND CERTIFICATES

A. The Electrical Contractor shall procure and pay for all necessary drawings, permits, inspections and certificates required by the various governing agencies, etc. having jurisdiction or utilities providing service as part of the bid and shall turn over to the Engineer all permits for construction before starting work and certificates of test, inspection, and approval before requesting payment.

B. Included in the above, the Electrical Contractor shall obtain a Certificate of Electrical Inspection for completed work from an approved third-party electrical inspection agency serving the project locale.

1.11 QUALITY ASSURANCE

A. The Electrical Contractor shall be regularly engaged in the production or installation of specified products, and systems for not less than three years.

B. All work under this Division shall be performed by a licensed electrician or done so under his direct supervision.

C. All painting, patching, concrete work, carpentry, welding, core drilling, etc. incidental to the completion of Division 26 work shall be performed by skilled tradespersons appropriate to the work.

1.12 SUBMITTALS

A. Within 30 days of the signing of the contract, prepare and submit for approval, per the procedures set forth in Division 01, all submittals required by Division 01, this Division and by all other Contract Documents.

B. Required submittals may include, but not be limited to: Schedule of Values; Subcontractor List(s); Product Data; Shop Drawings; Test Reports; Calculations, Photometric Analysis, Certifications; Warranties; Operation & Maintenance Manuals; Record Drawings and various administrative submittals. Provide samples or mock-ups upon request at no additional cost.

C. The number of copies submitted shall be as indicated in Division 01, or elsewhere in the Specifications or Contract Drawings. Electronic (.pdf or similar) may be submitted in lieu of hardcopies where permitted. Generally, all equipment and materials of the same classification, type or kind shall be submitted at one time.

D. For materials, devices, equipment, etc. to be installed, as required in subsequent individual Division 26 sections, submit product data consisting of manufacturer's standard catalog cuts, descriptive literature and/or diagrams, etc. Submittals shall be provided in sufficient detail so as to clearly indicate compliance with all specified requirements and standards. Documents shall be clearly marked to indicate proposed product, selected options, selected accessories, selected finishes, etc. Please clearly indicate any equipment tags for each item as indicated on Drawings for correlation.

E. For systems and equipment, as required in subsequent individual Divisions 26 sections provide project specific Shop Drawings which shall include all information listed in the Shop Drawings submittal requirements in the respective specification section. Include all pertinent information including, but not limited to, equipment/system identification, manufacturer/model, nameplate data,

dimensions, sizes, capacities, types, material, accessories and options, etc. Include any relevant performance data, system risers, wiring diagrams, etc. The documents provided shall be in sufficient detail so as to clearly indicate compliance with all project requirements and standards.

F. Any construction delays caused by failure to submit shop drawings on time or in the proper format shall be the responsibility of the Electrical Contractor.

G. Substitutions: Where products or materials are specified hereinafter by manufacturer's name and/or model number, they shall be considered as the standard and as most satisfactory for their purpose of use on the site or in the building. Another manufacturer's product other than those indicated may be submitted in lieu of the specified product with the understanding that the Engineer shall be the sole judge as to the equality to the specified item and acceptability of the submitted items. In addition, furnish to the Engineer or Owner upon request, and within 14 days of such a request, samples of any Base Bid and/or corresponding Alternate Bid item and/or intended substitute equipment, fixtures, etc. for their comparison and selection. Furnish any additional requested product information, calculations, etc. at no additional cost. Submission of substituted items is with the understanding that neither the Engineer nor the Owner is responsible for any delays or additional costs arising from review, acceptance, denial of said substituted item. Furthermore, any additional costs in material, labor, etc. or delays relating to the installation of substituted item shall be at no additional cost to the Engineer or Owner.

1.13 GUARANTEE

A. For guarantee requirements, refer to the applicable section of the Conditions of the Contract.

PART 2 – PRODUCTS

2.01 GENERAL

A. Except where existing materials and equipment are called for to be reused, all materials and equipment furnished and installed under Division 26 shall be new, of standard first grade quality, undamaged, defect-free, and correctly designed for their specific purpose. All new materials and equipment shall conform to the standards of and be listed/labeled by a Nationally Recognized Testing Laboratory (NRTL) such as Underwriters Laboratories (UL) and shall be approved for use by all local authorities having jurisdiction.

B. All equipment and material furnished shall be the manufacturer's standard item of production unless specifically specified or required to be modified to suit job conditions. Size, material; finish dimensions, and the capacities for the specified application shall be published in catalogs for national distribution by the manufacturer. Ratings and capacities shall be certified by a nationally recognized rating bureau.

C. Where specific devices, equipment, systems (or portions thereof) are indicated to be re-used, the Electrical Contractor, in the presence the Owner or his representative, shall verify proper operation of same prior to commencing work. Report any pre-existing defects or non-functioning items to the Engineer/Architect. The Electrical Contractor shall be held responsible for correcting and/or replacing any unreported items found to be defective up until Owner Acceptance at no additional cost.

D. Equipment and material fabricated specifically for use on this project shall be in strict accordance with the Drawings and Specifications and shall conform to the latest standards of the National Electric Manufacturer's Association.

E. All materials and equipment of one and the same kind, type, or classification and used for identical purpose shall be made by the same manufacturer.

2.02 NEW CIRCUIT BREAKERS INSTALLED IN EXISTING PANELBOARDS

A. New circuit breakers installed in existing panelboards shall be listed for use in the intended panelboard.

B. The new circuit breaker's interrupting rating shall meet or exceed the interrupting rating of the intended panelboard.

PART 3 – EXECUTION

3.01 GENERAL

A. The electrical installation work shall be in accordance with the intent of the Contract Documents, and applicable Codes and Standards, and manufacturer' as determined by the Engineer.

B. All materials and equipment shall be installed as in accordance with manufacturer's instructions, by mechanics experienced and skilled in their trade, in a neat and professional manner, in accordance with trade standards, and so as not to void any warranty or UL listing.

C. Any workmanship considered by the Architect/Engineer as being faulty or substandard shall be removed and replaced by the Contractor to the satisfaction of the Architect/Engineer at no additional cost to the Owner.

D. All work under the electrical contract shall be performed under the Contractor's direct supervision. Provide sufficient and qualified personnel necessary to complete the work in accordance with the Contract Documents and in accordance with the project schedule.

E. Prior to installation, examine the areas and conditions under which the work is to be performed. Identify any conditions which will impact the proper and timely completion of the work. Do not proceed until the impacting conditions have been corrected.

F. Install electrical raceways, wiring and systems parallel and perpendicular to building surfaces and components to the extent possible. Equipment, boxes, etc. shall be installed level and plumb.

G. In general, run branch circuits in concealed above dropped ceilings, in furred walls, in voids and chases. All devices, conduits, wiring and conduits shall be recessed in new construction. In existing unfinished areas, such as mechanical spaces and storage areas wiring may be run exposed. In existing finished and public spaces where wiring cannot be practically concealed, such as block surfaces, wiring may be run in finished surface raceways secured using mechanically fastened clips.

H. Unless otherwise indicated, provide final connections to all equipment, in accordance with manufacturer's instructions.

3.02 SAFE WORK PRACTICES

A. To the greatest extent possible, all electrical work shall be performed on de-energized material and equipment using appropriate lock-out/tag-out procedures per OSHA requirements.

B. Work on energized systems shall be approved by the Owner's representative. All persons working on energized equipment shall wear appropriate personal protective equipment (PPE) following safe work practices and the latest version of NFPA 70E. A minimum of two people is required to be working to ensure the safety of each.

3.03 DELIVERY, STORAGE AND HANDLING OF MATERIALS

A. Comply with Division 01 requirements.

B. The Contractor shall arrange with the Owner for storage of delivered materials related to the work. Where the Owner cannot provide safe, adequate, or sufficient space, provide off-site storage or, with owner approval, arrange and pay for sufficient secure on-site storage container(s). Locations of storage containers shall be coordinated with the Owner.

C. The Electrical Contractor shall be responsible for coordinating, off-loading, receiving and storing all deliveries related to the work. Coordinate all haul routes and schedules with the Owner or Construction Manager.

D. Products shall be delivered in manufacturer's original unopened packaging, with manufacturer's identification and product labelling.

E. Products shall be stored in a manner which shall protect them from theft, damage, weather and entry of debris. Comply with all manufacturer's written storage recommendations.

F. Promptly inspect delivered goods for damage and deficiencies. Arrange for their prompt replacement or removal from the site. Do not install damaged products.

3.04 COORDINATION AND COOPERATION

A. The work called for in the Contract Drawings Specifications shall be carried on in conjunction with the continued operation of the building. The work shall be arranged such that its installation and operation will conform with and facilitate the early installation of the work.

B. The Electrical Contractor shall bear the expense required to revise his work due to any failure to coordinate the installation of his work with that of the building's operation.

C. Unless otherwise stated in the Contract Drawings, all outages to building systems will occur when the building is not in use. The Electrical Contractor shall include all premium time charges in the bid.

D. The Electrical Contractor shall be responsible for the distribution and information concerning his work as required for the prompt installation. The Electrical Contractor will be held fully responsible for any delay in the work resulting from failure to distribute any information, etc. regarding his work as required. See also the applicable sections of the Conditions of the Contract.

E. The Electrical Contractor shall coordinate and cooperate with the Contractors of other trades, Subcontractors, outside agencies, and with the Owner regarding placement, anchorage and accomplishment of the work. Resolve interferences between work of other disciplines or Contractors, prior to commencing installation.

F. Coordinate with other trades for all demolition activities. Provide mark-outs for items to be demolished by others. De-energize and safe off circuits in demolition areas as required for a safe work area.

G. Coordinate with other trades and with Owner for chases, slots and openings during the project as required to complete the installation of the electrical work in timely manner.

H. Coordinate with other trades in scheduling all installation activities with the overall goal of completion of the project in a timely manner.

I. Coordinate the installation of required supporting devices and sleeves to be set in poured-in-place concrete and other structural components, as they are constructed.

J. During the installation of equipment and raceways, provide any offsets, fittings, boxes, accessories to achieve changes in elevation or location as necessary to avoid obstacles and interferences, per actual field conditions.

K. Piping or other systems which are dependent upon slope have the right of way.

L. Provide temporary dust caps on smoke detectors in the work area as necessary to prevent false alarms. Remove when no longer required.

3.05 SHUTDOWNS

A. In accordance with the General Conditions, all shutdowns to existing electrical services are to be scheduled and approved, in advance, in writing, by the Owner. Unless otherwise noted, assume all temporary shutdowns to be performed while the building is not in operation. Include all premium time in bid. Include any applicable utility shutdown fees in bid.

3.06 DIMENSIONING

A. Refer to architectural or other dimensioned drawings. However, field measurements take precedence over dimensioned drawings. Do not scale drawings.

3.07 PROTECTION OF THE WORK

A. The Electrical Contractor shall effectively protect, at his expense, all materials and equipment, including his employees and building occupants, during the period of construction and shall be held responsible for all damage done to his work, until the same is fully accepted by the Architect. See also the applicable sections of the Conditions of the Contractor. Protect all electrical materials, equipment and work from the vandalism, weather elements, theft, paint overspray, concrete and mortar, construction debris and damage, etc. until acceptance by the Owner. Repair, replace and clean all electrical work so affected at no additional cost to the Contract.

3.08 CUTTING AND PATCHING

A. All cutting, core drilling, etc. required to facilitate the proper installation of all work to be installed under Electrical ids the responsibility of the Electrical Contractor, unless indicated otherwise. All cutting shall be done in the manner specified and/or directed and approved by the Engineer and only after permission of the Engineer is obtained. The installation of sleeves, chases, etc. in concrete walls, floors, ceilings, and roofs as well as the cutting of existing concrete walls, floors, ceilings, and roofs shall be done by core drilling. All patching will be the responsibility of this Contractor.

B. All penetrations to exterior walls and below grade foundations shall be made through sleeves provided by the Electrical Contractor and thoroughly sealed and caulked airtight and watertight.

C. Roof penetrations shall be performed via approved roof curbs, pitch pockets, pipe portals etc. Unless otherwise indicated, provide all required materials and labor to perform the penetration and subsequent repair. All penetrations shall be repaired and sealed airtight and watertight in accordance with existing roof warrantees and roof manufacturer directions. In no case shall any roof penetration or repairs violate existing warrantees.

D. Provide all new patching work to match existing conditions.

3.09 WATERPROOFING

A. Wherever any of the work of Division 26 must pierce any waterproofing, this work shall be done by the Electrical Contractor with care. After the part of these systems have been put in place through this waterproofing, the opening made by same shall be waterproofed and made absolutely water-tight as approved by the Architect and/or as hereinafter specified.

B. Conduits piercing the cement waterproofing of walls and floors shall be provided with waterproof conduit entrance seal sleeves around same. These sleeves shall be Type “WSK” (walls) or “FSK” (floors) as manufactured by O-Z or other approved.

C. Conduit sleeves through non-waterproofed, non-fire-rated walls and floors shall be grouted, caulked with oakum, and sealed with approved semi-plastic mastic compound on both sides of the wall.

D. All roof penetrations shall be performed in a manner to obtain watertight seal and in conformance with existing roof warrantees. Unless provided by others, provide pitch pockets, pipe portals or other means consistent with existing roof warrantees for any roof penetrations. Coordinate penetrations for rooftop HVAC equipment with the Mechanical Contractor.

3.10 FIRESTOPPING

A. Provide and apply listed firestopping materials to penetrations of fire-rated floor and wall assemblies for electrical installation. Firestopping shall restore original fire-resistance rating of assembly or better. Firestopping materials and installation requirements are specified in Section 078413 – Penetration Firestopping.

3.11 CEILING REMOVALS

A. Unless otherwise noted in the contract Documents, existing ceilings which must be removed for the Electrical Contractor’s installation or demolition work shall be done by the Electrical Contractor. No ceiling shall be removed without prior approval of the Owner. When directed by the Owner or Owner’s Representative, removed ceilings shall restored at the end of each working day. Ceilings which must be removed shall be restored to their original condition as soon as practical and prior to final payment.

B. Store any removed ceiling tiles either in the ceiling space or at a designated space in the building until re-installation.

C. Take all necessary precautions to prevent damage to the existing ceilings.

D. Replace Contractor damaged ceiling tiles with new ceiling construction to match the existing and to the Owner’s satisfaction.

E. Coordinate with other trades when ceiling related work must be performed in common work areas.

F. In areas with pre-existing ceiling damage, coordinate with the Owner’s representative to document said damage, and determine if the Owner wishes to provide replacement ceiling materials for re-installation.

3.12 PHASE ROTATIONS

A. The Electrical contractor is responsible to verify and maintain facility phase rotations throughout.

3.13 PAINTING AND FINISHING

A. Where final painting and finishes are not being provided by other trades, provide all priming and painting to cuts and patches performed under this Contract in finished areas to match existing conditions.

B. Provide matching painting and patching for surfaces in finished areas at locations of Electrical demolition and/or removals.

C. Provide matching painting and patching to building surfaces damaged as result of Electrical installation work.

D. Provide touch up painting to equipment furnished under this contract.

E. All painting materials shall conform to paint specifications elsewhere in the Contract Documents, or in the absence of same, shall be suitable for the surfaces and environments used. In no case shall lead based paints be used.

3.14 CHECKOUT, TESTING AND ADJUSTING

A. Provide all required programming, integration and adjustments, tune-ups. etc. as required to bring the equipment or system up to fully operational condition.

B. All tests required by the National Electrical Code, approved Electrical Inspection Agencies, State and Local Authorities, the servicing Utility Company, and the Engineer shall be executed by or paid for by the Electrical Contractor. Furnish all labor, material, and instruments for each test. All major tests shall be witnessed by the Engineer. Owner's representative and/or the Authority having jurisdiction, all of whom shall be given a minimum of one week's written notice prior to such tests.

C. Tests shall be scheduled at least one week in advance and at a time so as not to disrupt building operation, and to allow Engineer and Owner representative(s) the opportunity to witness the test, unless directed otherwise. Tests shall not be scheduled until the system installation is complete and fully operational, unless indicated or otherwise directed.

D. Where required by subsequent specification sections or by the manufacturer, arrange for and pay all costs for manufacturer's authorized representative(s) to be present at time of system or equipment start-up. The manufacturer's representative shall provide system integration and programming, start-up supervision, conduct and/or certify all required testing and adjusting, and provide any required training to the end user.

E. Coordinate with the Owner or his designated representative where Owner preferences or input is required for system setup.

F. Submit test reports neatly typewritten on 8-1/2 x 11" sheets indicating system or equipment being tested, date, and time of test, testing methodology, witnesses, testing results and any other pertinent information. Within five (5) days of test completion, submit written or electronic (PDF) copy of test reports for Engineer review, and include a copy with the appropriate operation and maintenance data.

G. At no additional cost, the Electrical Contractor shall correct any deficiencies found, and replace any defective materials and equipment or unable to perform at design or rated capacity. Repeat testing without additional cost to the Owner or Contract until satisfactory results are achieved. Submit final report indicating any corrective measures taken and satisfactory test results.

3.15 FINAL INSPECTIONS

A. Coordinate and obtain all final inspections as required by these specifications and as required by the Authority Having Jurisdiction. Obtain electrical inspection certificate from an authorized Electrical Inspection Agency. Include all costs in bid. Provide all inspection reports and Inspection certificates as part of closeout documents.

3.16 SYSTEMS DEMONSTRATION

A. The Electrical Contractor shall be fully responsible for instructing the Owner's designated personnel in the operation and maintenance of all equipment and systems furnished under the Contract. All costs required for such instruction and demonstration shall be paid for by the Electrical Contractor. Such instruction shall take place in the presence of the Owner's representative upon completion of the work. The Owner reserve the right to record any training sessions. Furnish for Owner use, Engineer approved, printed and bound copies of all operation and maintenance construction manuals. Included in these manuals shall be one (1) copy of all previously submitted and Engineer "Approved" or "Approved as Noted" shop drawings ("Approved as Noted" shop drawings must first be permanently corrected). Informal or non-Engineer witnessed instructions or instructions to non-designed Owner personnel shall not be recognized as fulfilling these requirements.

3.17 CLEANING

A. Perform cleaning in accordance with Division 01.

B. Maintain a clean work site. Remove from the premises, all packaging / shipping materials, waste, rubbish and construction debris. The premises shall be left clean and free of any debris and unused construction materials prior to final acceptance. Leave the area broom clean.

C. Clean all electrical equipment enclosures of dirt, dust, wire cuttings and other foreign materials.

D. Clean all light fixtures, lenses, reflectors and lamps of dirt, dust, fingermarks etc. Adjust lenses for proper fit.

E. Remove all temporary dust caps from fire alarm devices.

F. Provide touch-up painting to restore and refinish to match original condition surfaces of electrical equipment scratched, marred during shipping, handling or installation. Remove any rust and prime and paint as recommended by manufacturer. Pay particular attention to equipment installed outdoors in areas of harsh environment.

3.18 RECORD DOCUMENTS

A. Prior to final payment, submit Close Out Documentation in accordance with Division 01.

B. As-Built record drawings shall document installed locations of equipment, panelboards, disconnect switches and control devices. Document the approximate as-built routing of major feeders and underground conduit runs.

END OF SECTION

DIVISION 26 – ELECTRICAL

SECTION 260519 – LOW VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 – GENERAL

1.01 SUBMITTALS

A. Product Data: Manufacturer's standard catalog sheets, specifications, and installation instructions.

1.02 QUALITY ASSURANCE

A. Electrical components, conductors, devices and accessories described herein shall be listed and labeled as defined by NFPA 70 by a Nationally Recognized Testing Laboratory (NRTL), such as Underwriters Laboratories (UL), for the intended use and shall bear its label.

PART 2 - PRODUCTS

2.01 INSULATED CONDUCTORS AND CABLES

A. Date of Manufacture: No insulated conductor more than one year old when delivered to the site will be acceptable.

B. Acceptable Companies: General Cable Corporation., Cerro Wire & Cable Co. Inc., Prysmian Cables & Systems, or Southwire Co or equal.

C. Conductors: Annealed uncoated copper or annealed coated copper in conformance with the applicable standards for the type of insulation to be applied on the conductor. Conductor sizes No. 8 and larger shall be stranded. Conductors No. 10 and smaller shall be solid. (Exception: For connections subject to vibration or where flexibility is otherwise required, equivalent stranded conductors may be substituted for solid).

D. Types:

1. Electric Light and Power Wiring:

    a. Minimum conductor size is No. 12 AWG, unless indicated otherwise.
    b. General: Rated 600V, NFPA 70 Type THHN/THWN-2 or XHHW-2.
    c. THHN/THWN-2 Gasoline and Oil Resistant: Polyvinylchloride insulation rated 600 V with nylon jacket conforming to UL requirements for type THHN/THWN-2 insulation, with the words "GASOLINE AND OIL RESISTANT II" marked thereon.
    d. USE-2: Dual rated heat and moisture resistant insulation rated 600 V with jacket or dual-purpose insulation/protective covering conforming to UL requirements for type USE-2 service entrance cables.
    e. Metal-Clad Cable, NFPA 70 Article 330 Type MC:

        1) Interlocked flexible galvanized steel armor sheath, conforming to UL requirements for type MC metal clad cable. Aluminum armored type MC cable is NOT permitted.
        2) Insulated copper conductors, suitable for 600 volts, rated 90°C, one of the types listed in NFPA 70 Table 310.13(A) or of a type identified for use in Type MC cable.
        3) Internal full size copper ground conductor with green insulation.
        4) Acceptable Companies: AFC Cable Systems Inc., Southwire, General Cable.

5) Connectors for MC cable: AFC Fitting Inc.'s AFC Series, Arlington Industries Inc.'s Saddle grip, or Thomas & Betts Co.'s Tite-Bite with anti-short bushings.

f. MI: AFC Cable Systems' Type MI Cable, or Pentair Pyrotenax Mineral Insulated System 1850 Pyrotenax Cable:

1) Copper conductors.
2) Seamless copper sheath.
3) Two hour fire resistive rating UL system classified, listed in UL Building Materials Directory product category Electrical circuit Protective Systems (FHIT), or Fire Resistive Cables (FHJR).
4) Fittings and accessories as required for a complete system to suit listing and installation conditions.

2. Class 1 Wiring:

a. No. 18 and No. 16 AWG: Insulated copper conductors suitable for 600 volts, NFPA 70 types KF-2, KFF-2, PAFF, PF, PFF, PGF, PGFF, PTFF, SF-2, SFF-2, TF, TFF, TFN, TFFN, ZF, or ZFF.
b. Larger than No. 16 AWG: Insulated copper conductors suitable for 600 volts, in compliance with NFPA 70 Article 310.
c. Conductor with other types and thickness of insulation may be used if listed for Class 1 circuit use.

3. Class 2 Wiring:

a. Multiconductor Cables: NFPA 70 Article 725, Types CL2P, CL2R, CL2.
b. Other types of cables may be used in accordance with NFPA 70 Table 725.154(G) "Cable Substitutions", as approved.

4. Class 3 Wiring:

a. Single Conductors No. 18 and No. 16 AWG: Same as Class 1 No. 18 and No. 16 AWG conductors except that:

1) Conductors are also listed as CL3.
2) Voltage rating not marked on cable except where cable has multiple listings and voltage marking is required for one or more of the listings.

b. Multiconductor Cables: NFPA 70 Article 725, Types CL3P, CL3R, CL3.
c. Other types of cables may be used in accordance with NFPA 70, Table 725.154(G) "Cable Substitutions", as approved.

2.02 CONNECTORS

A. General:

1. Connectors specified are part of a system. Furnish connectors and components, and use specific tools and methods as recommended by connector manufacturer to form complete connector system.

2. Connectors shall be UL 486 A listed, or UL 486 B listed for combination dual rated copper/aluminum connectors (marked AL7CU for 75 degrees C rated circuits and AL9CU for 90 degrees C rated circuits).

3. Use of Split-Bolt type connectors is NOT permitted.

B. Splices:

1. Spring Type:

a. Rated 105° C, 600V: Buchanan/Ideal Industries Inc.'s B-Cap, Electrical Products Div./3M's Scotchlok Type Y, R, G, B, O/B+, R/Y+, or B/G+, or Ideal Industries Inc.'s Wing Nuts or Wire Nuts.
b. Rated 150° C, 600V: Ideal Industries Inc.'s High Temperature Wire-Nut Model 73B, 59B or equal.

2. Indent Type with Insulating Jacket:

a. Rated 105° C, 600V: Buchanan/Ideal Industries Inc.'s Crimp Connectors, Ideal Industries Inc.'s Crimp Connectors, Penn-Union Corp.'s Penn-Crimps, or Thomas & Betts Corp.'s STA-KON.

3. Indent Type (Uninsulated): Anderson/Hubbell's Versa-Crimp oer equal, VERSAtile, Blackburn/T&B Corp.'s Color-Coded Compression Connectors, Electrical Products Div./3M's Scotchlok 10000, 11000 Series, Burndy's Hydent, Penn-Union Corp.'s BCU, BBCU Series, or Thomas & Betts Corp.'s Compression Connectors or equal.

4. Connector Blocks: NIS Industires Inc.'s Polaris System, or Thomas & Betts Corp.'s Blackburn AMT Series or equal.

5. Resin Splice Kits: Electrical Products Div./3M's Scotchcast Brand Kit Nos. 82A Series, 82-B1 or 90-B1, or Scotchcast Brand Resin Pressure Splicing Method or equal.

6. Heat Shrinkable Splices: Electrical Products Div./3M's ITCSN, Raychem Corp.'s Thermofit Type WCS, or Thomas & Betts Corp.'s SHRINK-KON Insulators or equal.

7. Cold Shrink Splices: Electrical Products Div./3M's 8420 Series or equal.

C. Gutter Taps: Anderson/Hubbell's GP/GT with GTC Series Covers, Blackburn/T&B Corp.'s H-Tap Type CF with Type C Covers, Burndy's Polytap KPU-AC, H-Crimpit Type YH with CF-FR Series Covers, ILSCO's GTA Series with GTC Series Covers, Ideal Industries Inc.'s Power-Connect GP, GT Series with GIC covers, NSI Industries Inc.'s Polaris System, OZ/Gedney Co.'s PMX or PT with PMXC, PTC Covers, Penn-Union Corp.'s CDT Series, or Thomas & Betts Corp.'s Color-Keyed H Tap CHT with HTC Covers or equal.

D. Terminals: Nylon insulated pressure terminal connectors by Amp-Tyco/Electronics, Electrical Products Div./3M, Burndy, Ideal Industries Inc., Panduit Corp., Penn-Union Corp., Thomas & Betts Corp., or Wiremold Co. or equal

E. Lugs:

1. Single Cable (Compression Type Lugs): Copper, one- or 2-hole style (to suit conditions), long barrel; Anderson/Hubbell's VERSAtile VHCL, Blackburn/T&B Corp.'s Color-Coded CTL, LCN, Burndy's Hylug YA, Electrical Products Div./3M Scotchlok 31036 or 31145 Series, Ideal Industries Inc.'s CCB or CCBL, NSI Industries Inc.'s L, LN Series, Penn-Union Corp.'s BBLU Series, or Thomas & Betts Corp.'s 54930BE or 54850BE Series or equal.

2. Single Cable (Mechanical Type Lugs): Copper, one- or 2-hole style (to suit conditions); Blackburn/T&B Corp.'s Color-Keyed Locktite Series, Burndy's Qiklug Series, NSI Industries Inc.'s Type TL, Penn-Union Corp.'s VI-TITE Terminal Lug Series, or Thomas & Betts Corp.'s Locktite Series or equal.

3. Multiple Cable (Mechanical Type Lugs): Copper, configuration to suit conditions; Burndy's Qiklug Series, NSI Industries Inc.'s Type TL, Penn-Union Corp.'s VI-TITE Terminal Lug Series, or Thomas & Betts Corp.'s Color-Keyed Locktite Series or equal.

2.03 TAPES

A. Insulation Tapes:

1. Plastic Tape: Electrical Products Div./3M's Scotch Super 33+ or Scotch 88, Plymouth Rubber Co.'s Plymouth/ Bishop Premium 85CW.

2. Rubber Tape: Electrical Products Div./3M's Scotch 130C, or Plymouth Rubber Co.'s Plymouth/Bishop W963 Plysafe or equal.

B. Moisture Sealing Tape: Electrical Products Div./3M's Scotch 2200 or 2210, or Plymouth Rubber Co.'s Plymouth/Bishop 4000 Plyseal-V or equal.

C. Electrical Filler Tape: Electrical Products Div./3M's Scotchfil, or Plymouth Rubber Co.'s Plymouth/Bishop 125 Electrical Filler Tape or equal.

D. Color Coding Tape: Electrical Products Div./3M's Scotch 35, or Plymouth Rubber Co.'s Plymouth/Bishop Premium 37 Color Coding or equal.

E. Arc Proofing Tapes:

1. Arc Proofing Tape: Electrical Products Div./3M's Scotch 77, Mac Products Inc.'s AP Series, or Plymouth Rubber Co.'s Plymouth/Bishop 53 Plyarc.

2. Glass Cloth Tape: Electrical Products Div./3M's Scotch 27/Scotch 69, Mac Products Inc.'s TAPGLA 5066, or Plymouth Rubber Co.'s Plymouth/Bishop 77 Plyglas.

3. Glass-Fiber Cord: Mac Products Inc's MAC 0527 or equal.

2.04 WIRE-PULLING COMPOUNDS

A. To suit type of insulation; American Polywater Corp.'s Polywater Series, Electric Products Div./3M's WL, WLX, or WLW, Greenlee Textron Inc.'s, Cable Cream, Cable Gel, Winter Gel, Ideal Industries Inc.'s Yellow 77, Aqua-Gel II, Agua-Gel CW, or Thomas & Betts Corp.'s Series 15-230 Cable Pulling Lubricants, or Series 15-631 Wire Slick or equal.

2.05 WIRE MANAGEMENT PRODUCTS

A. Cable Clamps and Clips, Cable Ties, Spiral Wraps, etc: Catamount/T&B Corp., or Ideal Industries Inc.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install conductors in raceways after the raceway system is completed.

B. No grease, oil, or lubricant other than wire-pulling compounds specified may be used to facilitate the installation of conductors.

3.02 CIRCUITING

A. Do not change, group, or combine circuits other than as indicated on the drawings.

B. Do not change, group, or combine circuits other than as indicated on the drawings except as permitted under Section 260532 when reusing existing raceways.

3.03 SEPARATE NEUTRAL CONDUCTOR

A. Provide a separate neutral conductor for each circuit. Use of common neutral for multiple circuits is NOT permitted.

3.04 CONDUCTOR SIZE

A. Conductor Size:

1. For Electric Light and Power Branch Circuits: Install conductors of size shown on drawings. Where size is not indicated, the minimum size allowed is No. 12 AWG.

2. Light and Power homeruns shall be #12 AWG size, unless otherwise noted. Where Light and Power homeruns exceed 100 feet as measured to nearest outlet or switch to panelboard, the homerun shall be upsized to #10 AWG.

3. For Class 1 Circuits:

a. No. 18 and No. 16 AWG may be used provided they supply loads that do not exceed 6 amps (No. 18 AWG), or 8 amps (No. 16 AWG).
b. Larger than No. 16 AWG: Use to supply loads not greater than the ampacities given in NFPA 70 Section 310.15.

4. For Class 2 Circuits: Any size to suit application.

5. For Class 3 Circuits: Minimum No. 18 AWG.

3.05 COLOR CODING

A. General:

1. Color coding for electric light and power conductors shall be by continuous colored insulation as described below.

2. Large Conductors: Conductors of sizes No. 4 AWG and larger may be furnished with black insulation and color coded with Vinyl Color Coding Tape at all accessible points.

B. Color Coding for 120/208 Volt Electric Light and Power Wiring:

1. Color Code:

a. 2 wire circuit - black, white.
b. 3 wire circuit - black, red, white.
c. 4 wire circuit - black, red, blue, white.

2. White to be used only for an insulated grounded conductor (neutral). If neutral is not required use black and red, or black, red and blue for phase to phase circuits.

a. “White” for Sizes No. 6 AWG or Smaller:

1) Continuous white outer finish, or:
2) Three continuous white stripes on other than green insulation along its continuous length.

b. “White” for Sizes Larger Than No. 6 AWG:

1) Continuous white outer finish, or:
2) Three continuous white stripes on other than green insulation along its continuous length, or:
3) Distinctive white markings (color coding tape) encircling the conductor, installed on the conductor at time of its installation. Install white color-coding tape at terminations, and at 1’ 0” intervals in gutters, pull boxes, and manholes.

3. Colors (Black, Red, Blue):

a. For Branch Circuits: Continuous color outer finish.
b. For Feeders:

1) Continuous color outer finish, or:
2) Color coding tapes encircling the conductors, installed on the conductors at time of their installation. Install color coding tapes at terminations, and at 1’ 0” intervals in gutter, pull boxes, and manholes.

C. Color Coding For 277/480 Volt Electric Light and Power Wiring:

1. Color Code:

a. 2 wire circuit – brown, gray.
b. 3 wire circuit – brown, yellow, gray.
c. 4 wire circuit – brown, yellow, orange, gray.

2. Gray to be used only for an insulated grounded conductor (neutral). If neutral is not required use brown and yellow, or brown, yellow and orange for phase-to-phase circuits.

a. “Gray” For Sizes No. 6 AWG or Smaller.

1) Continuous gray outer finish.

b. “Gray” For Sizes Larger Than No. 6 AWG:

1) Distinctive gray markings (color coding tape) encircling the conductor, installed on the conductor at time of its installation. Install gray color-coding tape at terminations, and at 1’ 0” intervals in gutters, pull boxes, and manholes.

c. Colors: (Brown, Yellow, Orange)
d. For Branch Circuits: Continuous color outer finish.
e. For Feeders:

1) Continuous color outer finish, or:
2) Color coding tapes encircling the conductors, installed on the conductors at the time of their installation. Install color coding tapes at terminations, and at 1’ 0” intervals in gutters, pull boxes, and manholes.

D. More Than One Nominal Voltage System Within A building: Permanently post the color-coding scheme at each branch-circuit panelboard.

E. Existing Color-Coding Scheme: Where an existing color-coding scheme is in use, match the existing color coding if it is in accordance with the requirements of NFPA 70.

F. Color Code for Wiring Other Than Electric Light and Power: In accordance with ICEA standard S-73-532 (NEMA WC57-2004). Other coding methods may be used, as approved.

3.06 WIRE MANAGEMENT

A. Use wire management products to bundle, route, and support wiring in junction boxes, pull boxes, wireways, gutters, channels, and other locations where wiring is accessible.

3.07 EQUIPMENT GROUNDING CONDUCTOR

A. Install equipment grounding conductor:

1. Provide an equipment grounding conductor for all circuits. Raceways shall not be relied upon as an equipment grounding conductor.
2. Where multiple circuits are grouped in a common raceway, a single equipment ground sized as per Code may be permitted.
3. Equipment grounding conductor shall be sized in accordance with the Contract Drawings. Where no size is indicated, provide minimum size equipment ground required by the Code.
4. Where conductors are upsized to account for voltage drop, the equipment grounding conductor shall be proportionally upsized per Code, whether or not indicated on the drawings.

B. Equipment grounding conductor is not intended as a current carrying conductor under normal operating circumstances.

C. Color Coding For Equipment Grounding Conductor:

1. Color Code: Green.

2. “Green” For sizes No. 6 AWG or Smaller:

   a. Continuous green outer finish, or:
   b. Continuous green outer finish with one or more yellow stripes, or:
   c. Bare copper (see exception below).

3. “Green” For Sizes Larger Than No. 6:

   a. Stripping the insulation or covering from the entire exposed length (see exception below).
   b. Marking the exposed insulation or covering with green color-coding tapes.
   c. Identify at each end and at every point where the equipment grounding conductor is accessible.

3.08 ARC PROOFING

A. Where indicted on the drawings, arc proof feeders installed in a common pull box or manhole as follows:

1. Arc proof new feeders.

2. Arc proof existing feeders that are spliced to new feeders.

3. Arc proof each feeder as a unit (except feeders consisting of multiple sets of conductors).

4. Arc proof feeders consisting of multiple sets of conductors by arc proofing each set of conductors as a unit.

5. Arc proof feeders with half-lapped layer of 55 mils thick arc proofing tape and random wrapped or laced with glass cloth tape or glass-fiber cord. For arc proofing tape less than 55 mils thick, add layers to equivalent of 55 mils thick arc proofing tape.

3.09 INSULATED CONDUCTOR AND CABLE SCHEDULE - TYPES AND USE

A. Electric Light and Power Circuits:

1. Type THHN/THWN-2 or XHHW-2. : Wiring in dry or damp locations (except where special type insulation is required).

2. THHN/THWN-2, XHHW-2, or USE-2: Wiring in wet locations (except where type USE-2 insulated conductors are specifically required, or special type insulation is required).

3. THHN/THWN-2: Wiring installed in existing raceway systems (except where special type insulation is required).

4. THHN/THWN-2 or XHHW-2: Wiring for electric discharge lighting circuits (fluorescent, HID), except where fixture listing requires wiring rated higher than 90° C.

5. THHN/THWN-2 Marked “Gasoline and Oil Resistant”: Wiring to gasoline and fuel oil pumps.

6. USE-2: Wiring indicated on the drawings to be direct burial in earth.

7. USE-2 Marked “Sunlight Resistant”:

   a. Service entrance wiring from overhead service to the service equipment.
   b. Wiring exposed to the weather and unprotected (except where special type insulation is required).

8. MC:

   a. Use of MC cable may be used in lieu of individual conductors in conduit, subject to the provisions of the NFPA 70 where run concealed above suspended ceilings and stud walls
   b. Branch circuit wiring in wood framed construction (wood joists and wood stud partitions):

      1) Install conductors parallel with joists or studs and attach to the side of these timbers by galvanized straps spaced not more than 6 feet apart.
      2) Install conductors through holes bored in the center of the timbers when running at right angles to joists or studs.
      3) Do not attach the conductors to the edge of joists or studs.

   c. Branch circuit wiring in movable metal partitions and movable gypsum partitions.

      1) Install conductors in accordance with partition manufacturer’s recommendations.

   d. Branch circuit wiring in metal stud partitions:

      1) Install conductors parallel with studs and attach to the side by galvanized straps spaced not more than 6 feet apart.
      2) Install conductors through holes bored in the center of the metal member when running at right angles to studs.

a) Conductors shall be protected by listed bushings or listed grommets covering all metal edges.

3) Do not attach the conductors to the edge of studs.

e. Concealed Above Ceilings: Subject to the provisions of NFPA 70. Support MC cable from building structure. Mc cable shall not be permitted to be supported by the ceiling grid.

9. MI:

a. Wiring for underplaster extensions.
b. Wiring in areas where indicated on drawings.
c. Where MI cable is installed in areas subjecting cable to corrosion, use PVC or HDPE jacketed MI cable (nonmetallic jacketed cable is not suitable for use in ducts, plenums or other spaces used for environmental air).

3.10 CONNECTOR SCHEDULE - TYPES AND USE

A. Temperature Rating: Use connectors that have a temperature rating, equal to, or greater than the temperature rating of the conductors to which they are connected.

B. Splices:

1. Dry Locations:

a. For Conductors No. 8 AWG or Smaller: Use spring type pressure connectors, indent type pressure connectors with insulating jackets, or connector blocks (except where special type splices are required).
b. For Conductors No. 6 AWG or Larger: Use connector blocks or uninsulated indent type pressure connectors. Fill indentions in uninsulated connectors with electrical filler tape and apply insulation tape to insulation equivalent of the conductor or insulate with heat shrinkable splices or cold shrink splices.
c. Gutter Taps in Panelboards: For uninsulated type gutter taps fill indentions with electrical filler tape and apply insulation tape to insulation equivalent of the conductor or insulate with gutter tap cover.

2. Damp Locations: As specified for dry locations, except apply moisture sealing tape over the entire insulated connection (moisture sealing tape not required if heat shrinkable splices or cold shrink splices are used).

3. Wet Locations: Use uninsulated indent type pressure connectors and insulate with resin splice kits, cold shrink splices or heat shrinkable splices. Exception: Splices above ground which are totally enclosed and protected in NEMA 3R, 4, 4X enclosures may be spliced as specified for damp locations.

C. Terminations:

1. For Conductors No. 10 AWG or Smaller: Use terminals for:

a. Connecting wiring to equipment designed for use with terminals.

2. For Conductors No. 8 AWG or Larger: Use compression or mechanical type lugs for:

a. Connecting cables to flat bus bars.
b. Connecting cables to equipment designed for use with lugs.

3. For Conductor Sizes Larger Than Terminal Capacity On Equipment: Reduce the larger conductor to the maximum conductor size that terminal can accommodate (reduced section not longer than one foot). Use compression or mechanical type connectors suitable for reducing connection.

END OF SECTION

DIVISION 26 – ELECTRICAL

SECTION 260526 – GROUNDING AND BONDING

PART 1 – GENERAL

1.01 SUMMARY

A. This Section includes grounding of electrical systems and equipment. Grounding requirements specified in this Section may be supplemented by special requirements of systems described in other Sections.

1.02 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.03 SUBMITTALS

A. Product Data: Manufacturer's standard catalog cuts for each type of product indicated.

B. Product Data: For the following:

1. Ground rods.
2. Grounding clamps & connectors

C. Qualification Data: For firms and persons specified in "Quality Assurance" Article.

D. Field Test Reports: Submit written test reports to include the following:

1. Test procedures used.
2. Test results that comply with requirements.
3. Results of failed tests and corrective action taken to achieve test results that comply with requirements.

1.04 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a Nationally Recognized Testing Agency (NRTL) acceptable to authorities having jurisdiction and marked for intended use.

1. Comply with UL 467.

2. Comply with NFPA 70.

3. For overhead-line construction and medium-voltage underground construction, comply with IEEE C2.

4. Comply with NFPA 780 and UL 96 when interconnecting with lightning protection system.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Burndy Corp.
2. Cadweld Div.; Erico Product, Inc.
3. Erico International Corporation
4. ILSCO
5. Joslyn Corp.
6. OZ Gedney Div.; General Signal Corp.
7. Thomas and Betts Corp.
8. Thompson Lightning Protection Corp.

2.02 GROUNDING CONDUCTORS

A. Insulated conductors, comply with Section 260519.

B. Material: Aluminum, copper-clad aluminum, and copper.

C. Equipment Grounding Conductors: Insulated with green-colored insulation.

D. Grounding Electrode Conductors: Stranded cable.

E. Underground Conductors: Bare, tinned, stranded, unless otherwise indicated.

F. Bare Copper Conductors: Comply with the following:

1. Solid Conductors: ASTM B 3.
2. Assembly of Stranded Conductors: ASTM B 8.
3. Tinned Conductors: ASTM B 33.

G. Grounding Bus: Bare, annealed copper bars of rectangular cross section, with insulators.

2.03 CONNECTOR PRODUCTS

A. Comply with IEEE 837 and UL 467; listed for use for specific types, sizes, and combinations of conductors and connected items.

B. Bolted Connectors: Bolted-pressure-type connectors, or compression type.

C. Welded Connectors: Exothermic-welded type, in kit form, and selected per manufacturer's written instructions.

2.04 GROUNDING ELECTRODES

A. Ground Rods: Pointed, Copper-clad steel.

1. Size: 3/4 x 120 inches

B. Test Wells: Where indicated, provide handhole as specified in Division 2 Section "Underground Ducts and Utility Structures."

PART 3 - EXECUTION

3.01 APPLICATION

A. In raceways, use insulated equipment grounding conductors.

B. Exothermic-Welded Connections: Use for connections to structural steel and for underground connections, except those at test wells.

C. Equipment Grounding Conductor Terminations: Use bolted pressure clamps.

D. Ground Rod Clamps at Test Wells: Use bolted pressure clamps with at least two bolts.

E. Underground Grounding Conductors: Use copper conductor, No. 2/0 AWG minimum. Bury at least 24 inches (600 mm) below grade or bury 12 inches (300 mm) above duct bank when installed as part of the duct bank.

3.02 SERVICE GROUNDING

A. Provide a grounding electrode conductor, sized in accordance with the drawings or NFPA 70, connected to the neutral bus at the service disconnecting means and the opposite end connected to a listed grounding electrode.

B. Equipment grounding conductors shall be connected to the ground bus at the service disconnecting means.

C. Comply with NEC and local utility grounding requirements.

3.03 SEPARATELY DERIVED SYSTEM GROUNDING

A. Separately derived systems shall include, but are not limited to:

1. Transformers (exception: autotransformers)
2. Generators (where neutral is switched)
3. UPS systems when so configured.

B. Comply with NFPA 70.

C. A grounding electrode conductor, sized per the drawings or NFPA 70, shall be provided between the separately derived system grounded conductor and grounded metal frame or metal structural member. This connection shall be made at the source grounded conductor bus or at the first disconnecting means subject to the provisions of NFPA 70.

D. Provides system bonding jumper, sized per drawings or NFPA 70 between the system grounded conductor bus and the equipment ground bus.

E. There shall be no further connections between the grounded conductor and equipment ground downstream (load side) of the connection.

3.04 EQUIPMENT GROUNDING CONDUCTORS

A. Comply with NFPA 70, Article 250, for types, sizes, and quantities of equipment grounding conductors, unless specific types, larger sizes, or more conductors than required by NFPA 70 are indicated.

B. Install equipment grounding conductors in all new feeders and branch circuits. Reliance solely on metallic raceways for equipment grounding means is NOT permitted.

C. Computer Outlet Circuits: Install insulated equipment grounding conductor in branch-circuit runs from computer-area power panels or power-distribution units.

D. Air-Duct Equipment Circuits: Install an equipment grounding conductor to duct-mounted electrical devices operating at 120 V and more, including air cleaners and heaters. Bond conductor to each unit and to air duct.

E. Water Heater, Heat-Tracing, and Antifrost Heating Cables: Install a separate equipment grounding conductor to each electric water heater, heat-tracing, and antifrost heating cable. Bond conductor to heater units, piping, connected equipment, and components.

F. Signal and Communication Systems: For telephone, alarm, voice and data, and other communication systems, provide No. 4 AWG minimum insulated grounding conductor in raceway from grounding electrode system to each service location, terminal cabinet, wiring closet, and central equipment location.

1. Service and Central Equipment Locations and Wiring Closets: Terminate grounding conductor on a 1/4-by-2-by-12-inch (6.4- by-50-by-300-mm) grounding bus.

2. Terminal Cabinets: Terminate grounding conductor on cabinet grounding terminal.

G. Metal Poles Supporting Outdoor Lighting Fixtures: Provide a grounding electrode in addition to installing a separate equipment grounding conductor with supply branch-circuit conductors.

3.05 INSTALLATION

A. Ground Rods: Install ground rods per NEC and utility requirements.

1. Drive ground rods until tops are 2 inches (50 mm) below finished floor or final grade, unless otherwise indicated.

2. Interconnect ground rods with grounding electrode conductors. Use exothermic welds. Make connections without exposing steel or damaging copper coating.

3. Ground rods shall be installed in undisturbed earth.

B. Grounding Conductors: Route along shortest and straightest paths possible, unless otherwise indicated. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.

C. Bonding Straps and Jumpers: Install so vibration by equipment mounted on vibration isolation hangers and supports is not transmitted to rigidly mounted equipment. Use exothermic-welded connectors for outdoor locations, unless a disconnect-type connection is required; then, use a bolted clamp. Bond straps directly to the basic structure taking care not to penetrate any adjacent parts. Install straps only in locations accessible for maintenance.

D. Metal Water Service Pipe: Provide insulated copper grounding conductors, in conduit, from building's main service equipment, or grounding bus, to main metal water service entrances to building. Connect grounding conductors to main metal water service pipes by grounding clamp connectors. Where a dielectric main water fitting is installed, connect grounding conductor to street side of fitting. Bond metal grounding conductor conduit or sleeve to conductor at each end.

E. Water Meter Piping: Use braided-type bonding jumpers to electrically bypass water meters. Connect to pipe with grounding clamp connectors.

F. Bond interior metal piping systems and metal air ducts to equipment grounding conductors of associated pumps, fans, blowers, electric heaters, and air cleaners. Use braided-type bonding straps.

G. Bond each aboveground portion of gas piping system upstream from equipment shutoff valve.

H. Install one test well for each service at the ground rod electrically closest to the service entrance. Set top of well flush with finished grade or floor.

3.06 CONNECTIONS

A. General: Make connections so galvanic action or electrolysis possibility is minimized. Select connectors, connection hardware, conductors, and connection methods so metals in direct contact will be galvanically compatible.

1. Use electroplated or hot-tin-coated materials to ensure high conductivity and to make contact points closer to order of galvanic series.

2. Make connections with clean, bare metal at points of contact.

3. Make aluminum-to-steel connections with stainless-steel separators and mechanical clamps.

4. Make aluminum-to-galvanized steel connections with tin-plated copper jumpers and mechanical clamps.

5. Coat and seal connections having dissimilar metals with inert material to prevent future penetration of moisture to contact surfaces.

B. Exothermic-Welded Connections: Comply with manufacturer's written instructions. Welds that are puffed up or that show convex surfaces indicating improper cleaning are not acceptable.

C. Equipment Grounding Conductor Terminations: For No. 8 AWG and larger, use pressure-type grounding lugs. No. 10 AWG and smaller grounding conductors may be terminated with winged pressure-type connectors.

D. Noncontact Metal Raceway Terminations: If metallic raceways terminate at metal housings without mechanical and electrical connection to housing, terminate each conduit with a grounding bushing. Connect grounding bushings with a bare grounding conductor to grounding bus or terminal in housing. Bond electrically noncontinuous conduits at entrances and exits with grounding bushings and bare grounding conductors, unless otherwise indicated.

E. Connections at Test Wells: Use compression-type connectors on conductors and make bolted- and clamped-type connections between conductors and ground rods.

F. Compression-Type Connections: Use hydraulic compression tools to provide correct circumferential pressure for compression connectors. Use tools and dies recommended by connector manufacturer. Provide embossing die code or other standard method to make a visible indication that a connector has been adequately compressed on grounding conductor.

G. Moisture Protection: If insulated grounding conductors are connected to ground rods or grounding buses, insulate entire area of connection and seal against moisture penetration of insulation and cable.

3.07 GRADING AND PLANTING

A. Restore surface features, including vegetation, at areas disturbed by Work of this Section. Reestablish original grades, unless otherwise indicated. If sod has been removed, replace it as soon as possible after backfilling is completed. Restore areas disturbed by trenching, storing of dirt, cable laying, and other activities to their original condition. Include application of topsoil, fertilizer, lime, seed, sod, sprig, and mulch. Comply with Section 310000. Maintain restored surfaces. Restore disturbed paving as indicated.

END OF SECTION

DIVISION 26 – ELECTRICAL

SECTION 260529 – FASTENERS, ATTACHMENTS, AND SUPPORTING DEVICES

PART 1 – GENERAL

1.01 SUBMITTALS

A. Product Data: Manufacturer's standard catalog sheets, specifications and installation instructions.

B. Unless noted otherwise, specific manufacturer's and / or model / part numbers indicated in this specification section, shall be interpreted as that "manufacturer and/or model / part number" or equal.

PART 2 - PRODUCTS

2.01 ANCHORING DEVICES

A. Sleeve Anchors: Molly/Emhart's Parasleeve Series, Phillips' Red Head AN, HN, FS Series, or Ramset's Dynabolt Seriesl.

B. Wedge Anchors: Hilti's Kwik Bolt Series, Molly/Emhart's Parabolt Series, Phillips' Red Head WS, or Ramset's Trubolt Series.

C. Self-Drilling Anchors: Phillips' Red Head Series S or Ramset's Ram Drill Series.

D. Non-Drilling Anchors: Hilti's Drop-In Anchor Series, Phillips' Red Head J Series, or Ramset's Dynaset Series.

E. Stud Anchors: Phillips' Red Head JS Series.

2.02 CAST-IN-PLACE CONCRETE INSERTS

A. Continuous Slotted Type Concrete Insert, Galvanized:

1. Load Rating 1300 lbs./ft.: Kindorf's D-986.
2. Load Rating 2400 lbs./ft.: Kindorf's D-980.
3. Load Rating 3000 lbs./ft.: Hohmann & Barnard Inc.'s Type CS-H.
4. Load Rating 4500 lbs./ft.: Hohmann & Barnard Inc.'s Type CS-HD.

B. Threaded Type Concrete Insert: Galvanized ferrous castings, internally threaded.

C. Wedge Type Concrete Insert: Galvanized box-type ferrous castings, designed to accept bolts having special wedge shaped heads.

2.03 MISCELLANEOUS FASTENERS

A. Except where shown otherwise on the Drawings, furnish type, size, and grade required for proper installation of the Work, selected from the following: Furnish galvanized fasteners for exterior use, or for items anchored to exterior walls, except where stainless steel is indicated.

1. Standard Bolts and Nuts: ASTM A 307, Grade A, regular hexagon head.
2. Lag Screws: ASME B18.2.1.
3. Machine Bolts: ASME B18.5 or ASME B18.9, Type, Class, and Form as required.

4. Wood Screws: Flat head, ASME B18.6.1.
5. Plain Washers: Round, ASME B18.22.1.
6. Lock Washers: Helical, spring type, ASME B18.21.1.
7. Toggle Bolts: Spring Wing Type; Wing AISI 1010, Trunion Nut AISI1010 or Zamac Alloy, Bolt Carbon Steel ANSI B18.6.3.

B. Stainless Steel Fasteners: Type 302 for interior Work; Type 316 for exterior Work; Phillips head screws and bolts for exposed Work unless otherwise specified.

2.04 TPR (THE PEEL RIVET) FASTENERS

A. 1/4 inch diameter, threadless fasteners distributed by Subcon Products, 315 Fairfield Road, Fairfield, NJ 07004 (800) 634-5979.

2.05 HANGER RODS

A. Mild low carbon steel, unless otherwise specified; fully threaded or threaded each end, with nuts as required to position and lock rod in place. Unless galvanized or cadmium plated, provide a shop coat of red lead or zinc chromate primer paint.

2.06 "C" BEAM CLAMPS

A. With Conduit Hangers:

1. For 1 Inch Conduit Maximum: B-Line Systems Inc.'s BG-8, BP-8 Series, Caddy/Erico Products Inc.'s BC-8P and BC-8PSM Series, or GB Electrical Inc.'s HIT 110-412 Series.

2. For 3 Inch Conduit Maximum: Appleton Electric Co.'s BH-500 Series beam clamp with H50W/B Series hangers, Kindorf's 500 Series beam clamp with 6HO-B Series hanger, or OZ/Gedney Co.'s IS-500 Series beam clamp with H-OWB Series hanger.

3. For 4 Inch Conduit Maximum: Kindorf's E-231 beam clamp and E-234 anchor clip and C-149 series lay-in hanger; Unistrut Corp.'s P2676 beam clamp and P-1659A Series anchor clip with J1205 Series lay in hanger.

B. For Hanger Rods:

1. For 1/4 Inch Hanger Rods: B-Line Systems Inc.'s BC, Caddy/Erico Products Inc.'s BC, GB Electrical Inc.'s HIT 110, Kindorf's 500, 510, or Unistrut Corp.'s P1648S, P2398S, P2675, P2676.

2. For 3/8 Inch Hanger Rods: Caddy/Erico Products Inc.'s BC, Kindorf's 231-3/8, 502, or Unistrut Corp.'s P1649AS, P2401S, P2675, P2676.

3. For 1/2 Inch Rods: Appleton Electric Co. BH-500 Series, Kindorf's 500 Series, 231-1/2, OZ/Gedney Co.'s IS-500 Series, or Unistrut Corp.'s P1650AS, P2403S, P2676.

4. For 5/8 Inch Rods: Unistrut Corp.'s P1651AS beam clamp and P1656A Series anchor clip.

5. For 3/4 Inch Rods: Unistrut Corp.'s P1653S beam clamp and P1656A Series anchor clip.

2.07 CHANNEL SUPPORT SYSTEM

A. Channel Material: 12 gage steel.

B. Finishes:

1. Phosphate and baked green enamel/epoxy.
2. Pre-galvanized.
3. Electro-galvanized.
4. Hot dipped galvanized.
5. Polyvinyl chloride (PVC), minimum 15 mils thick.

C. Fittings: Same material and finish as channel.

D. UL Listed Systems:

1. B-Line Systems Inc.'s B-22 (1-5/8 x 1-5/8 inches), B-12 (1-5/8 x 2-7/16 inches), B-11 (1-5/8 x 3-1/4 inches).

2. Grinell Corp.'s Allied Power-Strut PS 200 (1-5/8 x 1-5/8 inches), PS 150 (1-5/8 x 2-7/16 inches), PS 100 (1-5/8 x 3-1/4 inches).

3. Kindorf's B-900 (1-1/2 x 1-1/2 inches), B-901 (1-1/2 x 1-7/8 inches), B-902 (1-1/2 x 3 inches).

4. Unistrut Corp.'s P-3000 (1-3/8 x 1-5/8 inches), P-5500 (1-5/8 x 2-7/16 inches), P-5000 (1-5/8 x 3-1/4 inches).

5. Versabar Corp.'s VA-1 (1-5/8 x 1-5/8 inches), VA-3 (1-5/8 x 2-1/2 inches).

2.08 MISCELLANEOUS FITTINGS

A. Side Beam Brackets: B-Line Systems Inc.'s B102, B103, B371-2, Kindorf's B-915, or Versabar Corp.'s VF-2305, VF-2507.

B. Pipe Straps:

1. Two Hole Steel Conduit Straps: B-Line Systems Inc.'s B-2100 Series, Kindorf's C-144 Series, or Unistrut Corp.'s P-2558 Series.

2. One Hole Malleable Iron Clamps: Kindorf's HS-400 Series, or OZ/ Gedney Co.'s 14-G Series, 15-G Series (EMT).

C. Deck Clamps: Caddy/Erico Products Inc.'s DH-4-T1 Series.

D. Fixture Stud and Strap: OZ/Gedney Co.'s SL-134, or Steel City's FE-431.

E. Supporting Fittings for Pendent Mounted Industrial Type Fluorescent Fixtures on Exposed Conduit System:

1. Ball Hanger: Appleton Electric Co.'s AL Series, or Crouse-Hinds Co.'s AL Series.

2. Flexible Fixture Hanger: Appleton Electric Co.'s UNJ-50, UNJ-75, or Crouse-Hinds Co.'s UNJ115.

3. Flexible (Hook Type) Fixture Hanger: Appleton Electric Co.'s FHHF, or Crouse-Hinds Co.'s UNH-1.

4. Eyelet: Unistrut Corp.'s M2250.

5. Eyelet with Stud: Kindorf's H262, or Unistrut Corp.'s M2350.

6. Conduit Hook: Appleton Electric Co.'s FHSN, or Crouse-Hinds Co.'s UNH-13.

F. Supporting Fasteners (Metal Stud Construction): Metal stud supports, clips and accessories as produced by Caddy/Erico Products Inc.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Where specific fasteners are not specified or indicated for securing items to in-place construction, provide appropriate type, size, and number of fasteners for a secure, rigid installation.

B. Install anchoring devices and other fasteners in accordance with manufacturer's printed instructions.

C. Make attachments to structural steel wherever possible.

3.02 FASTENER SCHEDULE

A. Material:

1. Use cadmium or zinc coated anchors and fasteners in dry locations.

2. Use hot dipped galvanized or stainless steel anchors and fasteners in damp and wet locations.

3. For corrosive atmospheres or other extreme environmental conditions, use fasteners made of materials suitable for the conditions.

B. Types and Use: Unless otherwise specified or indicated use:

1. Cast-in-place concrete inserts in fresh concrete construction for direct pull-out loads such as shelf angles or fabricated metal items and supports attached to concrete slab ceilings.

2. Anchoring devices to fasten items to solid masonry and concrete when the anchor is not subjected to pull out loads, or vibration in shear loads.

3. Toggle bolts to fasten items to hollow masonry and stud partitions.

4. TPR fasteners to fasten items to plywood backed gypsum board ceilings.

5. Metallic fasteners installed with electrically operated or powder driven tools for approved applications, except:

a. Do not use powder driven drive pins or expansion nails.
b. Do not attach powder driven or welded studs to structural steel less than 3/16 inch thick.
c. Do not support a load, in excess of 250 lbs from any single welded or powder driven stud.
d. Do not use powder driven fasteners in precast concrete.

3.03 ATTACHMENT SCHEDULE

A. General: Make attachments to structural steel or steel bar joists wherever possible. Provide intermediate structural steel members where required by support spacing. Select steel members for use as intermediate supports based on a minimum safety factor of 5.

1. Make attachments to steel bar joists at panel points of joists.

2. Do not drill holes in main structural steel members.
3. Use “C” beam clamps for attachment to steel beams.

B. Where it is not possible to make attachments to structural steel or steel bar joists, use the following methods of attachment to suit type of construction unless otherwise specified or indicated on the drawings:

1. Attachment to Steel Roof Decking (No Concrete Fill):

    a. Decking With Hanger Tabs: Use deck clamps.
    b. Decking Without Hanger Tabs:

        1) Before Roofing Has Been Applied: Use 3/8 inch threaded steel rod welded to a 4 x 4 x 1/4 inch steel plate and installed through 1/2 inch hole in roof deck.
        2) After Roofing Has Been Applied: Use welding studs, or self-drilling/tapping fasteners. Exercise extreme care when installing fasteners to avoid damage to roofing.

2. Attachment to Concrete Filled Steel Decks (Total thickness, 2-1/2 inches or more):

    a. Before Fill Has Been Placed:

        1) Use thru-bolts and fish plates.
        2) Use welded studs. Do not support a load in excess of 250 pounds from a single welded stud.

    b. After Fill Has Been Placed: Use welded studs. Do not support a load in excess of 250 lbs. from a single welded stud.

3. Attachment to Cast-In-Place Concrete:

    a. Fresh Concrete: Use cast-in-place concrete inserts.
    b. Existing Concrete: Use anchoring devices.

4. Attachment to Cored Precast Concrete Decks:

    a. New Construction: Use thru-bolts and fish plates before Construction Work Contractor has placed concrete fill over decks.

5. Attachment to Waffle Type Concrete Decks:

    a. New Construction:

        1) Use cast-in-place concrete inserts in fresh concrete.

    b. If concrete fill has been applied over deck, thru-bolts and fish plates may be used where additional concrete or roofing is to be placed over the deck.

6. Attachment to Precast Concrete Planks: Use anchoring devices, except do not make attachments to precast concrete planks less than 2-3/4 inches thick.

7. Attachment to Precast Concrete Tee Construction:

    a. New Construction:

        1) Use tee hanger inserts between adjacent flanges.
        2) Use thru-bolts and fish plates, except at roof deck without concrete fill.

b. Existing Construction:

1) Use anchoring devices installed in webs of tees. Install anchoring devices as high as possible in the webs.

c. Do not use powder driven fasteners.
d. Exercise extreme care in drilling holes to avoid damage to reinforcement.

8. Attachment to Wood Construction: Use side beam brackets fastened to the sides of wood members to make attachments for hangers.

a. Under 15 lbs Load: Attach side beam brackets to wood members with 2 No. 18 x 1-1/2 inch long wood screws, or 2 No. 16 x 1-1/2 inch long drive screws.
b. Over 15 lbs Load: Attach side beam brackets to wood members with bolts and nuts or lag bolts. Do not use lag bolts in wooden members having a nominal thickness (beam face) under 2 inches in size. Install bolts and nuts or lag bolts in the side of wood members at the mid-point or slightly above. Install plain washers under all nuts.

LOAD	LAG BOLT SIZE	BOLT DIAMETER
15 lbs to 30 lbs	3/8 x 1-3/4 inches	3/8 inch
31 lbs to 50 lbs	1/2 x 2 inches	1/2 inch
Over 50 lbs to load limit of structure.	Use bolt & nut.	5/8 inch

c. Do not make attachments to the diagonal or vertical members of wood trusses.
d. Do not make attachments to the nailing strips on top of steel beams.

9. Attachment to Metal Stud Construction: Use supporting fasteners manufactured specifically for the attachment of raceways and boxes to metal stud construction.

a. Support and attach outlet boxes so that they cannot torque/twist. Either:

1) Use bar hanger assembly, or:
2) In addition to attachment to the stud, also provide far side box support.

3.04 CONDUIT SUPPORT SCHEDULE

A. Provide number of supports as required by National Electrical Code. Exception: Maximum support spacing allowed is 4'-0" for conduit sizes 3 inches and larger supported from wood trusses.

B. Use pipe straps and specified method of attachment where conduit is installed proximate to surface of wood or masonry construction.

1. Use hangers secured to surface with specified method of attachment where conduit is suspended from the surface.

C. Use "C" beam clamps and hangers where conduit is supported from steel beams.

D. Use deck clamps and hangers where conduit is supported from steel decking having hanger tabs.

1. Where conduit is supported from steel decking that does not have hanger tabs, use clamps and hangers secured to decking, utilizing specified method of attachment.

E. Use channel support system supported from structural steel for multiple parallel conduit runs.

F. Where conduits are installed above ceiling, do not rest conduit directly on runner bars, T-Bars, etc.

1. Conduit Sizes 2-1/2 Inches and Smaller: Support conduit from ceiling supports or from construction above ceiling.

2. Conduit Sizes Over 2-1/2 Inches: Support conduit from beams, joists, or trusses above ceiling.

3.05 LIGHTING FIXTURE SUPPORT SCHEDULE

A. General: Do not solely support fixtures from ceilings or ceiling supports unless it is specified or indicated on the drawings to do so Using one of the methods described below:

1. Support fixtures to structure using 12 Ga. Aircraft Cable. Wires need not be taught to allow for servicing for the fixture.

2. Support fixtures with hanger rods attached to beams, joists, or trusses. Hanger rod diameter, largest standard size that will fit in mounting holes of fixture.

   a. Where approved, channel supports may span and rest upon the lower chord of trusses and be utilized for the support of lighting fixtures.
   b. Where approved, channel supports may span and be attached to the underside of beams, joists, or trusses and be utilized for the support of lighting fixtures.

3. Use 2 nuts and 2 washers on lower end of each hanger rod to hold and adjust fixture (one nut and washer above top of fixture housing, one nut and washer below top of fixture housing).

   a. Where specified that an adequately supported outlet box is to support a fixture or be utilized as one point of support, support the box so that it may be adjusted to bring the face of the outlet box even with surface of ceiling.

4. Provide additional supports when recommended by the manufacturer.

B. Number of Supports For Ceiling Mounted Lighting Fixtures: Provide at least the following number of supports. Provide additional supports when recommended by fixture manufacturer or shown on the drawings.

1. Commercial and Industrial LED / Fluorescent Fixtures:

   a. Support individual fixtures less than or equal to 2 feet wide X 4’ long nominal at 2 points. In addition, lay in fixtures installed in suspended ceilings shall be secured to the grid using manufacturer’s recommended fixture securing clips.
   b. Support individual fixtures wider than 2 feet at 4 corners.
   c. Support continuous row fixtures less than 2 feet wide at points equal to the number of fixtures plus one. Uniformly distribute the points of support over the row of fixtures.
   d. Support continuous row fixtures 2 feet or wider at points equal to twice the number of fixtures plus 2. Uniformly distribute the points of support over the row of fixtures.
   e. An adequately supported outlet box may be utilized as one point of support for fixtures weighing less than 50 pounds.

3.06 SPECIAL AREA CEILING MOUNTED EQUIPMENT

A. Provide safety tethers in addition to the standard mounting means for:

1. Lighting fixtures, ceiling speakers, ceiling projectors, etc. installed in Areas of Assembly and/or other high ceiling spaces such as Atriums, Gymnasiums, Natatoriums, Auditoriums, Cafeterias, etc.

2. Theatrical lighting fixtures.

3.07 CHANNEL SUPPORT SYSTEM SCHEDULE

A. Use channel support system where specified or indicated on the drawings.

B. Channel supports may be used, as approved, to accommodate mounting of equipment.

C. Material and Finish:

1. Dry Locations: Use 12 gage steel channel support system having any one of the specified finishes.

2. Damp Locations: Use 12 gage steel channel support system having any one of the specified finishes except green epoxy/enamel.

3. Wet Locations: Use 12 gage steel channel support system having hot dipped galvanized, or PVC finish.

END OF SECTION

DIVISION 26 – ELECTRICAL

SECTION 260532 – RACEWAYS, FITTINGS AND ACCESSORIES

PART 1 – GENERAL

1.01 REFERENCES

A. NFPA, NEMA, ANSI, and UL.

1.02 SUBMITTALS

A. Product Data: Manufacturer's standard catalog sheets, specifications and installation instructions.

1.03 QUALITY ASSURANCE

A. Electrical components, conductors, devices and accessories described herein shall be listed and labeled as defined by NFPA 70 by a Nationally Recognized Testing Laboratory (NRTL), such as Underwriters Laboratories (UL), for the intended use and shall bear its label.

PART 2 - PRODUCTS

2.01 RACEWAYS

A. Rigid Ferrous Metal Conduit (a/ka Galvanized Rigid Conduit (GRC)):

1. Comply with UL 6 and ANSI C80.1.

2. Minimum trade size – 3/4".

3. Provide steel, hot dipped galvanized on the outside and inside, UL categorized as Rigid Ferrous Metal Conduit (identified on UL Listing Mark as Rigid Metal Conduit - Steel or Rigid Steel Conduit), by Allied Tube & Conduit Corp., Republic Conduit, or Wheatland Tube Co or approved equal.

B. Electrical Metallic Tubing (EMT):

1. Comply with UL 797 and ANSI C80.6.

2. Minimum trade size - 3/4".

3. Provide steel, galvanized on the outside and enameled on the inside, UL categorized as Electrical Metallic Tubing (identified on UL Listing Mark as Electrical Metallic Tubing), by Allied Tube & Conduit Corp Republic Conduit, or Wheatland Tube Co. or approved equal.

C. Flexible Metal Conduit (FMC):

1. Comply with UL 1.

2. Galvanized steel strip shaped into interlocking convolutions, UL categorized as Flexible Metal Conduit (identified on UL Listing Mark as Flexible Steel Conduit or Flexible Steel Conduit Type RW), by AFC Cable Systems Inc., Anamet Electrical Inc., Electri-Flex Co., or International Metal Hose Co. or approved equal.

D. Liquid-tight Flexible Metal Conduit (LFMC):

1. Comply with UL 360.

2. UL categorized as liquid-tight flexible metal conduit (identified on UL Listing Mark as Liquid-Tight Flexible Metal Conduit, also specifically marked with temperature and environment application data), by AFC Cable Systems Inc., Anamet Electrical Inc., Electri-Flex Co., or Universal Metal Hose Co. or approved equal.

E. Rigid Nonmetallic PVC Conduit (RNC), Fittings, and Accessories:

1. Comply with Nema TC2 and UL 651.

2. Minimum trade size – 3/4".

3. UL categorized as Rigid Nonmetallic, Schedule 40 and Schedule 80 PVC conduit (identified on UL Listing Mark as Rigid Nonmetallic Conduit Aboveground and Underground Schedule 40; Rigid Nonmetallic Conduit Aboveground and Underground Extra Heavy Wall Schedule 80), by Beck Mfg./Picoma Industries, Cantex Inc., Carlon/Div. Of Lamson and Sessions, Ipex Inc., National Pipe & Plastics Inc., or Queen City Plastics Inc or approved equal.

F. Surface Metal Raceway, Fittings and Accessories:

1. Comply with UL 5. By Thomas & Betts Corp., Mono-Systems Inc. or Wiremold Co.

2. Provide ivory color unless otherwise noted.

3. Provide minimum Wiremold 700 or equal for single power or data drops. Refer to Division 27 for wireway containing power and technology conductors. Follow manufacturer's recommended raceway capacity for all types and sizes of conductors.

2.02 FITTINGS AND ACCESSORIES

A. Insulated Bushings:

1. Threaded, malleable iron/zinc electroplate with 105 degrees C minimum plastic insulated throat; Appleton Electric Co.'s BU50I Series, Cooper/Crouse-Hinds' 1031 Series, OZ/Gedney Co.'s IBC-50 Series, Raco Inc.'s 1132 Series, Steel City/T & B Corp.'s BI-901 Series, or Thomas & Betts Corp.'s 1222 Series or approved equal.

2. Threaded malleable iron with 150 degrees C plastic throat; Appleton Electric Co.'s BU501 Series, Cooper/Crouse-Hinds' H1031 Series, or OZ/Gedney Co.'s IBC-50 Series.

B. Plastic Bushings for 3/4 Inch Conduit:

1. 105 degrees C minimum temperature rating; Appleton Electric Co.'s BBU50, BBU75, Blackburn (T & B Corp.'s) 50 BB, 75 BB, Cooper/Crouse-Hinds' 931,932, or OZ/Gedney Co.'s IB-50, IB-75, Raco Inc.'s 1402, 1403, Steel City/T & B Corp.'s BU-501, BU-502, or Thomas & Betts Corp.'s 222, 223 or approved equal.

2. 150 degrees C temperature rating; Appleton Electric Co.'s BBU50H, BBU75H, Cooper/Crouse-Hinds' H-931, H-932, or OZ/Gedney Co.'s A-50, A-75 or approved equal.

C. Insulated Grounding Bushings:

1. Threaded, malleable iron/zinc electroplate with 105 degrees C minimum plastic insulated liner, and ground lug; Appleton Electric Co.'s GIB-50 Series, Cooper/Crouse-Hinds' GLL Series, OZ/Gedney Co.'s IBC-50L Series, Raco Inc.'s 1212 Series, Steel City/T & B Corp.'s BG-801 (1/2 to 2") Series, or Thomas & Betts Corp.'s 3870 or approved equal.

2. Threaded malleable iron/zinc electroplate with 150 degrees C plastic insulated liner, and ground lug; Appleton Electric Co.'s GIB Series, Cooper/Crouse-Hinds' HGLL Series, or OZ/Gedney Co.'s IBC-50L Series, or Thomas & Betts Corp.'s 3870or approved equal.

D. Connectors and Couplings:

1. Locknuts: UL, steel/zinc electroplate; Appleton Electric Co.'s BL-50 Series, Cooper/Crouse-Hinds' 11 Series, OZ/Gedney Co.'s 1-50S Series, Raco Inc.'s 1002 Series, Steel City/T&B Corp.'s LN-101 Series, or Thomas & Betts Corp.'s 141 Series or approved equal.

2. Grounding Wedge: Thomas & Betts Corp.'s 3650 Series or approved equal.

3. Couplings For Rigid Metal and IMC Conduit: Standard galvanized threaded couplings as furnished by conduit manufacturer, Allied Tube & Conduit Corp.'s Kwik-Couple, or Thomas & Betts Corp.'s Shamrock.

4. Three Piece Conduit Coupling For Rigid Metal and IMC Conduit: Steel, malleable iron, zinc electroplate; Allied Tube & Conduit Corp.'s Kwik-Couple, Appleton Electric Co.'s EC-50 Series, Cooper/Crouse-Hinds' 190M Series, OZ/Gedney Co.'s 4-50 Series, Raco Inc.'s 1502 Series, Steel City/T & B Corp.s EK-401 Series, or Thomas & Betts Corp.'s 675 Series.

5. Electrical Metallic Tubing Couplings and Insulated Connectors: Set screw type fittings are not permitted. Provide Compression type, steel/zinc electroplate; Appleton Electric Co.'s TW-50CS1, TWC-50CS Series, Cooper/Crouse-Hinds' 1650, 660S Series, Raco Inc.'s 2912, 2922 Series, Steel City/T & B Corp.'s TC-711 Series, or Thomas & Betts Corp.'s 5120, 5123 Series or approved equal.

6. Flexible Metal Conduit Connectors: Arlington Industries Inc.'s Saddle-Grip, OZ/Gedney Co.'s C-8T, 24-34T, ACV-50T Series, or Thomas & Betts Corp.'s Nylon Insulated Tite-Bite Series or approved equal.

7. Liquid-tight Flexible Metal Conduit Connectors: Steel, malleable iron, zinc electroplate, insulated throat; Appleton Electric Co.'s STB Series, Cooper/Crouse-Hinds' LTB Series, OZ/Gedney Co.'s 4Q-50T Series, Raco Inc.'s 3512 Series, Steel City/T & B Corp.'s LT-701 Series, or Thomas & Betts Corp.'s 5332 Series or approved equal.

E. Conduit Bodies (Threaded):

1. Malleable Iron/Zinc Electroplate: Zinc electroplate malleable iron or cast iron alloy bodies with zinc electroplate steel covers; Appleton Electric Co.'s Unilets, Cooper/Crouse-Hinds' Condulets, OZ/Gedney Co.'s Conduit Bodies, or Thomas & Betts Corp.'s Conduit Bodies. Or approved equal.

F. Expansion Fittings:

1. Malleable Iron, Zinc Electroplate Finish: Appleton Electric Co.'s XJ or OZ/Gedney Co.'s AX (TX for EMT), with external bonding jumper or approved equal.

2. Electrogalvanized Steel: Cooper/Crouse-Hinds' XJG (XJG-EMT for EMT), or Thomas & Betts Corp.'s XJG, with internal grounding or approved equal.

G. Deflection Fittings: Appleton Electric Co.'s DF, Cooper/Crouse-Hinds' XD, or OZ/Gedney Co.'s Type DX or approved equal.

H. Surface Metal Raceways: Use manufacturers approved fittings: couplings, ells, offsets, boxes etc. listed for use with ther raceway system. Match raceway finish.

I. Sealant for Raceways Exposed to Different Temperatures: Sealing compounds and accessories to suit installation; Appleton Electric Co.'s DUC, or Kwiko Sealing Compound with fiber filler, Cooper/Crouse-Hinds' Chico A Sealing Compound with Chico X fiber, Electrical Products Division 3M Scotch products, OZ Gedney Co.'s DUX or EYC sealing compound with EYF damming fiber, or Thomas & Betts Corp.'s Blackburn DX.

J. Vertical Conductor Supports: Kellems/Hubbell Inc.'s Conduit Riser Grips, or OZ/Gedney Co.'s Type M, Type R.

K. Pulling-In-Line For Installation in Spare and Empty Raceways: Polypropylene monofilament utility line; Greenlee Textron Inc.'s Poly Line 430, 431, or Ideal Industries Powr-Fish Pull-Line 31-340 Series.

PART 3 - EXECUTION

3.01 RACEWAY INSTALLATION - GENERAL

A. Install an equipment grounding conductor in all raceways. Raceway shall NOT be relied upon as an equipment ground conductor.

B. For New Work: Number of Raceways: Do not change number of raceways to less than the number indicated on the drawings.

1. Each raceway shall enclose one circuit unless otherwise indicated on the drawings.

C. For Rehab work. Number of Raceways: Do not change number of raceways to less than the number indicated on the drawings except when appropriate for advantageous reuse of existing exposed and concealed raceways (the contract documents do not indicate location, number, size or condition of existing raceways). Existing raceways may be reused if the following conditions are met:

1. The existing raceway must be of adequate size for the new conductors to be installed as per NFPA 70 Chapter 9, Tables 1, 4, & 5; Annex C, Tables C1-C12a. More circuits may be enclosed by existing raceways than the circuiting shown on the drawings provided conductor sizes are increased to compensate for derating (adjustment factors) and other considerations required by NFPA 70 Article 310-15.

2. Remove existing conductors.

3. Demonstrate to the Owner's Representative that the existing raceway is clear of obstructions and in good condition.

4. Check ground continuity. When ground continuity of existing raceway is inadequate install insulated grounding bushings, grounding wedges, bonding straps, grounding jumpers or equipment grounding conductors to establish effective path to ground.

5. Install insulated bushings to replace damaged or missing bushings. Replace non-insulated bushings with insulated bushings on raceway sizes 1 inch and larger.

6. Install vertical conductor supports to replace existing or missing vertical conductor supports.

7. Install extension rings on existing boxes when the number of new conductors installed therein exceeds NFPA 70 requirements.
8. Furnish the Owner's Representative with marked up drawings showing size and routing of existing raceways with number and size of new conductors installed therein. The drawings will be forwarded to the design engineer for verification of NFPA 70 compliance.

D. Raceways for Future Use (Spare Raceways and Empty Raceways): Draw fish tape through raceways in the presence of the Director's Representative to show that the raceway is clear of obstructions.

1. Leave a pulling-in line in each spare and empty raceway.

E. Conduit Installed Concealed:

1. Install conduit concealed unless otherwise indicated on the drawings.

2. Existing Construction:

a. Run conduit in existing chases and hung ceilings.
b. If conduit cannot be installed concealed due to conditions encountered in the building, report such conditions and await approval in writing before proceeding.

3. New Construction:

a. Run conduit in the ceilings, walls, and partitions.
b. Conduit may not be installed in concrete floor slab unless otherwise indicated on the plans. (concrete slabs that are both ceilings and floors shall be treated as floor slabs).
c. Where indicated on the drawings, install conduit in concrete slabs, under slabs on grade, or under slabs above finished ceilings where indicated on the drawings. Concrete slabs that are both ceilings and floors shall be treated as floor slabs.

1) Conduit in Slab: Run 3/4-inch conduit in the slab where placement of reinforcement and slab thickness is sufficient to allow 1-1/2 inches of concrete cover over conduit, otherwise run conduit under slab. Run conduit one inch and larger in the slab in the specific location(s) where it is indicated on the drawing to be run in the slab, otherwise run conduit under slab.

a) Run conduit under reinforcement where reinforcement is in upper portion or middle of slab.
b) Run conduit over reinforcement where reinforcement is in lower portion of slab.
c) Run conduit between reinforcement where reinforcement is in upper and lower portions of slab.
d) Separate parallel conduits minimum of 2 inches so that each conduit will be enveloped in concrete.
e) Pass conduit over steel beams, if any, parallel with the reinforcement.
f) Tie down conduit to avoid movement during placement of concrete.
g) Demonstrate to the Owner's Representative that conduit has been placed to allow minimum of 1-1/2 inches of concrete cover.

2) Conduit Under Slab on Grade:

a) Run conduit under vapor barrier, if any.
b) Install equipment grounding conductor in each conduit. Bond at boxes and equipment to which conduit is connected.

3) Conduit Under Slab, Above Finished Ceiling:

a) Attach conduit to bottom of slab or structure supporting the slab.
b) Firestop through-penetrations of the slab.

4. If any portions of the conduit system cannot be installed concealed due to conditions encountered in the building, report such conditions and await approval in writing before proceeding.

F. Conduits Penetrating Concrete Floor Slabs (Concrete slabs that are both ceilings and floors shall be treated as floor slabs):

1. Provide a minimum of 2 inches between conduits that vertically penetrate elevated concrete slabs.

2. Provide firestopping and spray on fireproofing at locations where conduits penetrate surface of floor slab and slab is part of fire rating required for construction.

G. Conduit Installed Exposed:

1. Install conduit exposed where indicated on the drawings.

2. Install surface metal raceway on existing block wall construction in finished areas.

3. Install conduit tight to the surface of the building construction unless otherwise indicated or directed.

4. Install vertical runs perpendicular to the floor.

5. Install runs on the ceiling perpendicular or parallel to the walls.

6. Install horizontal runs parallel to the floor.

7. Do not run conduits near heating pipes.

8. Installation of conduit directly on the floor will not be permitted.

9. Exposed conduits installed in finished area shall be painted by the Electrical Contractor to match surrounding areas. Exception – where general painting will be provided by other trades.

H. Conduit Size: **Not smaller than 3/4-inch electrical trade size**. Where type FEP, THHN, THWN, THWN-2, XHH, XHHW, or XHHW-2 conductors are specified for use under Section 260519, the minimum allowable conduit size for new Work shall be based on Type THW conductors.

I. Conduit Bends: For 3/4-inch conduits, bends may be made with manual benders. For all conduit sizes larger than 3/4 inch, manufactured or field fabricated offsets or bends may be used. Make field fabricated offsets or bends with an approved hydraulic bender.

3.02 RACEWAY INSTALLATION - SPECIAL AREAS

A. Raceways Exposed to Different Temperatures: Where portions of an interior raceway system are exposed to widely different temperatures, seal interior and exterior of raceway to prevent circulation of air from a warmer to a colder section through the raceway installation.

1. Refrigerated Rooms: Install conduit body or junction box in the raceway system on warm side of refrigerated room. After conductors are installed, seal interior of the raceway at the conduit body or junction box.

2. Heated Areas to Unheated Areas: After conductors are installed, seal interior of the raceway at the nearest conduit body, outlet or junction box in the heated area adjoining the unheated area.

B. Conduit for Prefabricated Walk-In Refrigeration Boxes:

1. Install box wiring in conduit. Run conduit exposed on exterior of box unless project conditions require conduit to be run exposed on interior of box.

   a. Install rigid ferrous metal conduit and galvanized fittings where the metal surfaces are galvanized steel.

2. Create a thermal break where penetrating the box by installing maximum of 12 inches of Schedule 40 high density polyethylene conduit within the conduit run at the penetration. Seal the penetration.

3. Install equipment grounding conductor in each conduit.

4. Seal raceway as specified for raceways exposed to different temperatures.

C. Conduits in Heating Tunnels: Install rigid ferrous metal conduit exposed in the tunnel and run conduit to avoid manhole entrances and other obstructions. Install equipment grounding conductor in each conduit.

D. Conduit in Waterproofed Floors: Install conduit runs in waterproof floors to avoid penetrating the waterproofing. Avoid penetration of waterproofing with conduit risers so far as practicable.

1. Where it is necessary to puncture the waterproofing for a conduit riser, install a standard weight steel pipe sleeve extending one inch above the finished floor level. Flash the steel pipe sleeve to the waterproofing with 16-ounce copper. Construct the flashing with a copper tube extending the full height of the sleeve, soldered to a copper base extending 6 inches in all directions from the sleeve.

2. The flashing will be integrated into the waterproofing by the Construction Contractor. Provide solid cast brass floor plates with chromium finish where pipe sleeves are exposed in rooms.

3.03 RACEWAY SCHEDULE

A. Rigid Ferrous Metal Conduit: Install in all locations unless otherwise specified or indicated on the drawings.

B. Electrical Metallic Tubing:

1. May be installed concealed as feeder or branch circuit conduits above suspended ceilings where conduit does not support fixtures or other equipment.

2. May be installed concealed as feeder or branch circuit conduits in hollow areas in dry locations, including:

   a. Hollow concrete masonry units, except where cores are to be filled.
   b. Drywall construction with sheet metal studs, except where studs are less than 3-1/2 inches deep.

3. May be installed exposed as feeder or branch circuit conduits in dry, unfinished, non-hazardous locations.

C. Flexible Metal Conduit: Install equipment grounding conductor in the flexible metal conduit and bond at each box or equipment to which conduit is connected:

1. Use for final conduit connection to recessed lighting fixtures in suspended ceilings. Use 4 to 6 feet of flexible metal conduit, minimum size 1/2 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. Emergency lighting units.
   b. Dry type transformers.
   c. Motors with open, drip-proof or splash-proof housings.
   d. Equipment subject to vibration (dry locations).
   e. Equipment requiring flexible connection for adjustment or alignment (dry locations).

3. Use for concealed branch circuit conduits above existing non-removable suspended ceilings where rigid type raceways cannot be installed due to inaccessibility of space above ceiling.

4. May be installed concealed as branch circuit conduits in drywall construction with sheet metal studs, except where studs are less than 3-1/2 inches deep.

D. Liquid-tight Flexible Metal Conduit: Install equipment grounding conductor in liquid-tight flexible metal conduit and bond at each box or equipment to which conduit is connected:

1. Use 1 to 3 feet of liquid-tight flexible metal conduit (UL listed and marked suitable for the installation's temperature and environmental conditions) 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).

E. Rigid Nonmetallic PVC Conduit:

1. Schedule 40 or Schedule 80 as indicated on the drawings.

   a. Use for protection of primary feeders within transformer vaults.
   b. Use for exterior branch circuits or feeders.
   c. Use underground or under slab feeders or branch circuits.

F. Surface Metal Raceway: Use as exposed raceway system in finished spaces with existing CM U or concrete construction or at locations indicated on the drawings.

1. Use surface metal raceway system of size required for number of wires to be installed therein. Use specific size when indicated on the drawings.

2. Do not run raceway through walls that have a plaster finish nor through masonry walls or floors. Install a pipe sleeve, or a short length of conduit with junction boxes or adapter fittings for raceway runs through such areas. Run raceway along top of baseboards, care being taken to avoid telephone and other signal wiring. Where raceway crosses chair railing or picture molding, cut the chair railing or picture molding to permit the raceway to lie flat against the wall.

Run raceway around door frames and other openings. Run raceway on ceiling or walls perpendicular to or parallel with walls and floors.

3. Secure raceway at intervals not exceeding 36 inches.

4. Install separate equipment grounding conductor for grounding of equipment. The raceway alone will not be considered suitable for use as an effective path to ground.

5. Outlet box covers for pendant mounted fluorescent fixtures may be omitted if the fixture canopy is notched to receive the raceway and the canopy fits snugly against the ceiling.

6. Where equipment is mounted on an outlet box and the equipment base is larger than the outlet box, provide finishing collar around equipment base and outlet box or provide finishing collar/outlet box:

   a. Finishing Collar: Same finish and peripheral dimensions as the equipment base, including provisions for mounting, slots to fit over raceway and of depth to cover outlet box and extend back to ceiling or wall.
   b. Combination Finishing Collar/Outlet Box: Same finish and peripheral dimensions as the equipment base to be mounted thereon, gage or thickness of metal as required by NFPA 70, including provision for mounting and knockouts for entrance of raceway.

G. Wireways: May be used indoors in dry locations for exposed raceway between grouped, wall mounted equipment.

3.04 FITTINGS AND ACCESSORIES SCHEDULE

A. General:

1. Use fittings and accessories that have a temperature rating equal to, or higher than the temperature rating of the conductors to be installed within the raceway.

2. Use zinc electroplate or hot dipped galvanized steel/malleable iron or cast iron alloy fittings and accessories in conjunction with ferrous raceways in dry and damp locations unless otherwise specified or indicated on the drawings.

3. Use insulated grounding bushings or grounding wedges on ends of conduit for terminating and bonding equipment grounding conductors, when required, if cabinet or boxes are not equipped with grounding/bonding screws or lugs.

4. Use caps or plugs to seal ends of conduits until wiring is installed to exclude foreign material.

5. Use insulated grounding bushings on the ends of conduits that are not directly connected to the enclosure, such as stub-ups under equipment, etc., and bond between bushings and enclosure with equipment grounding conductor.

6. Use expansion fittings where raceways cross expansion joints (exposed, concealed, buried).

7. Use deflection fittings where raceways cross expansion joints that move in more than one plane.

8. Use 2 locknuts and an insulated bushing on end of each conduit entering sheet metal cabinet or box in dry or damp locations.

   a. Plastic bushing may be used on 3/4 inch conduit in lieu of insulated bushing.
   b. Terminate conduit ends within cabinet/box at the same level.

B. For Rigid Metal Conduit: Use threaded fittings and accessories. Use 3 piece conduit coupling where neither piece of conduit can be rotated.

C. For Electrical Metallic Tubing: Use compression type connectors and couplings.
D. For Flexible Metal Conduit: Use flexible metal conduit connectors.

E. For Liquid-tight Flexible Metal Conduit: Use liquid-tight connectors.

F. For Rigid Nonmetallic PVC Conduit:

1. Use conduit manufacturer's standard fittings and accessories.

2. Provide expansion fittings for exterior conduits as required by NFPA 70.

G. For Surface Metal Raceway: Use raceway manufacturer's standard fittings and accessories. Match raceway finish color.

H. For Wireways: Use wireway manufacturer's standard fittings and accessories.

END OF SECTION

DIVISION 26 – ELECTRICAL

SECTION 260534 – OUTLET JUNCTION AND PULL BOXES

PART 1 – GENERAL

1.01 REFERENCES

A. NEMA, and UL.

1.02 SUBMITTALS

A. Product Data: Manufacturer's standard catalog sheets, specifications and installation instructions.

1.03 QUALITY ASSURANCE

A. Electrical components, conductors, devices and accessories described herein shall be listed and labeled as defined by NFPA 70 by a Nationally Recognized Testing Laboratory (NRTL), such as Underwriters Laboratories (UL), for the intended use and shall bear its label.

PART 2 - PRODUCTS

2.01 GALVANIZED STEEL OUTLET BOXES

A. Provide standard galvanized steel boxes and device covers in compliance with NEMA OS1 And UL 514A by Appleton Electric Co., Beck Mfg./Picoma Industries, Cooper/Crouse-Hinds, Raco/Div. of Hubbell, or Steel City/T & B Corp or approved equal.

2.02 GALVANIZED STEEL JUNCTION AND PULL BOXES

A. Provide code gage, galvanized steel screw cover boxes in compliance with NEMA OS1 by Delta Metal Products Inc., Hoffman Enclosures Inc., Hubbell Wiegmann, Lee Products Co., or Rittal/Electromate or approved equal.

2.03 THREADED TYPE BOXES

A. Outlet Boxes:

1. For Dry, Damp Locations: Provide zinc electroplate malleable iron or cast iron alloy boxes by Appleton Electric Co., Cooper/Crouse-Hinds Co., or OZ/ Gedney Co.,or approved equal, with zinc electroplate steel covers to suit application.

2. For Wet Locations: Provide malleable iron or cast iron alloy boxes with hot dipped galvanized or other specified corrosion resistant finish in compliance with NEMA FB1 as produced by Cooper/Crouse-Hinds (hot dipped galvanized or Corro-free epoxy powder coat), or OZ/Gedney Co. (hot dipped galvanized), with stainless steel cover screws, and malleable iron covers gasketed to suit application.

B. Junction And Pull Boxes:

1. For Dry, Damp Locations: Provide zinc electroplate cast iron boxes by Appleton Electric Co., Cooper/Crouse-Hinds, or OZ/Gedney Co., or approved equal with zinc electroplate steel or cast iron cover.

2. For Wet Locations: Provide cast iron boxes in compliance with NEMA FB1 and UL 1773 by Cooper/Crouse-Hinds' (hot dipped galvanized or Corro-free epoxy powder coat), or OZ/Gedney Co. (hot dipped galvanized), or approved equal, with stainless steel cover screws and cast iron cover gasketed to suit application.

C. Conduit Bodies, Threaded (Provided with a Volume Marking):

1. For Dry, Damp Location: Provide zinc electroplate malleable iron or cast iron alloy bodies with zinc electroplate steel covers; Appleton Electric Co.'s Unilets, Cooper/Crouse-Hinds' Condulets, or OZ/Gedney Co.'s Conduit Bodies or approved equal.

2. For Wet Locations: Provide malleable iron or cast-iron alloy bodies with hot dipped galvanized or other specified corrosion resistant finish; Cooper/Crouse-Hinds' Condulets (hot dipped galvanized or Corro-free epoxy power coat), or OZ/Gedney Co.'s Conduit Bodies (hot dipped galvanized) or approved equal, with stainless steel cover screws and malleable iron covers gasketed to suit application.

2.04 CORROSION RESISTANT BOXES

A. Plastic Coated Outlet and Junction Boxes: Provide threaded type malleable iron boxes coated with 40 mils thick polyvinylchloride coating; Ocal/T&B Corp.'s Ocal-Blue System, PCD Inc.'s KorKap, KorKap XL, or Robroy Industries' Plastibond or Perma-Cote System or approved equal.

B. Non-Metallic Junction and Pullboxes: Glass fiber reinforced polyester; Carlon/Div. of Lamon and Sessions' Himeline Series, Cooper/Crouse-Hinds' Krydon Products, or Robroy Industries' Stahlin Enclosures or approved equal.

2.05 SPECIFIC PURPOSE OUTLET BOXES

A. As fabricated by manufacturers for mounting their equipment.

2.06 FINISHING COLLAR OR COMBINATION FINISHING COLLAR/OUTLET BOX (SURFACE MOUNTED EQUIPMENT USED WITH EXPOSED RACEWAY)

A. Finishing Collar: Same finish and peripheral dimensions as the equipment base, including provisions for mounting, slots to fit over raceway and of depth to cover outlet box and extend back to ceiling or wall.

B. Combination Finishing Collar/Outlet Box: Same finish and peripheral dimensions as the equipment base, gage or thickness of metal as required by National Electrical Code, including provisions for mounting, and knockouts or threaded bosses for entrance of raceway.

2.07 FLOOR OUTLETS

A. For combination power and technology floor boxes and outlets – refer to Division 27.

B. Floor Outlet for Cast-In-Place Concrete Construction; Hubbell's Floor Boxes, Raco Inc.'s Tilt Top, or Steel City/T & B Corp.'s Floor Boxes:

1. Concrete tight galvanized steel boxes (for installation above grade).

2. Watertight cast iron boxes (for installation on or below grade).

3. Fully adjustable top (including 10-degree angular adjustment) before and after installation.

4. Service Fittings:

a. Above Floor: Aluminum, doghouse style, to suit power, service.
b. Flush Floor: Flush round cover with hinged lid (and carpet flanges for carpeted areas) to suit power service, finish to match hardware in area where installed.

2.08 OUTLET BOXES AND RELATED PRODUCTS FOR FIRE RATED CONSTRUCTION

A. For combination power and technology floor boxes and outlets – refer to Division 27.

B. Parameters For Use of Listed Metallic Outlet or Switch Boxes: UL Electrical Construction Equipment Directory - Metallic Outlet Boxes (QCIT).

C. Wall Opening Protective Materials: As listed in UL Fire Resistance Directory - Wall Opening Protective Materials (CLIV), or UL Electrical Construction Equipment Directory - Wall Opening Protective Materials (QCSN).

D. Floor Outlet Boxes:

1. Poke-Through System: As listed in UL Fire Resistance Directory - Outlet Boxes and Fittings Classified for Fire Resistance (CEYY), or UL Electrical Construction Equipment Directory - Outlet Boxes and Fittings Classified for Fire Resistance (QBWY).

2. Service Fittings:

a. Above Floor: Aluminum, doghouse style, to suit power service.
b. Flush Floor: Metallic flush round cover with hinged lid (and carpet flanges for carpeted areas) to suit power service, finish to match hardware in area where more installed.

PART 3 - EXECUTION

3.01 GENERAL

A. Provide all boxes required to complete the raceway system, regardless of whether indicated or not on the drawings.

B. Provide boxes in sizes as required by Code.

C. Provide dividers in boxes where difference in insulation rating exceeds 300V.

3.02 PREPARATION

A. Before proceeding with the installation of junction and pull boxes, check the locations with the Owner’s Representative and have same approved.

3.03 INSTALLATION

A. Mounting Position of Wall Outlets for Wiring Devices: Unless otherwise indicated, install boxes so that the long axis of each wiring device will be vertical.

B. Height of Wall Outlets: Unless otherwise indicated, locate outlet boxes with their center lines at the following elevations above finished floor:

Lighting Fixtures	6’-0”
Lighting Fixtures in Stairway	7’-6”

Exit Lights	8’-0” where ceiling height allows a minimum of 6 inch clearance between ceiling and top of exit light. Otherwise mount exit light so that it’s top is 6 inches below finished ceiling. Adjust height and clearances as required to suit installation over doors.
Night Lights	2’-0”
Hose Cabinet Lights	1’-0” above top of cabinet
Switches	4’-0”
Single & Duplex Receptacles	1’-6”*
Water Cooler Receptacles	2’-0”
Clock Receptacles	7’-6”
Range Receptacle	1’-6”
Special Purpose Receptacles	4’-0”
Thermostats	5’-0”
Manual Fire Alarm Boxes	4’-0”
Audible Notification Appliances	8’-0” where ceiling height allows a minimum of 6 inch clearance between ceiling and top of appliance. Otherwise mount appliance so that it’s top is 6 inches below finished ceiling.
Visible Notification Appliances	Install outlet so that the bottom of the visible lens will be 6’-8” AFF.
Combination Audible/Visible Notification Appliances	Install outlet so that the bottom of the visual lens will be 6’-8” AFF, and the audible section will be above the visible section.
Radio	2’-0”
Television	2’-0”
Telecommunications	2’-0”
Telephone	2’-0”
Wall Handset Telephone.	Install outlet so that the highest operable part of the wall mounted telephone will not be more than 4’-0” AFF.

*In areas containing heating convectors, install outlets above convectors at height indicated on drawings.

C. Supplementary Junction and Pull Boxes: In addition to junction and pull boxes indicated on the drawings and required by NFPA 70, provide supplementary junction and pull boxes as follows:

1. When required to facilitate installation of wiring.
2. At every third 90 degree turn in conjunction with raceway sizes over 1 inch.
3. At intervals not exceeding 100 feet in conjunction with raceway sizes over 1 inch.

3.04 OUTLET, JUNCTION, AND PULL BOX SCHEDULE

A. Boxes For Concealed Conduit System:

1. Non-Fire Rated Construction:

a. Depth: To suit job conditions and comply with NFPA 70 Article 370.
b. For Lighting Fixtures: Use galvanized steel outlet boxes designed for the purpose.

1) For Fixtures Weighing 50 lbs. or Less: Box marked “FOR FIXTURE SUPPORT”.
2) For Fixtures More Than 50 lbs: Box listed and marked with the weight of the fixture to be supported (or support fixture independent of the box).

c. For Ceiling Suspended Fans:

1) For Fans Weighing 35 lbs or Less: Marked “Acceptable for Fan Support.”
2) For Fans Weighing More Than 35 lbs, up to 70 lbs: Marked “Acceptable for Fan Support up to 70 lbs (or support fan independent of the box).”

d. For Junction and Pull Boxes: Use galvanized steel boxes with flush covers.
e. For Switches, Receptacles, Etc:

1) Plaster or Cast-In-Place Concrete Walls: Use 4 inch or 4-11/16 inch galvanized steel boxes with device covers.
2) Walls Other Than Plaster or Cast-In-Place Concrete: Use type of galvanized steel box which will allow wall plate to cover the opening made for the installation of the box.

2. Recessed Boxes in Fire Rated (2 hour maximum) Bearing and Nonbearing Wood or Steel Stud Walls (Gypsum Wallboard Facings):

a. Use listed single and double gang metallic outlet and switch boxes. The surface area of individual outlet or switch boxes shall not exceed 16 square inches.
b. The aggregate surface area of the boxes shall not exceed 100 square inches per 100 square feet of wall surface.
c. Securely fasten boxes to the studs. Verify that the opening in the wallboard facing is cut so that the clearance between the box and the wallboard does not exceed 1/8 inch.
d. Separate boxes located on opposite sides of walls or partitions by a minimum horizontal distance of 24 inches. This minimum separation distance may be reduced when wall opening protective materials are installed according to the requirements of their classification.
e. Use wall opening protective material in conjunction with boxes installed on opposite sides of walls or partitions of staggered stud construction in accordance with the classification requirements for the protective material.

3. Other Fire Rated Construction: Use materials and methods to comply with the listing requirements for the classified construction.

B. Boxes For Exposed Conduit System:

1. Dry and Damp Locations: Use zinc electroplate or hot dipped galvanized threaded type malleable iron or cast-iron alloy outlet, junction, and pull boxes or conduit bodies provided with a volume marking in conjunction with ferrous raceways unless otherwise specified or indicated on the drawings.

a. Galvanized steel boxes may be used in conjunction with conduit sizes over 1 inch in non-hazardous dry and damp locations.
b. Galvanized steel boxes may be used in conjunction with electrical metallic tubing where it is allowed (specified) to be installed exposed as branch circuit conduits at elevations over 10’-0” above finished floor.

2. Wet Locations: Use threaded type malleable iron or cast iron alloy outlet junction, and pull boxes or conduit bodies (provided with a volume marking) with hot dipped galvanized or other specified corrosion resistant coating in conjunction with ferrous raceways unless otherwise specified or indicated on the drawings.

a. Use corrosion resistant boxes in conjunction with plastic coated rigid ferrous metal conduit.

3. Finishing Collar or Combination Finishing Collar/Outlet Box (Surface Mounted Equipment Used With Exposed Raceway):

a. Use finishing collar where surface mounted equipment is installed on an exposed raceway outlet box and the equipment base is larger than the outlet box.
b. Use combination finishing collar/outlet box where surface mounted equipment is not indicated to be installed on an exposed raceway outlet box, but raceway cannot be run directly into equipment body due to equipment design.

C. Specific Purpose Outlet Boxes: Use to mount equipment when available and suitable for job conditions. Unless otherwise specified, use threaded type boxes with finish as specified for exposed conduit system, manufacturer's standard steel (painted) boxes for surface metal raceway system and galvanized steel for recessed installations.

D. Stencil cover of pull boxes used on systems over 600 V, in white lettering minimum 1/2 inches high, the words "DANGER HIGH VOLTAGE - KEEP OUT".

END OF SECTION

DIVISION 26 – ELECTRICAL

SECTION 260553 – IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. All sections of the project manual are directly applicable to this specification section. Should a conflict arise between specification sections or between specifications and drawings and/or code requirements, the contractor shall notify the Architect/Engineer of the conflict in writing. If direction is not provided prior to the submission of the bid, the contractor shall price the more extensive system.

1.02 SUMMARY

A. Clearly and properly identify the complete electrical system to indicate the loads served or the function of each item of equipment connected under this work.

PART 2 – PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

A. Comply with NFPA 70.

B. Comply with 29 CFR 1910.144 and 29 CFR 1910.145 for danger, caution or safety instruction signs.

C. Comply with ANSI Z535.4 for safety signs and labels.

D. Adhesive-attached labeling materials, including label stocks, laminating adhesives, and inks used by label printers, shall comply with UL 969.

2.02 LABELS

A. Pre-Printed: Permanent material pre-printed with black on white, with adhesive backing. Brady, 3M, or equal.

B. Laminated Plastic: 3-ply laminated plastic, color as indicated, with 1/2-inch high white letters for low voltage. Lamicoid, or equal.

C. Identification Plates: Engraved Phenolic/Lamacoid plastic, 1/16” thick, ASTMD 709 Type 1, black with white letters or white with black letters.

D. Plastic Tape: Black or red with white letters, adhesive backing, field-printed with proper tool. Dymo-tape, or equal.

E. Marker Tape: Clear adhesive-backed tape with black letters, for device plates. Kroy, or equal.

F. Wire Markers: White with black numbers, adhesive-backed tape on dispenser roll. Brady, 3M, or equal.

G. Marker Pen: Black permanent marker suitable for writing on metallic surfaces.

2.03 SIGNS

A. Baked-Enamel Signs:

1. Preprinted aluminum signs punched or drilled for fasteners, with colors, legend, and size required for application.

2. 1/4-inch grommets in corners for mounting.

3. Nominal Size: 7 by 10 inches.

4. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
   a. Carlton Industries, LP
   b. Champion America
   c. Marking Services, Inc.
   d. Approved Equal.

B. Laminated Acrylic or Melamine Plastic Signs:

1. Engraved legend.

2. Thickness:

   a. For signs up to 20 sq. inches, minimum 1/16-inch-.
   b. For signs larger than 20 sq. inches, 1/8 inch thick.
   c. Engraved legend with colors as indicated below by type of service:

      1) Normal Power – Black background with white letters.
      2) Standby Power- Blue background with white letters.
      3) Emergency/Life Safety Power- Red background with white letters.
      4) UPS/Clean Power – Gray background with white letters to read “UPS POWER” or “CLEAN POWER.”

   d. Punched or drilled for mechanical fasteners.
   e. Framed with mitered acrylic molding and arranged for attachment at applicable equipment.

3. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

   a. Brady Corporation
   b. Carlton Industries, LP
   c. Marking Services, Inc.
   d. Approved Equal

2.04 MISCELLANEOUS IDENTIFICATION PRODUCTS

A. Paint: Comply with requirements in painting Sections for paint materials and application requirements. Retain paint system applicable for surface material and location (exterior or interior).

B. Fasteners for Labels and Signs: Self-tapping, #404 stainless-steel screws.

PART 2 – EXECUTION

3.01 GENERAL

A. Prior to applying adhesive identification products, clean and prepare surfaces as recommended by manufacturer of identification product.

B. Verify each item to be identified prior to application. Verify and coordinate all labelling information, colors etc. with the Drawings, Shop Drawings, manufacturer's wiring diagrams and manuals etc. and any special Owner labelling requirements. Labelling shall be consistent throughout Project.

C. Install any labelling prior to installing acoustical ceilings or other concealment.

D. Apply identification devices to surfaces that require finish after completion of finish work.

E. Identification materials and devices shall not interfere with operation and maintenance of equipment.

F. Attach signs and plastic labels that are not self-adhesive type with stainless steel mechanical fasteners appropriate to the location and substrate.

G. Wraparound Marker Labels and Metal Tags shall be secured tight to surface of conductor or cable at a location with high visibility and accessibility.

H. Labeling Instructions:

1. Indoor Equipment: Non-ferrous metal or rigid plastic, stamped, embossed or engraved identification plates shall have white letters on black face or vice versa. Unless otherwise indicated, provide a single line of text with 1/8-inch- high letters on 1-1/2-inch- high label; where multiple lines of text are required, increase height accordingly.

2. Outdoor Equipment: Engraved, laminated acrylic or melamine label.

3. Elevated Components: Increase sizes of labels and letters to those appropriate for viewing from the floor.

4. Labels not using self-adhesive attachment, shall be fastened using appropriate mechanical fasteners that do not change the NEMA or NRTL rating of the enclosure.

3.02 IDENTIFICATION SCHEDULE

A. General

1. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power and Lighting: Baked-enamel warning signs.

   a. Comply with 29 CFR 1910.145.
   b. Identify system voltage with black letters on an orange background.
   c. Apply to exterior of door, cover, or other access.
   d. For equipment with multiple power or control sources, apply to door or cover of equipment, including, but not limited to, the following:

      1) Power-transfer switches.
      2) Controls with external control power connections.

2. Operating Instruction Signs: Install instruction signs to facilitate proper operation and maintenance of electrical systems and items to which they connect. Install instruction signs with approved legend where instructions are needed for system or equipment operation.
3. Emergency Operating Instruction Signs: Install instruction signs with white legend on a red background with minimum 3/8-inch- high letters for emergency instructions at equipment used for power transfer.

B. Low Voltage Switchgear

1. Label each switchgear section with laminated plastic label indicating switchgear name and section per the drawings / shop drawings, ampere rating, voltage. Indicate source from switch switchboard is fed and feeder size on incoming feeder section.

2. Label all protective devices with laminated plastic labels indicating the function or the load served.

3. Provide laminated plastic labels for all bussed spaces indicating the maximum ampere rating or size of future breaker or switch that may be installed in the space reserved.

C. Branch Circuit and Power Distribution Panelboards:

1. Provide laminated plastic labels on panel exterior which indicate panel name per the drawings, voltage, source, from which the panel is fed with laminated plastic labels attached to face trim. Indicate feeder source, feeder wire size, and feeder breaker or fuse size with marker tape or marker pen on the inside of the panel door.

2. For new or modified panelboards, provide typewritten or software generated panel directories, with protective, clear transparent covers, accurately accounting for every breaker installed, including spares. Schedules shall use the actual loads and room designations assigned by name or number near completion of the work. Do not use the designations from the drawings.

3. For power distribution panelboards, where no directory is present, label each protective device with laminated plastic labels indicating load served. Marker pen is permitted where space does not permit laminated plastic labels.

D. Motor Control Centers:

1. Label all motor control centers with laminated plastic labels indicating control center name per the drawings.

2. Label all starters and breakers with factory-provided labels or laminated plastic labels indicating the function or the load served and location.

3. Provide pre-printed labels for all spaces.

E. Transformers:

1. Label all transformers with identification plate indicating equipment label per the drawings, KVA, primary and secondary voltages, source, and load served.

F. Disconnect Switches

1. Label All Disconnect Switches with laminated plastic labels indicating device name per the drawings, and with permanent marker, the source, load served, and internal fuse size, if applicable.

G. Miscellaneous Equipment

1. Label all motor start switches, individual circuit breakers, relays, contactors, time switches, and indicating equipment with marker tape or laminated plastic labels indicating equipment number, source, and circuit number.

2. Where the controlling device is remote mounted from the serving panel, include the serving panel designation and circuit number with additional plastic tape labels.

H. Receptacles

1. All receptacle plates shall be marked in marker tape on the face of the plate, with the receptacles panel and branch circuit designation. The identification shall be made with clear self-adhesive tape with black 10-point letters. Apply the tape at the top of the device plate.

2. Receptacles connected to a GFCI-protected circuit downstream from the protecting device shall be labeled “GFCI Protected.”

I. Outlet, Pull, And Junction Boxes

1. For exposed and those above suspended ceilings, label covers of power junction boxes neatly by hand using permanent marker, indicating source and circuit number.

2. For exposed ceilings in occupied public spaces, where conduits, junction boxes, etc. are to painted to blend into the ceiling, provide aforementioned labelling on the inside cover of the junction box.

J. Conduits

1. Label all exposed conduit runs in non-public spaces or accessible ceiling spaces with source panel and circuit number using neatly written using permanent marker. Include destination in labelling for all feeder conduits Space labels a maximum of 50 feet apart and at least one per room. Label conduits at entrances of all “J” boxes, distribution panels, MCC, panelboards, etc.

2. Omit labelling exposed conduits in occupied public spaces.

K. Emergency Lighting Fixtures:

1. Ceiling mounted and wall mounted emergency light which are equipped with integral emergency back-up battery or are tied into an emergency power system (emergency generator, remote inverter, etc.), shall be readily identified with a ¾” dia. red circular adhesive label either on the fixture or on the ceiling grid surrounding the fixture.

2. Exceptions:

   a. Twin head battery pack emergency unit fixtures and
   b. Fixtures equipped with integral emergency battery with an indicator LED clearly visible without removing any lensing.

L. Special Systems (Fire Alarm, Security, Pa, Etc.): subject to the provisions of the respective specification section for each system:

1. Equipment Cabinets, Terminal Cabinets, Power Supply Cabinets, Control Panels, Patch Panels, Racks:

   a. Provide identification plates with equipment identification as indicated on the drawings.

b. Label termination blocks and ports.

2. Pullboxes, Enclosures, Junction Boxes:

   a. Provide identification plate including system type and location designation, if any, per the Drawings or Shop Drawings on cover.
   b. Indicate equipment and location(s) from which enclosed cables originate.

3. Fire Alarm:

   a. Fire alarm junction boxes shall be red unless another standard is used be owner.
   b. Initiation Devices, Notification Appliances, Fire Alarm Relays – Provide zone or address identification label, clear Marker Tape, red or black letters.
   c. Remote Smoke Detector Lamps and Test Stations – Provide label indicating the location of the connected device.

END OF SECTION

DIVISION 26 – ELECTRICAL

SECTION 260810 – MANDATORY UL PARTICIPATION

PART 1 – GENERAL

1.01 SCOPE

A. This section addresses a mandatory site survey of electrical power panel retrofits and/or switchgear bus taps when such work is performed. The contractor shall engage the services and pay related fees of the UL field evaluation group (ULFE), or a similar firm engaging is this type of work on a regular basis.

1.02 TIMELINE

A. The contractor is advised that UL field evaluation response time is generally one to two weeks.

1.03 REGULATORY REQUIREMENTS

The specific issues addressed in panel retrofits are:

A. Panelboard interiors not marked for use in the existing back box revert to a 10 K AIC rating. If higher AIC rating is required per the project specifications and/or drawings, ULFE shall determine the actual AIC rating of the new panelboard interior back box combination, in conformance with original parameters.

B. ULFE shall specify corrective steps as required to achieve code compliance and meet the original engineering design intent. The cost of such corrective work shall be paid for by electrical contractor as part of this project.

1.04 ULFE WORK

A. ULFE shall field examine proposed bus taps for compliance with bus mechanical and power capacity ratings. They shall specify corrective actions as required.

1.05 RESPONSIBILITY

A. The contractor shall coordinate with the owner and utility company to minimize down time of electrical service for ULFE work. All electrical service outages shall be done as specified by the owner and utility company. Premium time fees if apply shall be the responsibility of the contractor.

1.06 SUBMITTALS

A. The ULFE response and related contractor response shall be part of the project final closeout submission.

1.07 UL CONTACT INFORMATION

Program Manager
Chuck Mello
877-854-3577, ext. 55578
chuck.mello@ul.com

Staff Engineer Bob Starasinich 847-224-0852
robert.m.starasinich@ul.com

Field Evaluation Service http://www.ul.com/global/eng/pages/offerings/services/globalfieldservices/fieldservices/fieldevaluationservices/

1.08 UL FIELD EVALUATIONS PROJECT DATA SHEET:

Field Evaluations Project Data Sheet

Date	

Person Contacting UL	
Title:	

Applicant Information
(Company that assumes financial obligation for the cost of the project)

Legal Company Name **Address** **City, ST, Zip**	

Taxpayer Identification Number (TIN)	
Phone No:	
Fax No:	
Cell No:	
E-Mail:	

Requested Date for FE to start	

Preliminary Field Evaluation Site (optional if requested)
(Usually taking place at the manufacturers location prior to being installed)

Company Name Address City, ST, Zip	
Contact on Site	
Phone No:	
Cell No:	
Are there any security steps necessary for the engineer to be on site (background check, NDA, ETC)	
Are there any specific safety policies we need to be aware of? (Personal Protective Equipment, Fall Protection, Required Safety classes, ETC)	

Final Installation Site
(Where the product is permanently installed & label applied)

Company Name Address City, ST, Zip	

Contact on Site	
Phone No:	
Cell No:	
Are there any security steps necessary for the engineer to be on site (background check, NDA, ETC)	
Are there any specific safety policies we need to be aware of? (Personal Protective Equipment, Fall Protection, Required Safety classes, ETC)	

Authority Having Jurisdiction
Local City / County Electrical Inspector (This is Mandatory)

AHJ Jurisdiction Address City, ST, Zip	
Name of Inspector	
Phone No:	
Fax No:	
Cell No:	
E-Mail:	

Equipment Information on Following Page

List of Equipment to be evaluated

Product Description & purpose	
Number of Units	
Manufacturer Name:	
Model Number:	
Serial Number:	
Volts & Amps Ratings	Voltage, A or FLA, Phase, Wire, (Hz), Power
Motor (how many & HP)	
Pending Litigation	Yes [ ] No [ ]
Hazardous Location:	Yes [ ] No [ ]
Equipment Condition:	New [ ] Used [ ]
Security/Signaling Equipment	Yes [ ] No [ ]
Product Under Current UL Evaluation	Yes [ ] No [ ]
Homeland Security Equipment	Yes [ ] No [ ]
E85 Gasoline Equipment	Yes [ ] No [ ]

Product Description & purpose	
Number of Units	
Manufacturer Name:	
Model Number:	
Serial Number:	
Volts & Amps Ratings	Voltage, A or FLA, Phase, Wire, (Hz), Power
Motor (how many & HP)	
Pending Litigation	Yes [ ] No [ ]
Hazardous Location:	Yes [ ] No [ ]
Equipment Condition:	New [ ] Used [ ]
Security/Signaling Equipment	Yes [ ] No [ ]
Product Under Current UL Evaluation	Yes [ ] No [ ]
Homeland Security Equipment	Yes [ ] No [ ]
E85 Gasoline Equipment	Yes [ ] No [ ]

Product Description & purpose	
Number of Units	
Manufacturer Name:	
Model Number:	
Serial Number:	
Volts & Amps Ratings	Voltage, A or FLA, Phase, Wire, (Hz), Power
Motor (how many & HP)	
Pending Litigation	Yes [ ] No [ ]
Hazardous Location:	Yes [ ] No [ ]
Equipment Condition:	New [ ] Used [ ]
Security/Signaling Equipment	Yes [ ] No [ ]
Product Under Current UL Evaluation	Yes [ ] No [ ]
Homeland Security Equipment	Yes [ ] No [ ]
E85 Gasoline Equipment	Yes [ ] No [ ]

Product Description & purpose	
Number of Units	
Manufacturer Name:	
Model Number:	
Serial Number:	
Volts & Amps Ratings	Voltage, A or FLA, Phase, Wire, (Hz), Power
Motor (how many & HP)	
Pending Litigation	Yes [ ] No [ ]
Hazardous Location:	Yes [ ] No [ ]
Equipment Condition:	New [ ] Used [ ]
Security/Signaling Equipment	Yes [ ] No [ ]
Product Under Current UL Evaluation	Yes [ ] No [ ]
Homeland Security Equipment	Yes [ ] No [ ]
E85 Gasoline Equipment	Yes [ ] No [ ]

Product Description & purpose	
Number of Units	
Manufacturer Name:	
Model Number:	
Serial Number:	
Volts & Amps Ratings	Voltage, A or FLA, Phase, Wire, (Hz), Power
Motor (how many & HP)	
Pending Litigation	Yes [ ] No [ ]
Hazardous Location:	Yes [ ] No [ ]
Equipment Condition:	New [ ] Used [ ]
Security/Signaling Equipment	Yes [ ] No [ ]
Product Under Current UL Evaluation	Yes [ ] No [ ]
Homeland Security Equipment	Yes [ ] No [ ]
E85 Gasoline Equipment	Yes [ ] No [ ]

END OF SECTION

DIVISION 26 – ELECTRICAL

SECTION 262816 – HEAVY DUTY SAFETY SWITCHES

PART 1 – GENERAL

1.01 SCOPE

A. The Contractor shall furnish and install the low-voltage fused and non-fused switches as specified herein and as shown on the contract drawings.

1.02 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Section 260500 – Common Work Results for Electrical
C. Section 260553 – Identification for Electrical Systems

1.03 REFERENCES

A. The switches and all components shall be designed, manufactured, and tested in accordance with the latest applicable standards:

1. NEMA KS-1
2. UL 98

1.04 SUBMITTALS – FOR REVIEW / APPROVAL

A. The following information shall be submitted to the Engineer:

1. Dimensioned outline drawing
2. Conduit entry/exit locations
3. Switch ratings including:

    a. Short-circuit rating
    b. Voltage
    c. Continuous current

4. Fuse ratings and type
5. Cable terminal sizes
6. Product data sheets

1.05 SUBMITTALS – FOR CONSTRUCTION

A. The following information shall be submitted for record purposes:

1. Final as-built drawings and information for items listed in Paragraph 1.04, and shall incorporate all changes made during the manufacturing process.

1.06 QUALIFICATIONS

A. The manufacturer of the assembly shall be the manufacturer of the major components within the assembly.

B. For the equipment specified herein, the manufacturer shall be ISO 9001 or 9002 certified.

C. The manufacturer of this equipment shall have produced similar electrical equipment for a minimum period of five (5) years. When requested by the Engineer, an acceptable list of installations with similar equipment shall be provided demonstrating compliance with this requirement.

1.07 REGULATORY REQUIREMENTS

A. The safety switches shall bear a UL label.

1.08 DELIVERY, STORAGE AND HANDLING

A. Equipment shall be handled and stored in accordance with manufacturer's instructions. One (1) copy of these instructions shall be included with the equipment at time of shipment.

1.09 QUALITY ASSURANCE

A. Electrical components, conductors, devices and accessories described herein shall be listed and labeled as defined by NFPA 70 by a Nationally Recognized Testing Laboratory (NRTL), such as Underwriters Laboratories (UL), for the intended use and shall bear its label.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

A. Subject to the requirements listed herein, provide product by one of the following:

1. Eaton
2. Siemens
3. General Electric
4. Square D
5. Approved Equal

B. The listing of specific manufacturers above does not imply acceptance of their products that do not meet the specified ratings, features and functions. Manufacturers listed above are not relieved from meeting these specifications in their entirety.

2.02 HEAVY-DUTY SAFETY SWITCHES

A. Provide switches as shown on drawings, with the following ratings:

1. 30 to 1200 amperes
2. 240 volts ac; 600 volts ac
3. 2 and 3 poles
4. Fusible and non-fusible
5. Mechanical lugs suitable for aluminum or copper conductors.

B. Construction

1. Switch blades and jaws shall be visible and plated copper.
2. Switches shall have a red handle that is easily pad-lockable with three 3/8-inch shank locks in the OFF position.
3. Switches shall have defeatable door interlocks that prevent the door from opening when the handle is in the ON position (except for double-throw switches). Defeater mechanism shall be front accessible.

4. Switches shall have deionizing arc chutes.
5. Switch assembly and operating handle shall be an integral part of the enclosure base.
6. Switches rated 30 A to 600 A shall have reinforced fuse clips.
7. Switch blades shall be readily visible in the “ON” and “OFF” position.
8. Switch operating mechanism shall be non-teasable, positive quick-make/quick-break type. Bail type mechanisms are not acceptable.
9. Fusible switches shall be suitable for service entrance equipment (except for 4-pole switches and 1200 A when used on 480Y/277 or 600Y/347 grounded WYE systems)
10. Switches shall have line terminal shields (except for non-fusible double throw switches)
11. Switches shall be suitable for systems capable of 200 kA at 480 V with Class J, L, R, or T fusing as applicable for single-throw switches; Embossed or engraved ON-OFF indication shall be provided.
12. Double-make, double-break switch blade feature shall be provided.
13. Fuse pullers shall be provided on all NEMA 4X and 12 switches through 200 A
14. Renewal parts data shall be shown on the inside of the door.

C. Enclosures

1. All enclosures shall be NEMA 1 general purpose, for indoor use, unless otherwise noted.
2. Enclosures shall be NEMA 3R, rainproof, for outdoor or wet location use, unless otherwise noted,

    a. Enclosures shall NEMA 4X watertight corrosion-resistant; either 304 or 316 stainless steels, or fiberglass where and as indicated in the drawings.
    b. 30 A to 100 A NEMA 4X, and 12/3R enclosures shall be provided with draw-pull latches.

D. The following factory modifications are to be included:

1. Phenolic nameplates
2. Fungus proofing
3. Lock ON provisions
4. Factory installed neutral assemblies.
5. Class R fuse clips factory installed (30A - 600A)
6. Factory installed ground lug kits.

E. Provide fused switches with:

1. (1) complete set of fuses installed.
2. (1) complete set of fuses as spares.
3. (1) Fuse puller

2.03 SOLAR DISCONNECT SWITCHES

A. Provide 30- to 600-ampere switches as shown on the drawings for solar installations with the following ratings and characteristics:

1. Switches shall be UL listed for 600 VDC and shall be wired according to the listing instructions. Switches shall be wired with one circuit per switch. Multiple circuits shall not be permitted to be switched with a single mechanism.

2. NEMA enclosure shall be NEMA 3R, 12 or 4X as shown on the drawings.

3. Switches shall be listed as “Suitable for NEC Article 690 Applications” and shall be labeled with the maximum solar string as per NEC calculations.

4. Switches that can be energized from both the line and load side shall be marked:

WARNING
ELECTRIC SHOCK HAZARD
DO NOT TOUCH TERMINALS
TERMINALS ON BOTH THE LINE
AND LOAD SIDES MAY BE ENERGIZED
IN THE OPEN POSITION

5. Switches shall be supplied with a clear, factory-installed dead-front shield to guard against accidental contact with line or load terminals.

6. Switches shall have a factory-installed neutral block for terminating grounded conductors, and switches shall have a separate lug for equipment grounding conductors.

7. Fusible switches shall be equipped with Class R fuse clips as standard.

8. Fusible switches shall be supplied with one set of fuse clips only, and fuse holders must be isolated from any potential source when the handle is in the “off” position.

2.04 NAMEPLATES

A. Nameplate shall be front cover mounted, containing a permanent record of switch type, ampere rating, and maximum voltage rating.

B. Provide identification plate as indicated in Section 260553 – Identification for Electrical Systems.

PART 3 – EXECUTION

3.01 FACTORY TESTING

A. Standard factory tests shall be performed on the equipment provided under this section. All tests shall be in accordance with the latest version of UL and NEMA standards.

3.02 INSTALLATION

A. The equipment shall be installed per the manufacturer’s recommendations and all NEC and local code requirements.

B. Install fuses such that fuse rating information can be read without removing fuse.

3.03 TOUCH-UP PAINTING

A. Provide touch-up painting to restore and refinish to match original condition surfaces of electrical equipment scratched, marred during shipping, handling or installation. Remove any rust and prime and paint as recommended by manufacturer.

END OF SECTION