Bidding Documents
for
Beekman Town Hall
Lower Floor HVAC Improvements
Town of Beekman, New York
RFP: 2024-1125

Prepared for:
Town of Beekman
4 Main Street
Poughquag, NY 12570

November 25, 2024

Prepared by:
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ADVERTISEMENT / INVITATION TO BID

The Town of Beekman, hereinafter called the Owner, is soliciting bids from qualified contractors for construction of the Lower Floor HVAC Improvements located at the Beekman Town Hall. The project is located at 4 Main Street, Poughquag, NY, and is identified as tax ID: 6758-02-807742. The work shall generally include the removal of certain existing and furnishing and construction of new HVAC equipment and infrastructure, as shown on the drawings and specifications, for a complete and fully functional HVAC system for the lower floor of the Beekman Town Hall. The Owner is seeking Bids prepared per Form #5 contained in this Bidding Document.

Receipt of Bids: Separate sealed bids will be received by the Owner until 3 p.m. (local time) on Thursday, December 12, 2024. All bids must be made upon and in accordance with the form of proposals included in the bid package, and shall be submitted in sealed envelopes so marked "Beekman Town Hall – Lower Floor HVAC Improvements". Bids will be opened and publicly read at Town Hall, 4 Main Street, Poughquag, NY, 12570.

A pre-bid walk through will take place at the Project Location, 4 Main Street, Poughquag, NY, on Thursday, December 5, 2024 at 10 a.m. (local time). Contractor RFI will be due by 3 p.m. (local time) Thursday, December 5, 2024, and a response by the Town Engineer will be provided no later than Friday, December 6, 2024. Interested contractors are urged to email the Town Clerk (townclerk@townofbeekmanny.us) and the Town Engineer (dkoehler@hudsonlanddesign.com) to ensure that RFI responses are made available to all interested bidders.

Beginning on Monday, November 25, 2024, the Bidding Documents may be downloaded from the Town's website: https://townofbeekman.gov/active-bids-amp-rfps/. Hard copies can be requested but will be only available by request after paying a fee of $75 to the Town of Beekman.

Bids will be considered immediately. If award is to proceed to the Successful Bidder, it will be dated within 30 days of the Bid deadline. The intent is to consider awarding the Project at the December 17, 2024 Town Board meeting. The work is expected to commence shortly after notice of award. It is noted that Town Hall offices will remain open during the work, and that arrangements can be made to relocate Town Hall personnel, if needed. It is further noted that Town Hall offices are closed on Fridays; however, access for the contract work will be provided. The work is to be completed to a point where the HVAC is operational no later than Friday, May 30, 2025, absent any Act of God or other catastrophic event or supply issues. Contractors who cannot accommodate this schedule shall not submit bids. Contractors shall be able to demonstrate their qualifications with references with the bid. Contractors shall prepare a proposed schedule of work consistent with Section 00700, Article 5.03, within two weeks of the Notice to Proceed.

OWNER'S RIGHTS RESERVED: The Owner reserves the right to reject any or all bids and to waive any formality or technicality in any Bid in the interest of the Owner.

STATEMENT OF NON-COLLUSION: Bidders are required to execute the non-collusion bidding certificate presented within the Bid Package, pursuant to Section 103-d of the General Municipal Law of the State of New York.

BONDING: Bidders are required to supply a bid bond in the amount of 10% of the bid amount.

Bidders are also required to comply with the provision of Section 291-299 of the Executive Law of the State of New York regarding discrimination. The Owner hereby notifies all Bidders that it will affirmatively insure

that in regard to any Contract entered into pursuant to this invitation, minority business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color or national origin in consideration for any award.

The award of this contract will be made to the lowest priced, qualified, responsive, responsible bidder, who has complied with the specifications. When there is a discrepancy between unit price and total price, unit price shall prevail.

New York State Prevailing Wage Rates apply to this Contract – the NYS Prevailing Wage Case Number for the project is PRC#2024014654. Federal Wage Rates also apply to this Contract. Schedules are provided in Attachment C.

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SECTION 00015

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Form #2 Contractor Responsibility Form
Form #3 Non-Collusion Certification
Form #4 Iran Divestment
Form #5 Proposal Cost

ATTACHMENT B: CONTRACT DOCUMENTS

Insurance Requirements

ATTACHMENT C: PREVAILING WAGE SCHEDULE

New York State Prevailing Wage Schedule
Federal Prevailing Wage Schedule

ATTACHMENT D: BEEKMAN TOWN HALL HVAC DRAWINGS (CBK ENGINEERING)

DWG.	DWG. TITLE	REVISION	DATE
1 of 8 (M-001)	Symbol List, Abbreviations and Notes	11/21/2024	11/20/2024
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3 of 8 (M-201)	Lower Level Construction Plan and Notes	11/21/2024	11/20/2024
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6 of 8 (E-001)	Electrical Symbols List, Part One-Line Diagram and List of Electrical Drawings	11/21/2024	11/20/2024
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END OF SECTION

SECTION 00200

INSTRUCTIONS TO BIDDERS

ARTICLE 1 - RECEIPT AND OPENING OF BIDS

Sealed Bids for the Work described herein will be received by the Owner:

At: Town of Beekman
4 Main Street
Poughquag, NY 12570

Attention: Beekman Town Hall – Lower Floor HVAC Improvements

Until: 3:00 pm, December 12, 2024

All Bids shall be submitted to the Owner in duplicate on the Proposal forms provided in the Contract Documents. The Proposal forms must be fully completed, executed in longhand, signed, sealed and shall be submitted without interlineations, alteration or erasure. All blank spaces for Bid prices must be filled in, either handwritten in ink or typewritten, and the prices for the proposed Work must be entered in both words and figures. (In case of discrepancy, the price entered in words shall be considered to be the Bid Price.)

After the Bids are opened, they will be taken under advisement, and action with respect to them will be taken within a reasonable period of time. In any event, the Bid submitted shall remain in effect for at least forty-five (45) calendar days.

The Owner reserves the right to waive any informality in the Bids and to reject any or all Bids.

ARTICLE 2 - BIDDERS TO INVESTIGATE

Prior to submission of the Bid, the Bidder shall personally examine all the Contract Documents and the location of the proposed Work and shall exercise judgment in determining the nature and difficulty of the entire Project. The Bidder shall assume all risk of variance in any computation or statement of amounts or quantities necessary to complete the Work required by the Contract, by whomsoever made, and shall agree to furnish all labor, plant, material and equipment to fully complete the said Work in accordance with the Contract Documents for the proposal Bid Price and/or Unit Prices.

It shall be the obligation of each Bidder to satisfy himself by personal examination of the site that the existing conditions shown on the Drawings, taken from a completed survey made by a MEP Engineer, is accurate. No claim for extra compensation for inaccuracies of existing conditions will be allowed after the Bids are submitted.

The Bidder whose Bid is accepted and who enters into the Contract with the Owner shall be responsible for every loss or error arising from ignorance concerning the requirements of the Work or the difficulties encountered during the progress of the Work.

ARTICLE 3 - PREPARATION OF PROPOSAL

Proposals shall not be qualified in any manner and shall not contain any recapitulation of the Work to be done. No oral, telegraphic, or telephonic proposals or modifications will be considered. Requests for substitutions, however, will be considered if presented in accordance with the requirements as further set forth hereinafter.

Should the Bidder find discrepancies in, or omissions from, the Contract Documents, or should the Bidder be in doubt as to their meaning, he shall at once, and in any event, not less than seven (7) calendar days (or five business days) prior to submission of the Proposal, notify the Town Engineer in writing who will issue, if necessary, Addenda to all Bidders, instructing them regarding such item or items will be issued not less than six (6) calendar days (or four business days) to the submission of the Proposal. Neither the Owner nor Town Engineer will be responsible for any oral instructions.

All Addenda issued during the time of Bidding shall become a part of the Contract Documents and shall be included in the price and/or prices submitted under the Bid Proposal, and in executing the Contract they will become a part thereof.

The bidding for Work, which is to be performed under this Contract, shall be on the basis called for on the Proposal. Additions to or deductions from the amount of Work covered by the Contract Documents shall be made in accordance with the Schedule of Unit Prices contained in the Proposal.

The Bid shall include a guarantee, by the Bidder, of all work performed, for a period of one (1) year from the date of acceptance of the entire Work by the Owner, as hereinafter provided.

The Bidder shall enter prices for all items requested in the Bid Proposal including all Alternates.

The Owner reserves the right to compare and award the Contract on the basis of Base Bid only or the Base Bid and any combination of alternates that it may select.

ARTICLE 4 - SUBSTITUTIONS

If the Bidder wishes to substitute a product, material or item of equipment for a specified product, material or item of equipment, he may request to do so on a separate document which shall indicate the credit that will be allowed the Owner if the particular product, material or item of equipment is accepted as a substitute and also the reason for the substitution. Request for substitution shall also include descriptive literature, specifications, drawings and all other documentation to support the Bidder's request for substitution.

Substitution of a specified product, material or item of equipment will only be considered if submitted in writing with the Bid Proposal and includes all documentation described above. After the contract is award, substitutions will only be permitted if failure to allow the submission will effect the schedule for completion of the work.

The Town Engineer will be the judge in determining if the requested substitution will be allowed, and the Bidder shall make no claim if the request for substitution is disallowed.

ARTICLE 5 - TIME FOR EXECUTING CONTRACT

The Bidder whose Proposal is accepted, shall within thirty (30) calendar days after service of the Notice of Award, enter into and execute a written Contract to furnish all labor, plant, material and equipment to complete the Work. The parties shall enter into a contract within 45 days of the bid opening unless this time period is extended by the parties in writing.

The Contract shall be provided by the Owner.

ARTICLE 6 - TIME TO COMPLETE WORK

The Contractor's attention is directed to the fact that time is of the essence under this Contract and that all Work must be commenced immediately with the permanent work being operational no later than **Friday, May 30, 2025**, absent any Act of God or other catastrophic event, and barring unforeseen, prolonged, inclement weather conditions or supply issues. If this Completion Date cannot be met, the Bidder shall indicate a revised date in

his Proposal and the reason why the Completion Date cannot be met.

ARTICLE 7 - BONDS REQUIRED

Bidders are required to supply a bid bond in the amount of 10% of the bid amount (or cash in-lieu) as well as a 100% performance bond (or cash in-lieu).

ARTICLE 8 - INSURANCE REQUIRED

The Contractor shall obtain and continue in effect during the life of the Contract, insurance in accordance with the provisions as fully set forth herein and in the amounts specified.

ARTICLE 9 - GENERAL

The Owner may make such investigation as he deems necessary to determine the ability of the Bidder to perform the Work, and the Bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request.

The Owner reserves the right to reject any Bid if the evidence submitted by, or investigation of, such Bidder fails to satisfy the Owner that such Bidder is properly qualified to carry out the obligations of the Agreement and to complete the Work contemplated therein, or for any other reason as determined by the Owner.

All applicable laws, ordinances, rules and regulations of all Authorities having jurisdiction over the Work shall apply to the Contract throughout and shall be adhered to by the Contractor.

END OF SECTION

SECTION 00700

GENERAL CONDITIONS OF THE CONTRACT

ARTICLE 1 - DEFINITIONS

Wherever used in the Contract Documents, the following terms shall have the meanings indicated which shall be applicable to both the singular and plural thereof:

ADDENDA - Written or graphic instruments issued by the Engineer prior to the execution of the Agreement, which modify or interpret the Contract Documents by additions, deletions, clarifications or corrections.

AGREEMENT - Agreement for Construction between Owner and Contractor to be provided by the Town Attorney.

BID - The Proposal of the Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

BIDDER - Any individual, partnership, firm or corporation submitting a Bid for the Work.

BONDS - Performance and/or Payment Bonds and other instruments of security, furnished by the Contractor and his Surety in accordance with the Contract Documents.

CHANGE ORDER - Written order to the Contractor by the Owner authorizing an addition, deletion or revision in the Work, which requires an adjustment in the Contract Sum or Contract Time.

COMPLETION - The finishing of all Work of the Contract and certification to same by the Owner, and the beginning of the guarantee period by the Contractor. (See "Substantial" Completion.)

CONTRACT - A written Agreement provided by the Owner setting forth the obligations of the parties thereunder, for the performance of all Work and obligations defined in the Contract Documents.

CONTRACT DOCUMENTS - The Contract, which shall include Advertisement for Bids, Instruction to Bidders, Agreement for Construction, General Conditions and Supplementary General Conditions, Drawings, Specifications, Addenda, and Change Orders.

CONTRACT SUM, CONTRACT PRICE - The total monies due and payable to the Contractor by the Owner for performance of the Work under the Contract Documents.

CONTRACT TIME - The number of calendar days stated in the Contract Documents for the completion of the Work.

CONTRACTOR - The individual, partnership, firm or corporation with whom the Owner has executed the Agreement.

ENGINEER, TOWN – Hudson Land Design Professional Engineering, P.C., the organization licensed to practice engineering and referred to throughout the Contract Documents as if singular in number and masculine in gender. The term Engineer generally means the Town Engineer or his authorized representative, and may also refer to his subconsultant MEP Engineer, CBK Engineering.

EXTRA WORK - The term "Extra Work" shall include work required by the Owner, which in the judgement of the Engineer, involves changes in, or additions to, that required by the Drawings and Specifications in their Contract form.

FIELD ORDER - A written order issued by the Owner's Field Representative to the Contractor during the progress of the Work effecting a change in the Work but not involving an adjustment in the Contract Sum or an extension of the Contract Time.

NOTICE OF AWARD - The written notice of the acceptance of the Bid issued by the Owner to the successful Bidder.

OWNER - The individual, partnership, firm or corporation, for whom the Work is to be performed, in this case the Town of Beekman.

OWNER'S FIELD REPRESENTATIVE - The authorized representative of the Owner who is assigned to the Work.

PROJECT - The complete undertaking as specified in the Contract Documents, of which the Work may be all or a part thereof.

SHOP DRAWINGS - All drawings, diagrams, illustrations, brochures, schedules and other data requested under the terms of the Contract Documents or by the Engineer and submitted by the Contractor, which are prepared by the Contractor, a Subcontractor, manufacturer, or distributor and which indicate specifications for materials, equipment, fabrication and installation.

SUBCONTRACTOR - An individual, partnership, firm or corporation having a direct contract with the Contractor or with any other Subcontractor for the performance of a part of the Work. All Subcontractors shall be approved by the Owner.

SUBSTANTIAL COMPLETION - The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.

SUPPLEMENTAL GENERAL CONDITIONS - Modifications to General Conditions as included in the Contract Documents.

SUPPLIERS - Any individual, partnership, firm or corporation supplying materials or equipment to be incorporated in the Work.

UNIT PRICE - The price for each item of Work (when requested) which will be compensation in full for all labor, plant, material, equipment, supervision, tools, scaffolding, appurtenances, insurance, engineering, freight, travel, job expenses, telephone, overhead and profit, guarantees, sales taxes, etc.

WORK - The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

WRITTEN NOTICE - Written notice shall be deemed to have been duly served if delivered in person to the individual, or member of the firm, or to an officer of the corporation for whom it was intended, or if delivered at or sent by registered or certified mail to the last business address known to him who gives the notice.

ARTICLE 2 - CONTRACT DOCUMENTS

2.01 EXECUTION

The Contract Documents shall be signed in triplicate by the Owner and the Contractor. In the event that the Owner and the Contractor fail to sign any of the Contract Documents, the Engineer shall identify them, upon request of either party.

By signing the Contract Documents, the Contractor represents that, by personal examination of the site and the Contract Documents, he has satisfied himself as to the nature, location and scope of the Work, the confirmation of the ground, the character, quality and quantity of the materials to be encountered, the character of equipment and facilities needed preliminary to and during the prosecution of the Work, the general and local conditions, and all other matters which can in any way affect the Work under this Contract.

2.02 CORRELATION

The Contract Documents are complementary, and what is required by any one shall be as binding as if required by all. The intention of the Contract Documents is to include all labor, plant, materials and equipment necessary for the proper execution of the Work, and shall include all incidental work necessary to complete the Work ready for use, occupancy and operation by the Owner.

In case of conflict between the Drawings and Specifications, the Specifications shall govern, unless otherwise noted in the Specifications. Figure dimensions given on the Drawings shall govern over scaled dimensions and detailed Drawings shall govern over general Drawings.

Any discrepancies found between the Drawings, Specifications and site conditions or any inconsistencies or ambiguities in the Drawings or Specifications shall be immediately reported to the Engineer in writing. Work performed by the Contractor after the Contractor's discovery of such discrepancies, inconsistencies or ambiguities, without the Engineer's approval shall be performed at the Contractor's risk.

2.03 INTENT

Materials or work described in words, which so applied, have a well-known technical or trade meaning shall be held to conform to such recognized standards, subject, however, to the approval of the Engineer.

2.04 INTERPRETATION

Either party to the Contract may request that the Contractor be furnished such reasonable additional instructions and detailed Drawings, by the Engineer, as necessary to carry out the Work required by the Contract Documents. The additional instructions and Drawings thus supplied shall become a part of the Contract Documents and the Contractor shall carry out the Work in accordance therewith. Such instructions shall be consistent with and reasonably inferable from the Documents.

2.05 OWNERSHIP OF DOCUMENTS

All Drawings, Specifications, Addenda, and copies thereof furnished by the Engineer are the Engineer's property. They shall not be used on other work and, with the exception of the signed Contract set, are to be returned to the Engineer upon request at the completion of the Work.

Unless otherwise provided in the Contract Documents the Owner will furnish to the Contractor, free of charge, two (2) copies of all Drawings and Specifications. All additional prints and Specifications issued to the Contractor including Addenda, modifications, etc. shall be paid for by the Contractor.

ARTICLE 3 - ENGINEER'S DUTIES AND STATUS

3.01 ENGINEER'S DUTIES

The Engineer will clarify and explain the intent of the Contract Documents as reasonably required. He will be responsible for review of Shop Drawings as more fully set forth herein.

The Engineer may also furnish observation of Construction, subject to the terms of his contract with the Owner, for compliance of the Work with the Contract Documents.

Since the Engineer will not be continuously present in the field, it is specifically understood that he does not undertake nor assume any obligation for supervision of construction, safety measures taken during the course of construction, responsibility for scheduling the Work or for insuring complete compliance with the Contract Documents and/or any and all code requirements, rules and regulations of any Public or Private authority having jurisdiction over the whole or any part of the Work. In addition, the Engineer neither undertakes, assumes, nor guarantees the Work and/or performance of the Contractor.

3.02 ENGINEER'S STATUS

The Engineer will have authority to observe the Work for compliance with the Contract Documents and have such tests made, as he deems advisable, as provided elsewhere herein.

All decisions of the Engineer with regard to technical interpretation of the Contract Documents shall be final. All other decisions shall be deemed to be advisory only.

The Engineer will have the authority to conduct observations to determine dates of Substantial Completion and Completion.

Nothing contained in the Contract Documents shall create any contractual relationship between the Engineer and the Contractor.

ARTICLE 4 - OWNER

4.01 OWNER'S FIELD REPRESENTATIVE

The Owner's Field Representative shall coordinate the progress of the Work. He shall have authority to stop the Work whenever such stoppage may be necessary to insure the proper execution of the Contract. He shall also have authority to reject all work and materials which do not conform to the Contract Documents, to direct the application of work forces to any portion of the Work, and/or to order the work force increased or diminished during the progress of the Work as, in his judgement, is required and to decide questions which arise in regard to the execution of the Work.

Important directions will be confirmed to the Contractor in writing by the Owner's Field Representative or Engineer. Other directions shall be so confirmed on written request.

4.02 RIGHT TO CONTINUE WORK

If the Contractor defaults or neglects to prosecute the Work properly or fails to perform any provision of this Contract, the Owner, may, after three (3) days written notice to the Contractor, and, without prejudice to any other remedy he may have, make good such deficiencies and may deduct the cost thereof from the payment then or thereafter due the Contractor.

4.03 PROVIDE LAND

The Owner shall provide the lands upon which the Work under this Contract is to be performed and/or easements thereon.

ARTICLE 5 - CONTRACTOR

5.01 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS

The Contractor shall carefully study and compare the Contract Documents and shall at once report to the Engineer any apparent error, inconsistency or omission he may discover. The existing conditions shown on the Drawings have been acquired from field survey by a MEP Engineer, however, prior to beginning work, the Contractor shall agree that the conditions shown on the Drawings are accurate, including the location of subsurface utilities and structures. Any error, inconsistency, or omission he may discover shall be reported immediately to the Engineer. The Contractor shall do no Work until suitable instructions are given by the Engineer. Thereupon, the Contractor shall not be liable to the Owner or the Engineer for any damage resulting from any such errors, inconsistencies or omissions in the Contract Documents.

If the Contractor in the course of the Work finds any apparent discrepancy between the Contract Documents and physical conditions, or any errors or omissions in the Contract Documents or in surveys or control points given, it shall be his duty to immediately inform the Owner's Field Representative and the Engineer in writing, and the Owner's Field Representative and/or Engineer will promptly investigate and correct same, if necessary. Any Work performed after such discovery, unless authorized by the Owner's Field Representative, is performed at the Contractor's risk.

5.02 CONTRACTOR'S OBLIGATION

The Contractor shall do all the Work and furnish all the labor, plant, materials, tools, and appliances necessary and proper for performing and completing the Work required by this Contract, in the manner specified.

All the work, labor and materials to be performed and furnished under this Contract shall be performed and furnished strictly pursuant to, and in conformity with the Contract Documents and directions of the Owner's Field Representative and/or Engineer as given from time to time during the progress of the Work.

The Contractor shall complete all Work under this Contract to the satisfaction of the Owner and the Engineer, and in accordance with the Contract Documents.

5.03 SCHEDULES, REPORTS AND RECORDS

The Contractor shall submit to the Owner such schedule of quantities and costs, progress schedules, reports, estimates, records and other data as the Owner and/or Owner's Field Representative may request concerning Work performed or to be performed.

Within two (2) weeks after Notice to Proceed, the Contractor shall submit schedules showing the order in which he proposes to carry out the Work, including dates at which he will start the various parts of the Work, estimated date of completion of each part to ascertain completion of the Work within the Contract Time allotted, and, as applicable:

(1) The dates at which special Detail Drawings will be required; and

(2) The dates for submission of Shop Drawings, beginning of manufacture, testing, delivery to the job site, and the installation of materials, supplies and equipment.

The Contractor shall also submit a schedule of payments that he anticipates he will earn during the course of the Work.

5.04 FIELD OFFICE

The Contractor, until all work covered by this Contract is accepted by the Owner, may choose to provide a temporary office structure at the job site, with sanitary facilities and parking facilities. ~~If provided, it shall include~~

separate space for the Owner's Field Representative, with storage and desk space, all to the satisfaction of the Owner. If provided, there shall be adequate heat and light and the office shall be maintained clean and neat by the Contractor.

5.05 SUPERVISION BY CONTRACTOR

The Contractor shall provide adequate and efficient supervision and direction of the Work. He shall be solely responsible for the means, methods, techniques, sequences and procedures of construction. The Contractor shall employ and maintain on the Work a qualified Supervisor who shall be satisfactory to the Owner and who shall be designated in writing by the Contractor as the Contractor's representative at the site. The Supervisor shall have full authority to act on behalf of the Contractor and all communications given to the Supervisor shall be as binding as if given to the Contractor. The Supervisor shall be present on the site at all times as required to perform adequate supervision and coordination of the Work.

The Contractor shall employ only competent persons to do the Work, and whenever the Owner's Field Representative shall notify the Contractor, in writing, that any person on the Work is, in his opinion, incompetent, unfaithful, disorderly, or otherwise unsatisfactory, such person or persons shall be discharged from the Work, and shall not again be employed on it, except with the consent of the Owner's Field Representative.

The Contractor shall at all times enforce strict discipline and good order among his employees.

5.06 CONDUCT OF THE WORK

The Contractor shall conduct the Work in such manner as to interfere as little as possible with travel on the highways, and the Contractor shall observe all ordinances and statutes relating to obstructing the highway.

The Contractor shall provide railings or suitable barricades, signs and lights as required by the Owner's Field Representative to prevent accidents or injury to persons, vehicles or animals. The Contractor shall also provide traffic directional personnel to direct traffic should conditions warrant same, as determined by the Owner's Field Representative, at no additional cost to the Owner.

The Contractor shall take every precaution to minimize and control all odors, smoke, noise, dust, nuisance, vibration or disturbances caused by machinery, pumping, compressing, blasting, trucking or by any of the Contractor's or Subcontractor's operations, and the Contractor shall be liable for all damage therefore or for violations of any and all present and future laws, ordinances or regulations relating to same until completion of the Work.

The Contractor shall schedule and conduct operations to minimize erosion of soil and to prevent muddying of streams, rivers, impoundments and lands adjacent to or affected by the Work. Construction of drainage facilities and other Contract Work which will contribute to erosion and sedimentation shall be carried out in conjunction with earthwork operations or as soon thereafter as practicable so that the area of bare soil exposed at any one time by construction operations will be kept to a minimum. The conduct of all Work to be performed under this Contract shall be carried out in accordance with all laws, ordinances and regulations relating to soil erosion and water pollution control, and the Contractor shall be held liable for violation of any and all such laws, ordinances and regulations.

Materials, supplies or equipment to be incorporated into the Work shall not be purchased by the Contractor or Subcontractors subject to a chattel mortgage or under a conditional sales contract or other agreement by which an interest is retained by the seller.

Materials and equipment shall be stored so as to insure the preservation of their quality and fitness for the Work. Stored materials and equipment which are to be incorporated in the Work shall be located and stored in a manner that will facilitate prompt inspection by the Owner's Field Representative or the Engineer.

Material which is stored on the site or has been installed and incorporated into the Work and which is not in conformance with the Contract Documents shall be considered to be defective and, upon written order by the Owner's Field Representative, shall be removed and replaced with material which conforms with the Contract Documents, at no additional cost to the Owner.

Should any work be covered or installed so that inspection and tests cannot be made in accordance with the requirements as specified under the various Sections of the Specifications, then the Contractor will be required to uncover or remove portions of the finished work as necessary so that these inspections and tests can be made and replace same in accordance with the Drawings and Specifications to the satisfaction of the Owner's Field Representative and the Engineer. The uncovering, taking down and replacing shall be at the expense of the Contractor.

Manufactured articles, materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned as directed by the manufacturer.

Upon completion of all the Work and before final payment is made, the Contractor shall remove from the site and all public and private property all excess material, debris, temporary structures, tools, and equipment resulting from the Contractor's operations, and shall leave the entire premises in a neat condition to the satisfaction of the Owner's Field Representative.

5.07 ~~SUBSURFACE CONDITIONS~~

~~The Contractor shall promptly, and before such conditions are disturbed, except in the event of an emergency, notify the Owner's Field Representative and the Engineer by Written Notice, in the event:~~

~~(1) Subsurface or latent physical conditions at the site differ materially from those indicated in the Contract Documents; or~~

~~(2) Unknown physical conditions at the site, of an unusual nature, differ materially from those ordinarily encountered and generally recognized as inherent in the Work of the character provided for in the Contract Documents.~~

~~The Engineer shall promptly investigate the conditions, and if he finds that such conditions do so materially differ, such that they will cause an increase or decrease in the cost of, or in the time required for, performance of the Work, an equitable adjustment shall be made and the Contract Sum and/or Time shall be modified by a Change Order. Any claim of the Contractor for adjustment hereunder shall not be allowed unless he has given the required written Notice, provided that the Owner may, if he determines the facts so justify, consider and adjust any such claims asserted before the date of final payment.~~

5.08 ACCESS TO THE WORK

The Owner, the Engineer and their representatives shall at all times have access to the Work. The Contractor shall provide proper access facilities for observation, inspection, and testing of the Work as required by the Owner's Field Representative and Engineer.

If any Work is covered from view contrary to the Specifications or the written request of the Owner's Field Representative or the Engineer, or contrary to laws, ordinances, rules and regulations of public or private authorities having jurisdiction, it must, if requested by the Owner's Field Representative or Engineer, be uncovered for observation, corrected if necessary, and recovered at the Contractor's expense.

If any Work has been covered from view which is not contrary to the Specifications or laws, ordinances, rules and regulations of public or private authorities having jurisdiction, and which the Owner's Field Representative or Engineer has not specifically requested to observe prior to its being covered, and if the Owner's Field Representative or Engineer considers it necessary or advisable that said covered Work be inspected or tested by

others, the Contractor upon request shall uncover, expose or otherwise make available for observation, inspection or testing as may be required, that portion of the Work in question, furnishing all necessary labor, materials, tools and equipment. If it is found that such Work is defective, The Contractor shall bear all the expenses of such uncovering, exposure, observation, inspection and testing and of satisfactory reconstruction. If, however, such Work is not found to be defective, the Contractor will be allowed an increase in the Contract Sum or an extension of the Contract Time, or both, directly attributable to such uncovering, exposure, observation, inspection and testing, and an appropriate Change Order will be issued.

5.09 INSPECTION AND TESTING

All materials and equipment used in the Construction of the Work shall be subject to adequate inspection and testing as specified in the Contract Documents and as directed by the Engineer.

All inspection and testing as specified in the Contract Documents shall be paid for by the Owner. The Owner may, at Owner's expense, provide additional inspection and testing services not specifically required by the Contract Documents.

If the Contract Documents and/or laws, ordinances, rules, regulations or orders of any private or public authority having jurisdiction require any work specifically to be inspected, tested, or approved by persons or parties other than the Contractor, then the Contractor shall upon completion of that portion of the Work serve notice to the Owner that said portion of the Work is ready for testing. The Contractor shall be responsible for obtaining the required certificates of inspection, testing or approval and delivering same to the Engineer.

Neither observations by the Engineer nor inspections, tests or approvals by persons or parties other than the Contractor shall relieve the Contractor from his obligations to perform the Work in accordance with the requirements of the Contract Documents.

5.10 GUARANTEES

The Contractor warrants to the Owner that all equipment, material and workmanship will be new and in strict conformity with the Contract Documents.

The Contractor will be held responsible for the entire Work until its completion and acceptance, and any imperfect work that may be discovered at any time before the final Completion and acceptance of same shall be corrected immediately upon the direction of the Owner's Field Representative.

The Contractor further guarantees that he will replace and/or repair any defective work, material or equipment for a period of one (1) year after the date of final acceptance of the completed Work by the Owner at the Contractor's sole expense. The Contractor also guarantees that all such defective work, material or equipment shall be replaced and/or repaired promptly upon receipt of written notification by the Owner and to the complete satisfaction of the Owner. See contract documents for any additional warranty requirements.

If the Owner's Field Representative deems it not expedient to correct work that has been damaged or work that has been performed contrary to the Contract Documents, an equitable deduction, as determined by the Engineer, shall be made from the Contract Sum therefor.

ARTICLE 6 - PROTECTION OF PERSON AND PROPERTY

6.01 SAFETY PRECAUTIONS

The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. He shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to all employees on the Work and other persons who may be affected thereby, all the Work and all materials or equipment to be incorporated therein,

whether in storage on or off the site, and other property at the site or adjacent thereto, including, but not limited to, trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

The Contractor shall comply with all applicable safety laws, ordinances, rules and regulations and orders of any agency having jurisdiction. He shall erect and maintain, as required by the conditions and progress of the Work, all necessary safeguards for safety and all damage, injury or loss to any property caused, directly or indirectly, in whole or in part, by the Contractor, any Subcontractor or anyone directly or indirectly employed by any of them or anyone for whose acts any of them be liable.

Damage or loss attributable to the fault of the Contract Documents or to the acts or omission of the Owner or the Engineer or anyone employed by either of them or anyone for whose acts either of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of the Contractor shall not be the responsibility of the Contractor.

In emergencies affecting the safety of persons or the Work or property at the site or adjacent thereto, the Contractor, without special instruction or authorization from the Owner or Engineer, shall act to prevent threatened damage, injury or loss. The Contractor shall give the Owner and Engineer prompt Written Notice of any significant changes in the Work or deviations from the Contract Documents caused thereby, and a Change Order will thereupon be issued covering the changes and deviations involved, if such were required because of provisions of the Contract Documents.

6.02 LAWS, ORDINANCES, RULES AND REGULATIONS

The Contractor shall obtain all Permits and Licenses necessary and required for the prosecution of the Work, and he shall post all bonds and deposits and pay all fees and charges in connection with obtaining same. The Town of Beekman will be responsible for pulling the building permit from its Building Department.

The Contractor shall give all notices and comply with all laws, ordinances, rules and regulations as required by all authorities having jurisdiction bearing on the conduct of the Work as specified.

If any of the Contractor's work is performed contrary to such laws, ordinances, rules and regulations, and/or without the required notices, he shall bear all costs arising therefrom.

The Contractor shall also give prior written notice to all concerned utility companies, agencies, authorities, owners, etc., at least seventy-two (72) hours in advance of commencing any work on this Contract.

ARTICLE 7 - PAYMENTS

7.01 PROGRESS PAYMENTS

At least ten (10) days before each progress payment falls due (but not more often than once a month), the Contractor will submit to the Owner's Field Representative a partial payment estimate filled out and signed by the Contractor covering the Work performed during the period covered by the partial payment estimate and supported by such data as the Owner's Field Representative may reasonably require.

If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at or near the site, the partial payment estimate shall also be accompanied by such supporting data, satisfactory to the Owner, as will establish the Owner's title to the material and equipment and protect his interest therein, including applicable insurance. The Owner has the option to require installation of materials prior to payment.

The Contractor warrants that title to all Work covered by partial payment made shall be free and clear of liens or other encumbrances and shall thereupon become the sole property of the Owner. This provision shall not be

construed as relieving the Contractor of the sole responsibility for the care and protection of the Work upon which payments have been made, or the restoration of any damaged Work, or as a waiver of the right of the Owner to require the fulfillment of all terms of the Contract Documents.

The Owner will, within ten (10) days after receipt of each partial payment estimate, either indicate in writing his approval of the payment estimate to the Contractor or indicate in writing his reasons for refusing to approve payment. In the latter case, the Contractor may make the necessary corrections and resubmit the partial payment estimate. The Owner will, within twenty (20) days of presentation to him of an approved partial payment estimate, pay the Contractor a progress payment on the basis of the approved partial payment estimate. The Owner will retain ten (10) percent of the amount of each payment until final completion and acceptance of all work covered by the Contract Documents. The Owner may, however, at his option at any time after fifty (50) percent of the Work has been completed and satisfactory progress is being made, reduce retainage to five (5) percent on the current and remaining estimates.

7.02 FINAL PAYMENT

Upon completion and acceptance of the Work, the Owner will issue a certificate attached to the final payment request that the Work has been accepted by him under the conditions of the Contract Documents. The entire balance found to be due the Contractor, including the retained percentages, but except such sums as may be lawfully retained by the Owner, will be paid to the Contractor within thirty (30) days after completion and acceptance of the Work.

The Contractor shall indemnify and save the Owner and the Owner's agents harmless from all claims growing out of the lawful demands of Subcontractors, laborers, workmen, mechanics, material men, and furnishers of machinery and parts thereof, equipment, tools and all supplies, incurred in the furtherance of the performance of the Work.

The Contractor shall at the Owner's request, furnish satisfactory evidence that all obligations of the nature designated above have been paid, discharged, or waived. If the Contractor fails to do so, the Owner will, after having notified the Contractor, either pay unpaid bills or withhold from the Contractor's unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such lawful claims, until satisfactory evidence is furnished that all liabilities have been fully discharged, whereupon payment to the Contractor will be resumed, in accordance with the terms of the Contract Documents, but in no event shall the provisions of this sentence be construed to impose any obligations upon the Owner to either the Contractor, the Contractor's Surety, or any third party.

In paying any unpaid bills of the Contractor, any payment so made by the Owner shall be considered as a payment made under the Contract Documents by the Owner to the Contractor, and the Owner shall not be liable to the Contractor for any such payments made in good faith.

7.03 PAYMENTS WITHHELD

The Owner may withhold or, on account of subsequently discovered evidence, nullify the whole or a part of any certificate to such extent as may be necessary to protect himself from loss on account of:

(1) Defective work not remedied.

(2) Claims filed or reasonable evidence indicating probable filing of claims.

(3) Failure of the Contractor to make payments properly to Subcontractors or for material or labor.

(4) A reasonable doubt that the Contract can be completed for the balance then unpaid.

(5) Damage to another Contractor.

When the above grounds are removed payment shall be made for amounts withheld because of them.

7.04 CORRECTION OF WORK BEFORE FINAL PAYMENT

The Contractor shall promptly remove from the premises all materials condemned by the Owner's Field Representative or the Engineer as failing to conform to the Contract Documents, whether incorporated in the Work or not, and the Contractor shall promptly replace and reconstruct his own work in accordance with the Contract Documents and without expense to the Owner and shall bear the expense of making good all work of other Contractors which may become destroyed or damaged by such removal or replacement.

If the Contractor does not remove such condemned materials within a specified time, fixed by Written Notice, the Owner may remove them and may store the material at the expense of the Contractor. If the Contractor does not pay the expense of such removal within ten (10) days time thereafter, the Owner may, upon ten (10) days written notice, sell such materials at auction or at private sale and shall account for the net proceeds thereof, after deducting all costs and expenses that should have been borne by the Contractor. If the Owner deems any such materials not to be saleable, then the Owner may charge the cost thereof to the Contractor.

7.05 ACCEPTANCE OF FINAL PAYMENT AS RELEASE

The acceptance by the Contractor of final payment shall be and shall operate as a release to the Owner of all claims and all liability to the Contractor, other than claims in stated amounts as may be specifically excepted by the Contractor, for all things performed or furnished in connection with this Work and for every act and neglect of the Owner and others relating to or arising out of this Work.

Any payment, final or otherwise, shall not release the Contractor or the Contractor's Surety from any obligations under the Contract Documents or the Performance Bonds and Payment Bonds.

ARTICLE 8 - CHANGES IN THE WORK

8.01 CHANGE ORDERS

The Owner, without invalidating the Contract, may order extra work or make changes by altering, adding to or deducting from the Work, the Contract Sum being adjusted accordingly and as specified herein. All such work shall be executed under the conditions of the original Contract except that any claim for extension of time caused thereby shall be adjusted at the time of ordering such change. If such alterations diminish the quantity of work to be performed they shall not warrant any claim for damages by the Contractor or for anticipated profits on the work that may be dispensed with.

The value of any such Extra Work or change shall be determined in one or more of the following methods:

(1) By Lump Sum proposal by the Contractor and acceptance by the Owner.

(2) By Unit Prices in the Contract or subsequently agreed to by the Owner and Contractor and applied to additional items of work based on field measurements as determined by the Engineer.

(3) By Cost and Percentage or by Cost and a Fixed Fee, as mutually agreed to by the Owner and Contractor.

If Unit Prices are set forth in the Contract, Method (2) shall be utilized as the means of determining value for Extra Work, unless the Owner elects other wise.

If none of the methods for payment is agreed upon, the Contractor shall proceed with the Extra Work provided that he has received a Change Order. In such case, and also under Method (3), he shall keep and present in such form as the Owner's Field Representative may direct, an accurate daily account of the net cost of labor and

materials, together with vouchers. At the end of each Work Day the Contractor's Supervisor shall submit to the Owner's Field Representative the daily force account sheet for approval. This force account sheet shall be signed by the Contractor's Supervisor and shall include a breakdown of the labor force and hours worked, material used and work actually accomplished. In any case, the Owner's Field Representative shall certify to the amount, including reasonable allowance for overhead and profit, due to the Contractor. Pending final determination of value, payments on account of changes will be made based on the Owner's Field Representative's estimate.

~~Where the amount of such Extra Work is determinable only by actual field measurement, as in the case of rock excavation or removal of unsuitable material, it shall be the Contractor's obligation to furnish cross sections to the Owner's Field Representative for checking quantities. These cross sections shall be prepared by a Licensed Land Surveyor and at the Contractor's expense.~~

8.02 CLAIMS FOR EXTRA COST

If the Contractor claims that he has been instructed to perform work that is not provided for in the Contract Documents which would involve Extra Cost to him, he shall give the Owner's Field Representative written notice thereof immediately after the receipt of such instructions, and in any event, before proceeding to execute the Work, except in an emergency endangering life or property, and the procedure shall be as provided for in Changes in the Work. No such claim shall be considered for approval unless so made.

8.03 MINOR CHANGES

The Engineer has authority to make minor changes in the Work, not involving extra cost, and not inconsistent with the purpose of the Work. Except in an emergency endangering life or property, no extra work shall be performed or changes made unless authorized by a Change Order, and no claim for an addition to the Contract Sum shall be valid unless so ordered.

ARTICLE 9 - INSURANCE AND BONDS

9.01 CONTRACTOR'S LIABILITY INSURANCE

The Contractor shall purchase and maintain during the term of the Contract, such insurance as will protect the Contractor from claims set forth below which may arise out of or result from the Contractor's execution of the Work, whether such execution be by the Contractor or by any Subcontractor or by anyone for whose acts any of them may be liable, including but not limited to:

(1) Claims under workmen's compensation, disability benefit and other similar employee benefit acts;

(2) Claims for damages because of bodily injury, occupational sickness or disease, or death of employees;

(3) Claims for damages because of bodily injury, sickness or disease, or death of any person other than employees;

(4) Claims for damages insured by usual personal injury liability coverage which are sustained (1) by any person as a result of an offense directly or indirectly related to the employment of such person by the Contractor, or (2) by any other person; and

(5) Claims for damages because of injury to or destruction of tangible property, including loss of use resulting therefrom.

9.02 LIMITS OF INSURANCE

(1) Insurance Requirements:
The contractor shall procure, maintain and provide evidence of minimum insurance coverage described within these bidding documents during the life of this contract, in such form and with such carriers as

approved by the Town, at the contractor's expense. In addition, it is the responsibility of the contractor to see that any subcontractors utilized carry similar coverage. Limits specified elsewhere do not limit the obligation of the contractor or their insurers.

Town of Beekman, its agents and affiliates, shall be named as additional insured's on a primary and non-contributory basis on both Premises and Products Completed Operations Liability by policy endorsement. A per job site aggregate endorsement and a waiver of subrogation endorsement shall also apply.

9.03 FIRE AND EXTENDED COVERAGE

The Contractor shall procure and maintain Fire and Extended Coverage insurance upon the Work to the full insurable value thereof, for the benefit of the Owner, the Contractor, and Subcontractors as their interest may appear. This provision shall in no way release the Contractor or Contractor's Surety from obligations under the Contract Documents to fully complete the Work.

9.04 WORKERS' COMPENSATION

The Contractor shall procure and maintain, at the Contractor's expense, during the term of the Contract, in accordance with the provisions of the laws of the State in which the Work is performed, Workers' Compensation Insurance, including occupational disease provisions, for all of the Contractor's employees at the site of the Work and, in case any Work is sublet, the Contractor shall require such Subcontractor similarly to provide Workers' Compensation Insurance, including occupational disease provisions, for all of the latter's employees unless such employees are covered by the protection afforded by the Contractor.

In case any class of employees engaged in hazardous work under this Contract at the site of the Work is not protected under Workers' Compensation, the Contractor shall provide, and shall cause each Subcontractor to provide, adequate and suitable insurance for the protection of such employees otherwise protected.

9.05 BUILDER'S RISK

The Contractor shall procure and maintain, at Contractor's expense, "All Risk" type Builder's Risk Insurance for Work to be performed. Unless specifically authorized by the Owner, the amount of such insurance shall not be less than the Contract Price in the Bid. The policy shall cover not less than the losses due to fire, explosion, hail, lightning, vandalism, malicious mischief, wind, collapse, riot, aircraft, and smoke during the Contract time, and until the Work is accepted by the Owner. The policy shall name as the insured the Contractor and the Owner.

~~9.06 BLASTING INSURANCE~~

~~Where blasting is involved in the Work, the Contractor shall secure and maintain adequate blasting insurance in amounts satisfactory to the Owner.~~

9.07 INDEMNIFICATION

The Contractor shall indemnify and hold harmless the Owner and the Engineer and their agents and employees from and against all claims, damages, losses and expenses including attorneys' fees arising out of or resulting from the performance of the Work, provided that any such claims, damages, losses or expenses are attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property, including the loss of use resulting therefrom, and is caused in whole or in part by any negligent or willful act or omission of the Contractor, and Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable.

In any and all claims against the Owner or the Engineer, or any Subcontractor, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, the indemnification obligation shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits

payable by or for the Contractor or any Subcontractor under workmen's compensation acts, disability benefit acts or other employee benefits acts.

The obligation of the Contractor under this paragraph shall not extend to the professional liability of the Engineer, his agents or employees, arising out of the preparation or approval of maps, drawings, opinions, reports, surveys, designs or specifications.

9.08 CERTIFICATES OF INSURANCE

Certificates of Insurance covering all insurance herein acceptable to the Owner shall be filed with the Owner prior to commencement of the Work. These Certificates shall contain a provision that coverages afforded under the policies will not be cancelled unless at least fifteen (15) days prior Written Notice has been given to the Owner.

ARTICLE 10 - SHOP AND RECORD DRAWINGS

10.01 SHOP DRAWINGS

The Contractor shall submit to the Engineer for approval, manufacturers' and vendors' drawings of specially fabricated and assembled items, specially designed mechanical and electrical equipment including descriptive literature and technical data, installation drawings, certifications, test reports, setting drawings, and photographs or catalog cuts of items, as called for in the various Sections of the Specifications.

The Contractor shall examine Shop Drawings and other submitted data before forwarding them to the Engineer, and again when they are returned, in order to determine whether the work shown conforms with the Drawings, Specifications and job conditions and he shall so certify that he has done so on an accompanying letter of transmittal. He shall coordinate the work shown thereon with the work of all Subcontractors.

The Contractor shall submit Shop Drawings and other data in accordance with the Schedule (Article 5.03) and in the proper sequence so that each item can be delivered and installed when necessary, taking into consideration the time required for delivery after approval of submitted material, and allowing the Engineer ten (10) calendar days for checking each submission.

All Shop Drawings shall be submitted in quadruplicate, or can be submitted electronically. One (1) copy will be retained by the Engineer, one (1) copy will be sent by the Engineer to the Owner and the remaining two (2) copies will be returned to the Contractor.

The Engineer shall review Drawings and other submitted data with respect to design concept and request such changes and corrections thereto as he deems necessary.

The Engineer's review of the Shop Drawings for Design Concept does not relieve the Contractor in any way of his sole responsibility for correctness of all calculations, dimensions and quantities, fitting to other work, and conformance to all specifications. The Engineer's review of the Shop Drawings for Design Concept does not relieve the Contractor in any way of his sole responsibility for correctness of all calculations, dimensions and quantities, fitting to other work, and conformance to all specifications.

If the reviewed Drawings indicate that the Engineer has reviewed dimensions, it shall be understood that this review is based upon his own design drawings, and the dimensions shall be verified by the Contractor with actual field dimensions and conditions.

Drawings and other submitted data that is returned "NO EXCEPTION TAKEN" need not be resubmitted. If returned "MAKE CORRECTIONS NOTED", then the Contractor may proceed with the work thereon as per added notations and corrections. Drawings and data that are stamped "AMEND AND RESUBMIT" shall be

revised as indicated, and then re-submitted. This procedure shall be repeated until the Drawings and data are in conformance as determined by the Engineer. Drawings and data that are stamped "REJECTED" are not acceptable and shall not be re-submitted.

If the Contractor feels that the Engineer's notations to Shop Drawings and other submitted data will incur hardship or additional costs that the Contractor feels he should not bear, he shall so inform the Engineer in writing, and not proceed with the changes until the problems are settled.

Portions of the Work requiring a Shop Drawing or other submission shall not begin until the Shop Drawing or submission has been reviewed for conformance by the Engineer. A copy of each reviewed Shop Drawing shall be kept in good order by the Contractor at the site and shall be available to the Owner's Field Representative and the Engineer.

10.02 RECORD DRAWINGS

Concurrently with the progress of the Work, the Contractor shall keep on the site a set of "as-built" Record Drawings, consisting of a reproducible marked set of the Engineer's Drawings with the additional sketches as required, denoting and dimensioning accurately and neatly all changes and conditions that are variations from the Engineer's Drawings.

~~All offsets, bends and changes in alignment and grade of underground utilities which are not marked by a visible surface structure such as manholes, catch basins, etc., shall be recorded. These locations shall be located in reference to three (3) separate permanent surface reference points and recorded on the "as-built" Record Drawings.~~

An accurate record shall also be kept of all existing site items which are reworked or relocated under the Contract.

The "as-built" drawings shall be available for examination at the site at all times. Upon completion of the Work, the Contractor shall deliver to the Owner and the Engineer a reproducible set of the Record Drawings.

The Contractor's attention is directed to the fact that submission of the reproducible sets of "as-built" Record Drawings is a prerequisite for final payment.

ARTICLE 11 - SUSPENSION OF WORK AND TERMINATION

11.01 SUSPENSION OF WORK

The Owner may at any time suspend the Work, or any part thereof by giving three (3) days' Written Notice to the Contractor. The Work shall be resumed by the Contractor within ten (10) calendar days after the date fixed in a Written Notice from the Owner to the Contractor. A Change Order shall be issued for the expense, if any, incurred by the Contractor as a result of such suspension.

If the Work of any part thereof shall be stopped by the aforesaid Written Notice and if the Owner does not give Written Notice to the Contractor to resume Work at a date within ninety (90) calendar days of the date fixed in the Written Notice to suspend, then the Contractor may abandon that portion of the Work so suspended, and he shall be entitled to payments for all Work performed on the portions so abandoned, if any.

11.02 OWNER'S RIGHT TO TERMINATE

If the Contractor should be adjudged bankrupt, or if he should make a general assignment for the benefit of his creditors, or if a receiver should be appointed on account of his insolvency, or if he should persistently or repeatedly refuse or should fail, except in cases for which extension of time is provided, to supply enough properly skilled workers or proper materials, or if he should fail to make prompt payment to Subcontractors or for

material or labor, or persistently disregard laws, ordinances or the instruction of the Owner's Field Representative or Engineer, or otherwise be guilty of a substantial violation of any provisions of the Contract, then the Owner, upon the certificate of the Owner's Field Representative that sufficient cause exists to justify such action, may, without prejudice to any other right or remedy and after giving the Contractor and his Surety ten (10) calendar days Written Notice, terminate the employment of the Contractor and take possession of the premises and of all materials, tools and appliances thereon and finish the Work by whatever method he may deem expedient.

In such case the Contractor shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Sum shall exceed the expense of finishing the Work, including compensation for additional managerial and administrative services, such excess shall be paid to the Contractor. If such expense shall exceed such unpaid balance, then the Contractor or the Contractor's Surety shall pay the difference to the Owner. The expense incurred by the Owner as herein provided, and the damage incurred through the Contractor's default, shall be certified by the Engineer.

11.03 CONTRACTOR'S RIGHT TO STOP WORK OR TERMINATE CONTRACT

If the Work should be stopped under an order of any court or other public authority for a period of three (3) months, through no act or fault of the Contractor or of anyone employed by him, or if the Owner's Field Representative should fail or refuse wrongfully to issue any Estimate for Payment within twenty (20) calendar days after it is due, or if the Owner should fail or refuse wrongfully to pay the Contractor within sixty (60) calendar days of its maturity and presentation of sum certified by the Owner's Field Representative (or awarded by arbitrators), then the Contractor may, upon fifteen (15) calendar days' Written Notice to the Owner, stop the Work.

If the Contractor shall have stopped the Work in accordance with the provisions of the preceding, and the Work is not recommenced within ninety (90) calendar days thereafter, then the Contract shall automatically terminate on the ninety-first (91st) day following the day of stoppage, unless the Contract is extended in writing by the Owner and Contractor.

If the Contract is terminated as provided in the preceding, then the Contractor shall be entitled to recover from the Owner only

(1) Payment for all Work executed and loss sustained upon any plant or materials; and

(2) Reasonable profit for Work performed to date of the stoppage.

11.04 REMOVAL OF EQUIPMENT

In the case of annulment of this Contract before completion by any cause whatever, the Contractor, if notified to do so by the Owner, shall promptly remove any part or all of his equipment and supplies from the property of the Owner, failing which the Owner shall have the right to remove such equipment and supplies at the expense of the Contractor.

11.05 USE OF COMPLETED PORTIONS

The Owner shall have the right to take possession of and use any completed or partially completed portions of the Work, notwithstanding the fact that the time for completing the entire Work or such portions may not have expired but such taking possession and use shall not be deemed an acceptance of any Work not completed in accordance with the Contract Documents.

If such prior use increases the cost of or delays the Work, the Contractor shall be entitled to such extra compensation, or extension of time, or both, as the Engineer may approve.

ARTICLE 12 - ARBITRATION

12.01 DEMAND FOR ARBITRATION

Any decision of the Town Engineer which is subject to arbitration shall be submitted to arbitration upon the demand of either party to the dispute.

The demand for arbitration shall be delivered by Written Notice to the Engineer and the adverse party within ten (10) calendar days of the receipt of the Engineer's decision, and in no case after final payment has been accepted except as otherwise expressly stipulated in the Contract Documents.

If the Engineer fails to make a decision within a reasonable time, a demand for arbitration may be made as if the Engineer's decision had been rendered against the demanding party.

The Contractor shall not cause a delay of the Work because of impending arbitration proceedings, except with the written permission of the Engineer, and then only until the Arbitrators shall have an opportunity to determine whether or not the Work should continue until they decide the matters in dispute.

12.02 ARBITRATORS

No one shall be nominated or act as an arbitrator who is in any way financially interested in this Contract or in the business affairs of the Owner or the Contractor or the Engineer, or is otherwise connected with any of them.

Each Arbitrator shall be a person in general familiar with the work or the problem involved in the dispute submitted to arbitration.

Unless otherwise provided by controlling statutes, the parties may agree upon one Arbitrator; otherwise there shall be three, one named in writing by the Owner, one by the Contractor, and the third chosen by those two Arbitrators, or if they should fail to select a third within fifteen (15) calendar days, then the third Arbitrator shall be appointed by the presiding officer, if a disinterested party, of the Bar Association nearest to the location of the Work.

Should the party demanding arbitration fail to name an Arbitrator within ten (10) calendar days of his demand, the party's right to arbitration shall lapse. Should the other party fail to name an Arbitrator within said ten (10) calendar days, then said presiding office shall appoint such Arbitrator within ten (10) calendar days, and upon the presiding officer's failure to do so, such Arbitrator shall be appointed on the petition of the party demanding arbitration by a Judge of the Federal Court in the District where such arbitration is to be held.

The said presiding officer shall have the power to declare the position of any Arbitrator vacant by refusal or inability to act, sickness, death, resignation, absence or neglect. Any vacancy shall be filled by the said presiding officer. If testimony has been taken before a vacancy has been filled, the matter must be reheard unless a rehearing is waived in the submission or by the written consent of the parties.

12.03 ARBITRATION PROCEDURE

The submission to arbitration (the statement of the matters in dispute between the parties to be passed upon by the Arbitrators) shall be in writing duly acknowledged before a notary.

Unless waived in writing by both parties to the arbitration, the Arbitrators, before hearing testimony, shall be sworn, by an officer authorized by law to administer an oath, faithfully and fairly to hear and examine the matters in controversy and to make a just award according to the best of their understanding.

The Arbitrators shall deliver a Written Notice to each of the parties and to the Engineer of the time and place for the beginning of the hearing of the matters submitted to them.

Each party may submit to the Arbitrators such evidence and argument as each party may desire and the

Arbitrators may consider pertinent. The Arbitrators shall, however, be the judges of all matters of law and fact relating to both the subject matters of and the procedure during arbitration and shall not be bound by technical rules of law or procedure. They may hear evidence in whatever form they desire.

The parties may be represented before the Arbitrators by such person as each may select, subject to the disciplinary power of the Arbitrators if such representative shall interfere with the orderly or speedy conduct of the proceedings.

Each party and the Engineer shall supply the Arbitrators with such papers and information as they may demand, or with witness whose movements are subject to their respective control. Upon refusal or neglect to comply with such demands the Arbitrators may render their decision without the evidence which might have been elicited therefrom, and the absence of such evidence shall be no ground for challenge of the award by the party refusing or neglecting to comply with such demand.

The award of the Arbitrators shall not be open to objection on account of the form of the proceedings or the award, unless otherwise provided by the controlling statutes. In the event of such statutes providing on any matter covered by this Article otherwise then as hereinbefore specified, the method of procedure throughout and the legal effect of the award shall be wholly in accord with said statutes, it being the intention hereby to lay down a principle of action to be followed, leaving its local application to be adapted to the legal requirements of the jurisdiction having authority over the arbitration.

If there be one Arbitrator his decision shall be binding; if three, the decision of any two shall be binding in respect to both the matters submitted to and the procedure followed during the arbitration. Such decision shall be a condition precedent to any right of legal action.

12.04 AWARD

The award of the Arbitrators shall be in writing and acknowledged like a deed to be recorded, and a duplicate shall be delivered by Written Notice forthwith upon its rendition, to each of the parties to the controversy and to the Engineer. Judgment may be rendered upon the award by the Federal Court or the highest State Court having jurisdiction to render same.

The Arbitrators, if they deem the case demands it, are authorized to award to the party whose contention is sustained such sums as they shall consider proper for the time, expense and trouble incident to the arbitration, and if the arbitration was demanded without reasonable cause, damages for delay and other losses.

The Arbitrators shall fix their own compensation, unless otherwise provided by agreement, and shall assess the costs and charges of the arbitration upon either or both parties

12.05 ENGINEER

The Engineer shall not be deemed a party to the dispute. The Engineer is given the right to appear before the Arbitrators to explain the basis of the Engineer's decision upon which the request for arbitration is based, and to give such evidence as the Arbitrators may require.

ARTICLE 13 - MISCELLANEOUS

13.01 ASSIGNMENT

The Contractor shall not assign the Contract or sublet it as a whole without the written consent of the Owner, nor shall the Contractor assign any monies due or to become due to him hereunder, without the previous written consent of the Owner.

The Owner reserves the right to assign the Contract to his designee, without the approval of the Contractor.

13.02 SUBCONTRACTORS

The Contractor may utilize the services of specialty Subcontractors on those parts of the Work which, under normal contracting practices, are performed by specialty Subcontractors. The Contractor shall not award Work to Subcontractors, in excess of fifty percent (50%) of the Contract Price, without prior written approval of the Owner.

The Contractor shall, as soon as practicable after the signing of the Contract, notify the Owner and the Engineer in writing of the names of Subcontractors proposed for the Work and shall not employ any that the Owner and the Engineer may, within a reasonable time, object to as incompetent or unfit.

The Contractor shall be as fully responsible to the Owner for the acts and omissions of the Subcontractors and of persons either directly or indirectly employed by the Subcontractors as if the completion is for the acts and omissions of persons directly employed by the Contractor.

The Contractor shall cause appropriate provisions to be inserted in all Subcontracts relative to the Work to bind Subcontractors to the Contractor by the terms of the Contract Documents insofar as applicable to the Work of Subcontractors, and to give the Contractor the same power as regards terminating any Subcontract that the Owner may exercise over the Contractor under any provision of the Contract Documents.

Nothing contained in the Contract Documents shall create any contractual relation between any Subcontractor and the Owner.

13.03 SEPARATE CONTRACTS

The Owner reserves the right to award other contracts in connection with the Project, or perform certain work with his own forces. The Contractor shall afford the Owner and/or other contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work, and shall properly connect and coordinate Contractor's Work with theirs. If the proper execution or results of any part of the Contractor's Work depends upon the work of the Owner and/or any other contractor, the Contractor shall inspect and promptly report to the Owner's Field Representative and Engineer any defects in such Work that render it unsuitable for proper execution and results. The Contractor's failure so to inspect and report shall constitute an acceptance of the Owner's and/or other contractor's work as fit and proper for the reception of his work, except as to defects which may develop in the Owner's and/or other contractor's work after the execution of Contractor's Work.

If the performance of additional work by the Owner and/or other contractors is not noted in the Contract Documents prior to the execution of the Contract, Written Notice thereof shall be given to the Contractor prior to starting any such additional work. If the Contractor believes that the performance of such additional work by the Owner or others involves the Contractor in additional expense or entitles the Contractor to an extension of the Contract Time, the Contractor shall make a claim therefor within ten (10) calendar days of receipt of such Written Notice.

13.04 RIGHTS OF VARIOUS INTERESTS

Wherever work being done by the Owner and/or by other contractors is contiguous to Work covered by this Contract, the respective rights and responsibilities of the various interests involved will be established by the Owner, to secure the completion of the various portions of the Work in general harmony.

13.05 DELAYS AND EXTENSION OF TIME

If the Contractor is delayed at any time during the progress of the Work by any act or neglect of the Owner or of his employees, or by any other contractor employed by the Owner, or by changes ordered in the Work, or by strikes, lockouts, fire, unavoidable casualties, or by delay authorized by the Engineer, then the Time of Completion may be extended for such reasonable time as the Engineer decides.

No claim for delay shall be allowed on account of failure by the Engineer to furnish Drawings to the Contractor until two weeks after demand for such Drawings has been made in writing and not then unless such claim be reasonable.

This Article does not exclude the recovery of damages for delay by either party under other provisions in the Contract Documents.

13.06 PATENTS AND ROYALTIES

The Contractor shall pay all applicable royalties and license fees.

The Contractor shall defend all suits or claims for infringement of any patent rights and save the Owner and Engineer harmless from loss on account thereof, except that the Owner shall be responsible for any such loss when a particular process, design, or the product of a particular manufacturer or manufacturers is specified. However, if the Contractor has reason to believe that any design, process or product specified is an infringement of a patent, the Contractor shall be responsible for such loss unless the Contractor promptly gives such information to the Owner and Engineer.

13.07 DAMAGES

Any claim for damage arising under this Contract shall be made in writing to the party liable within a reasonable time of the first observance of such damage and not later then the time of final payment, except as expressly stipulated otherwise in the case of faulty work or materials, and shall be adjusted by agreement or arbitration.

~~13.08 SURVEYS AND CONTROL POINTS~~

~~The Owner will furnish all land surveys together with a suitable number of control points and bench marks adjacent to or within the limits of the Work as shown in the Contract Documents. From the information provided by the Owner, unless otherwise specified in the Contract Documents, the Contractor shall develop and make all detail surveys needed for the Work such as establishing slope stakes, batter boards, and other working points, lines, elevations and cut sheets.~~

~~The Contractor shall carefully preserve all benchmarks and control points and stakes and, in case of destruction, he shall be charged with the expense of resetting same, and shall be responsible for any mistakes that may be caused by their loss or disturbance.~~

END OF SECTION

SECTION 230500 - COMMON WORK RESULTS FOR HVAC

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Piping materials and installation instructions common to most piping systems.
2. Transition fittings.
3. Dielectric fittings.
4. Mechanical sleeve seals.
5. Sleeves.
6. Escutcheons.
7. HVAC demolition.
8. Equipment installation requirements common to equipment sections.
9. Painting and finishing.
10. Supports and anchorages.

1.3 DEFINITIONS

A. Finished Spaces: Spaces other than mechanical and electrical equipment rooms, furred spaces, pipe and duct chases, unheated spaces immediately below roof, spaces above ceilings, unexcavated spaces, crawlspaces, and tunnels.

B. Exposed, Interior Installations: Exposed to view indoors. Examples include finished occupied spaces and mechanical equipment rooms.

C. Exposed, Exterior Installations: Exposed to view outdoors or subject to outdoor ambient temperatures and weather conditions. Examples include rooftop locations.

D. Concealed, Interior Installations: Concealed from view and protected from physical contact by building occupants. Examples include above ceilings and chases.

E. The following are industry abbreviations for plastic materials:

1. CPVC: Chlorinated polyvinyl chloride plastic.
2. PE: Polyethylene plastic.
3. PVC: Polyvinyl chloride plastic.

F. The following are industry abbreviations for rubber materials:

1. EPDM: Ethylene-propylene-diene terpolymer rubber.
2. NBR: Acrylonitrile-butadiene rubber.

1.4 SUBMITTALS

A. Product Data: For the following:

1. Transition fittings.
2. Dielectric fittings.
3. Mechanical sleeve seals.
4. Escutcheons.

B. LEED Submittals:

1. Product Data for Prerequisite EQ 1: Documentation indicating that units comply with ASHRAE 62.1, Section 5 - "Systems and Equipment."

1.5 QUALITY ASSURANCE

A. Electrical Characteristics for HVAC Equipment: Equipment of higher electrical characteristics may be furnished provided such proposed equipment is approved in writing and connecting electrical services, circuit breakers, and conduit sizes are appropriately modified. If minimum energy ratings or efficiencies are specified, equipment shall comply with requirements.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver pipes and tubes with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe end damage and to prevent entrance of dirt, debris, and moisture.

1.7 COORDINATION

A. Arrange for pipe spaces, chases, slots, and openings in building structure during progress of construction, to allow for HVAC installations.

B. Coordinate installation of required supporting devices and set sleeves in poured-in-place concrete and other structural components as they are constructed.

C. Coordinate requirements for access panels and doors for HVAC items requiring access that are concealed behind finished surfaces. Access panels and doors are specified in Division 08 Section "Access Doors and Frames."

1.8 COMMISSIONING

A. Manufacturer’s representative shall commission the systems.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where subparagraph titles below introduce lists, the following requirements apply for product selection:
   1. Available Manufacturers: Subject to compliance with requirements, provide products by the manufacturers specified.

2.2 PIPE, TUBE, AND FITTINGS

A. Refer to individual Division 23 piping Sections for pipe, tube, and fitting materials and joining methods.

B. Pipe Threads: ASME B1.20.1 for factory-threaded pipe and pipe fittings.

2.3 JOINING MATERIALS

A. Refer to individual Division 23 piping Sections for special joining materials not listed below.

B. Pipe-Flange Gasket Materials: Suitable for chemical and thermal conditions of piping system contents.

   1. ASME B16.21, nonmetallic, flat, asbestos-free, 1/8-inch maximum thickness unless 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. AWWA C110, rubber, flat face, 1/8 inch thick, unless otherwise indicated; and full-face or ring type, unless otherwise indicated.

C. Flange Bolts and Nuts: ASME B18.2.1, carbon steel, unless otherwise indicated.

D. Solder Filler Metals: ASTM B 32, lead-free alloys. Include water-flushable flux according to ASTM B 813.

E. Brazing Filler Metals: AWS A5.8, BCuP Series, copper-phosphorus alloys for general-duty brazing, unless otherwise indicated; and AWS A5.8, BAg1, silver alloy for refrigerant piping, unless otherwise indicated.

2.4 DIELECTRIC FITTINGS

A. Description: Combination fitting of copper alloy and ferrous materials with threaded, solder-joint, plain, or weld-neck end connections that match piping system materials.

B. Insulating Material: Suitable for system fluid, pressure, and temperature.

C. Dielectric Unions: Factory-fabricated, union assembly, for 250-psig minimum working pressure at 180 deg F.

1. Available Manufacturers:

a. Capitol Manufacturing Co.
b. Central Plastics Company.
c. Eclipse, Inc.
d. Epco Sales, Inc.
e. Hart Industries, International, Inc.
f. Watts Industries, Inc.; Water Products Div.
g. Zurn Industries, Inc.; Wilkins Div.

D. Dielectric Flanges: Factory-fabricated, companion-flange assembly, for 150- or 300-psig minimum working pressure as required to suit system pressures.

1. Available Manufacturers:

a. Capitol Manufacturing Co.
b. Central Plastics Company.
c. Epco Sales, Inc.
d. Watts Industries, Inc.; Water Products Div.

E. Dielectric-Flange Kits: Companion-flange assembly for field assembly. Include flanges, full-face- or ring-type neoprene or phenolic gasket, phenolic or polyethylene bolt sleeves, phenolic washers, and steel backing washers.

1. Available Manufacturers:

a. Advance Products & Systems, Inc.
b. Calpico, Inc.
c. Central Plastics Company.
d. Pipeline Seal and Insulator, Inc.

2. Separate companion flanges and steel bolts and nuts shall have 150- or 300-psig minimum working pressure where required to suit system pressures.

F. Dielectric Couplings: Galvanized-steel coupling with inert and noncorrosive, thermoplastic lining; threaded ends; and 300-psig minimum working pressure at 225 deg F.

1. Available Manufacturers:

a. Calpico, Inc.
b. Lochinvar Corp.

G. Dielectric Nipples: Electroplated steel nipple with inert and noncorrosive, thermoplastic lining; plain, threaded, or grooved ends; and 300-psig minimum working pressure at 225 deg F.

1. Available Manufacturers:

a. Perfection Corp.
b. Precision Plumbing Products, Inc.
c. Sioux Chief Manufacturing Co., Inc.
d. Victaulic Co. of America.

2.5 MECHANICAL SLEEVE SEALS

A. Description: Modular sealing element unit, designed for field assembly, to fill annular space between pipe and sleeve.

1. Available Manufacturers:

a. Advance Products & Systems, Inc.
b. Calpico, Inc.
c. Metraflex Co.
d. Pipeline Seal and Insulator, Inc.

2. Sealing Elements: EPDM interlocking links shaped to fit surface of pipe. Include type and number required for pipe material and size of pipe.
3. Pressure Plates: Carbon steel. Include two for each sealing element.
4. Connecting Bolts and Nuts: Carbon steel with corrosion-resistant coating of length required to secure pressure plates to sealing elements. Include one for each sealing element.

2.6 SLEEVES

A. Steel Pipe: ASTM A 53, Type E, Grade B, Schedule 40, galvanized, plain ends.

B. Stack Sleeve Fittings: Manufactured, cast-iron sleeve with integral clamping flange. Include clamping ring and bolts and nuts for membrane flashing.

1. Underdeck Clamp: Clamping ring with set screws.

2.7 ESCUTCHEONS

A. Description: Manufactured wall and ceiling escutcheons and floor plates, with an ID to closely fit around pipe, tube, and insulation of insulated piping and an OD that completely covers opening.

B. One-Piece, Deep-Pattern Type: Deep-drawn, box-shaped brass with polished chrome-plated finish.

C. One-Piece, Cast-Brass Type: With set screw.

1. Finish: Polished chrome-plated and rough brass.

D. Split-Casting, Cast-Brass Type: With concealed hinge and set screw.

1. Finish: Polished chrome-plated and rough brass.

E. One-Piece, Floor-Plate Type: Cast-iron floor plate.

F. Split-Casting, Floor-Plate Type: Cast brass with concealed hinge and set screw.

PART 3 - EXECUTION

3.1 HVAC DEMOLITION

A. Disconnect, demolish, and remove HVAC systems, equipment, and components indicated to be removed.

1. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
2. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
3. Equipment to Be Removed: Disconnect and cap services and remove equipment.
4. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
5. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.

B. If pipe, insulation, or equipment to remain is damaged in appearance or is unserviceable, remove damaged or unserviceable portions and replace with new products of equal capacity and quality.

3.2 PIPING SYSTEMS - COMMON REQUIREMENTS

A. Install piping according to the following requirements and Division 23 Sections specifying piping systems.

B. Drawing plans, schematics, and diagrams indicate general location and arrangement of piping systems. Indicated locations and arrangements were used to size pipe and calculate friction loss, expansion, pump sizing, and other design considerations. Install piping as indicated unless deviations to layout are approved on Coordination Drawings.

C. Install piping in concealed locations, unless otherwise indicated and except in equipment rooms and service areas.

D. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.

E. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal.

F. Install piping to permit valve servicing.

G. Install piping at indicated slopes.

H. Install piping free of sags and bends.

I. Install fittings for changes in direction and branch connections.

J. Install piping to allow application of insulation.

K. Select system components with pressure rating equal to or greater than system operating pressure.

L. Install escutcheons for penetrations of walls, ceilings, and floors according to the following:

1. New Piping:

    a. Piping with Fitting or Sleeve Protruding from Wall: One-piece, deep-pattern type.
    b. Insulated Piping: One-piece, stamped-steel type with spring clips.
    c. Bare Piping at Wall and Floor Penetrations in Finished Spaces: One-piece, cast-brass type with polished chrome-plated finish.
    d. Bare Piping at Ceiling Penetrations in Finished Spaces: One-piece or split-casting, cast-brass type with polished chrome-plated finish.
    e. Bare Piping in Unfinished Service Spaces: One-piece, cast-brass type with rough-brass finish.

2. Existing Piping: Use the following:

    a. Chrome-Plated Piping: Split-casting, cast-brass type with chrome-plated finish.
    b. Insulated Piping: Split-plate, stamped-steel type with concealed or exposed-rivet hinge and spring clips.
    c. Bare Piping at Wall and Floor Penetrations in Finished Spaces: Split-casting, cast-brass type with chrome-plated finish.
    d. Bare Piping at Ceiling Penetrations in Finished Spaces: Split-casting, cast-brass type with chrome-plated finish.
    e. Bare Piping in Unfinished Service Spaces: Split-casting, cast-brass type with rough-brass finish.

M. Sleeves are not required for core-drilled holes.

N. Permanent sleeves are not required for holes formed by removable PE sleeves.

O. Install sleeves for pipes passing through concrete and masonry walls and concrete floor and roof slabs.

P. Install sleeves for pipes passing through concrete and masonry walls, gypsum-board partitions, and concrete floor and roof slabs.

1. Cut sleeves to length for mounting flush with both surfaces.

a. Exception: Extend sleeves installed in floors of mechanical equipment areas or other wet areas 2 inches above finished floor level. Extend cast-iron sleeve fittings below floor slab as required to secure clamping ring if ring is specified.

2. Install sleeves in new walls and slabs as new walls and slabs are constructed.
3. Install sleeves that are large enough to provide 1/4-inch annular clear space between sleeve and pipe or pipe insulation. Use the following sleeve materials:

a. Steel Pipe Sleeves: For pipes smaller than NPS 6.
b. Stack Sleeve Fittings: For pipes penetrating floors with membrane waterproofing. Secure flashing between clamping flanges. Install section of cast-iron soil pipe to extend sleeve to 2 inches above finished floor level. Refer to Division 07 Section "Sheet Metal Flashing and Trim" for flashing.

1) Seal space outside of sleeve fittings with grout.

4. Except for underground wall penetrations, seal annular space between sleeve and pipe or pipe insulation, using joint sealants appropriate for size, depth, and location of joint. Refer to Division 07 Section "Joint Sealants" for materials and installation.

Q. Fire-Barrier Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at pipe penetrations. Seal pipe penetrations with firestop materials. Refer to Division 07 Section "Penetration Firestopping" for materials.

R. Verify final equipment locations for roughing-in.

S. Refer to equipment specifications in other Sections of these Specifications for roughing-in requirements.

3.3 PIPING JOINT CONSTRUCTION

A. Join pipe and fittings according to the following requirements and Division 23 Sections specifying piping systems.

B. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.

C. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.

D. Soldered Joints: Apply ASTM B 813, water-flushable flux, unless otherwise indicated, to tube end. Construct joints according to ASTM B 828 or CDA's "Copper Tube Handbook," using lead-free solder alloy complying with ASTM B 32.

E. Brazed Joints: Construct joints according to AWS's "Brazing Handbook," "Pipe and Tube" Chapter, using copper-phosphorus brazing filler metal complying with AWS A5.8.

F. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:

1. Apply appropriate tape or thread compound to external pipe threads unless dry seal threading is specified.
2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.

G. Flanged Joints: Select appropriate gasket material, size, type, and thickness for service application. Install gasket concentrically positioned. Use suitable lubricants on bolt threads.

3.4 PIPING CONNECTIONS

A. Make connections according to the following, unless otherwise indicated:

1. Install unions, in piping NPS 2 and smaller, adjacent to each valve and at final connection to each piece of equipment.
2. Install flanges, in piping NPS 2-1/2 and larger, adjacent to flanged valves and at final connection to each piece of equipment.
3. Wet Piping Systems: Install dielectric coupling and nipple fittings to connect piping materials of dissimilar metals.

3.5 EQUIPMENT INSTALLATION - COMMON REQUIREMENTS

A. Install equipment to allow maximum possible headroom unless specific mounting heights are not indicated.

B. Install equipment level and plumb, parallel and perpendicular to other building systems and components in exposed interior spaces, unless otherwise indicated.

C. Install HVAC equipment to facilitate service, maintenance, and repair or replacement of components. Connect equipment for ease of disconnecting, with minimum interference to other installations. Extend grease fittings to accessible locations.

D. Install equipment to allow right of way for piping installed at required slope.

3.6 PAINTING

A. Painting of HVAC systems, equipment, and components is specified in Division 09 Sections "Interior Painting" and "Exterior Painting."

B. Damage and Touchup: Repair marred and damaged factory-painted finishes with materials and procedures to match original factory finish.

3.7 ERECTION OF METAL SUPPORTS AND ANCHORAGES

A. Refer to Division 05 Section "Metal Fabrications" for structural steel.

B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor HVAC materials and equipment.

C. Field Welding: Comply with AWS D1.1.

END OF SECTION 230500

SECTION 230529 - HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following hangers and supports for HVAC system piping and equipment:
   1. Trapeze pipe hangers.
   2. Metal framing systems.
   3. Thermal-hanger shield inserts.
   4. Fastener systems.
   5. Pipe stands.
   6. Equipment supports.

B. Related Sections include the following:

   1. Division 23 Section(s) "Metal Ducts" for duct hangers and supports.

1.3 DEFINITIONS

A. MSS: Manufacturers Standardization Society for The Valve and Fittings Industry Inc.

B. Terminology: As defined in MSS SP-90, "Guidelines on Terminology for Pipe Hangers and Supports."

1.4 PERFORMANCE REQUIREMENTS

A. Design supports for multiple pipes, including pipe stands, capable of supporting combined weight of supported systems, system contents, and test water.

B. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.

1.5 SUBMITTALS

A. Product Data: For the following:

1. Steel pipe hangers and supports.
2. Thermal-hanger shield inserts.
3. Powder-actuated fastener systems.

B. Shop Drawings: Show fabrication and installation details and include calculations for the following:

1. Trapeze pipe hangers. Include Product Data for components.
2. Metal framing systems. Include Product Data for components.
3. Pipe stands. Include Product Data for components.
4. Equipment supports.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
1. Available Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

2.2 STEEL PIPE HANGERS AND SUPPORTS

A. Description: MSS SP-58, Types 1 through 58, factory-fabricated components. Refer to Part 3 "Hanger and Support Applications" Article for where to use specific hanger and support types.

B. Available Manufacturers:

1. AAA Technology & Specialties Co., Inc.
2. Bergen-Power Pipe Supports.
3. B-Line Systems, Inc.; a division of Cooper Industries.
4. Carpenter & Paterson, Inc.
5. Empire Industries, Inc.
6. ERICO/Michigan Hanger Co.
7. Globe Pipe Hanger Products, Inc.
8. Grinnell Corp.
9. GS Metals Corp.
10. National Pipe Hanger Corporation.
11. PHD Manufacturing, Inc.
12. PHS Industries, Inc.
13. Piping Technology & Products, Inc.
14. Tolco Inc.

C. Nonmetallic Coatings: Plastic coating, jacket, or liner.

D. Padded Hangers: Hanger with fiberglass or other pipe insulation pad or cushion for support of bearing surface of piping.

2.3 TRAPEZE PIPE HANGERS

A. Description: MSS SP-69, Type 59, shop- or field-fabricated pipe-support assembly made from structural-steel shapes with MSS SP-58 hanger rods, nuts, saddles, and U-bolts.

2.4 METAL FRAMING SYSTEMS

A. Description: MFMA-3, shop- or field-fabricated pipe-support assembly made of steel channels and other components.

B. Available Manufacturers:

1. B-Line Systems, Inc.; a division of Cooper Industries.
2. ERICO/Michigan Hanger Co.; ERISTRUT Div.
3. GS Metals Corp.
4. Power-Strut Div.; Tyco International, Ltd.
5. Thomas & Betts Corporation.
6. Tolco Inc.
7. Unistrut Corp.; Tyco International, Ltd.

C. Coatings: Manufacturer's standard finish, unless bare metal surfaces are indicated.

D. Nonmetallic Coatings: Plastic coating, jacket, or liner.

2.5 THERMAL-HANGER SHIELD INSERTS

A. Description: 100-psig- minimum, compressive-strength insulation insert encased in sheet metal shield.

B. Available Manufacturers:

1. Carpenter & Paterson, Inc.
2. ERICO/Michigan Hanger Co.
3. PHS Industries, Inc.
4. Pipe Shields, Inc.
5. Rilco Manufacturing Company, Inc.
6. Value Engineered Products, Inc.

C. Insulation-Insert Material for Cold Piping: Water-repellent treated, ASTM C 533, Type I calcium silicate or ASTM C 552, Type II cellular glass with vapor barrier.

D. Insulation-Insert Material for Hot Piping: Water-repellent treated, ASTM C 533, Type I calcium silicate or ASTM C 552, Type II cellular glass.

E. For Trapeze or Clamped Systems: Insert and shield shall cover entire circumference of pipe.

F. For Clevis or Band Hangers: Insert and shield shall cover lower 180 degrees of pipe.

G. Insert Length: Extend 2 inches beyond sheet metal shield for piping operating below ambient air temperature.

2.6 FASTENER SYSTEMS

A. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.

1. Available Manufacturers:

a. Hilti, Inc.
b. ITW Ramset/Red Head.
c. Masterset Fastening Systems, Inc.
d. MKT Fastening, LLC.
e. Powers Fasteners.

B. Mechanical-Expansion Anchors: Insert-wedge-type zinc-coated steel, for use in hardened portland cement concrete with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.

1. Available Manufacturers:

a. B-Line Systems, Inc.; a division of Cooper Industries.
b. Empire Industries, Inc.
c. Hilti, Inc.
d. ITW Ramset/Red Head.
e. MKT Fastening, LLC.
f. Powers Fasteners.

2.7 EQUIPMENT SUPPORTS

A. Description: Welded, shop- or field-fabricated equipment support made from structural-steel shapes.

2.8 MISCELLANEOUS MATERIALS

A. Structural Steel: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.

PART 3 - EXECUTION

3.1 HANGER AND SUPPORT APPLICATIONS

A. Specific hanger and support requirements are specified in Sections specifying piping systems and equipment.

B. Comply with MSS SP-69 for pipe hanger selections and applications that are not specified in piping system Sections.

C. Use hangers and supports with galvanized, metallic coatings for piping and equipment that will not have field-applied finish.

D. Use nonmetallic coatings on attachments for electrolytic protection where attachments are in direct contact with copper tubing.

E. Use padded hangers for piping that is subject to scratching.

F. Horizontal-Piping Hangers and Supports: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Adjustable, Steel Clevis Hangers (MSS Type 1): For suspension of noninsulated or insulated stationary pipes, NPS 1/2 to NPS 30.
2. Carbon- or Alloy-Steel, Double-Bolt Pipe Clamps (MSS Type 3): For suspension of pipes, NPS 3/4 to NPS 24, requiring clamp flexibility and up to 4 inches of insulation.
3. Steel Pipe Clamps (MSS Type 4): For suspension of cold and hot pipes, NPS 1/2 to NPS 24, if little or no insulation is required.
4. Pipe Hangers (MSS Type 5): For suspension of pipes, NPS 1/2 to NPS 4, to allow off-center closure for hanger installation before pipe erection.
5. Adjustable, Swivel Split- or Solid-Ring Hangers (MSS Type 6): For suspension of noninsulated stationary pipes, NPS 3/4 to NPS 8.
6. Adjustable, Steel Band Hangers (MSS Type 7): For suspension of noninsulated stationary pipes, NPS 1/2 to NPS 8.
7. Adjustable Band Hangers (MSS Type 9): For suspension of noninsulated stationary pipes, NPS 1/2 to NPS 8.
8. Adjustable, Swivel-Ring Band Hangers (MSS Type 10): For suspension of noninsulated stationary pipes, NPS 1/2 to NPS 2.
9. Split Pipe-Ring with or without Turnbuckle-Adjustment Hangers (MSS Type 11): For suspension of noninsulated stationary pipes, NPS 3/8 to NPS 8.
10. Extension Hinged or 2-Bolt Split Pipe Clamps (MSS Type 12): For suspension of noninsulated stationary pipes, NPS 3/8 to NPS 3.
11. Adjustable, Pipe Saddle Supports (MSS Type 38): For stanchion-type support for pipes, NPS 2-1/2 to NPS 36, if vertical adjustment is required, with steel pipe base stanchion support and cast-iron floor flange.
12. Single Pipe Rolls (MSS Type 41): For suspension of pipes, NPS 1 to NPS 30, from 2 rods if longitudinal movement caused by expansion and contraction might occur.

13. Adjustable Roller Hangers (MSS Type 43): For suspension of pipes, NPS 2-1/2 to NPS 20, from single rod if horizontal movement caused by expansion and contraction might occur.
14. Complete Pipe Rolls (MSS Type 44): For support of pipes, NPS 2 to NPS 42, if longitudinal movement caused by expansion and contraction might occur but vertical adjustment is not necessary.
15. Pipe Roll and Plate Units (MSS Type 45): For support of pipes, NPS 2 to NPS 24, if small horizontal movement caused by expansion and contraction might occur and vertical adjustment is not necessary.
16. Adjustable Pipe Roll and Base Units (MSS Type 46): For support of pipes, NPS 2 to NPS 30, if vertical and lateral adjustment during installation might be required in addition to expansion and contraction.

G. Vertical-Piping Clamps: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Extension Pipe or Riser Clamps (MSS Type 8): For support of pipe risers, NPS 3/4 to NPS 20.
2. Carbon- or Alloy-Steel Riser Clamps (MSS Type 42): For support of pipe risers, NPS 3/4 to NPS 20, if longer ends are required for riser clamps.

H. Hanger-Rod Attachments: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Steel Turnbuckles (MSS Type 13): For adjustment up to 6 inches for heavy loads.
2. Steel Clevises (MSS Type 14): For 120 to 450 deg F piping installations.
3. Swivel Turnbuckles (MSS Type 15): For use with MSS Type 11, split pipe rings.
4. Malleable-Iron Sockets (MSS Type 16): For attaching hanger rods to various types of building attachments.
5. Steel Weldless Eye Nuts (MSS Type 17): For 120 to 450 deg F piping installations.

I. Building Attachments: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Steel or Malleable Concrete Inserts (MSS Type 18): For upper attachment to suspend pipe hangers from concrete ceiling.
2. Center-Beam Clamps (MSS Type 21): For attaching to center of bottom flange of beams.
3. Top-Beam Clamps (MSS Type 25): For top of beams if hanger rod is required tangent to flange edge.
4. Side-Beam Clamps (MSS Type 27): For bottom of steel I-beams.
5. Steel-Beam Clamps with Eye Nuts (MSS Type 28): For attaching to bottom of steel I-beams for heavy loads.
6. Linked-Steel Clamps with Eye Nuts (MSS Type 29): For attaching to bottom of steel I-beams for heavy loads, with link extensions.
7. Malleable Beam Clamps with Extension Pieces (MSS Type 30): For attaching to structural steel.
8. Side-Beam Brackets (MSS Type 34): For sides of steel or wooden beams.

9. Horizontal Travelers (MSS Type 58): For supporting piping systems subject to linear horizontal movement where headroom is limited.

J. Saddles and Shields: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Steel Pipe-Covering Protection Saddles (MSS Type 39): To fill interior voids with insulation that matches adjoining insulation.
2. Protection Shields (MSS Type 40): Of length recommended in writing by manufacturer to prevent crushing insulation.
3. Thermal-Hanger Shield Inserts: For supporting insulated pipe.

K. Spring Hangers and Supports: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Restraint-Control Devices (MSS Type 47): Where indicated to control piping movement.
2. Spring Cushions (MSS Type 48): For light loads if vertical movement does not exceed 1-1/4 inches.
3. Spring-Cushion Roll Hangers (MSS Type 49): For equipping Type 41 roll hanger with springs.
4. Spring Sway Braces (MSS Type 50): To retard sway, shock, vibration, or thermal expansion in piping systems.
5. Variable-Spring Hangers (MSS Type 51): Preset to indicated load and limit variability factor to 25 percent to absorb expansion and contraction of piping system from hanger.
6. Variable-Spring Trapeze Hangers (MSS Type 53): Preset to indicated load and limit variability factor to 25 percent to absorb expansion and contraction of piping system from trapeze support.
7. Constant Supports: For critical piping stress and if necessary to avoid transfer of stress from one support to another support, critical terminal, or connected equipment. Include auxiliary stops for erection, hydrostatic test, and load-adjustment capability. These supports include the following types:

a. Horizontal (MSS Type 54): Mounted horizontally.
b. Vertical (MSS Type 55): Mounted vertically.
c. Trapeze (MSS Type 56): Two vertical-type supports and one trapeze member.

L. Comply with MSS SP-69 for trapeze pipe hanger selections and applications that are not specified in piping system Sections.

M. Comply with MFMA-102 for metal framing system selections and applications that are not specified in piping system Sections.

N. Use powder-actuated fasteners or mechanical-expansion anchors instead of building attachments where required in concrete construction.

3.2 HANGER AND SUPPORT INSTALLATION

A. Steel Pipe Hanger Installation: Comply with MSS SP-69 and MSS SP-89. Install hangers, supports, clamps, and attachments as required to properly support piping from building structure.

B. Trapeze Pipe Hanger Installation: Comply with MSS SP-69 and MSS SP-89. Arrange for grouping of parallel runs of horizontal piping and support together on field-fabricated trapeze pipe hangers.

1. Pipes of Various Sizes: Support together and space trapezes for smallest pipe size or install intermediate supports for smaller diameter pipes as specified above for individual pipe hangers.
2. Field fabricate from ASTM A 36/A 36M, steel shapes selected for loads being supported. Weld steel according to AWS D1.1.

C. Metal Framing System Installation: Arrange for grouping of parallel runs of piping and support together on field-assembled metal framing systems.

D. Thermal-Hanger Shield Installation: Install in pipe hanger or shield for insulated piping.

E. Fastener System Installation:

1. Install powder-actuated fasteners for use in lightweight concrete or concrete slabs less than 4 inches thick in concrete after concrete is placed and completely cured. Use operators that are licensed by powder-actuated tool manufacturer. Install fasteners according to powder-actuated tool manufacturer's operating manual.
2. Install mechanical-expansion anchors in concrete after concrete is placed and completely cured. Install fasteners according to manufacturer's written instructions.

F. Pipe Stand Installation:

1. Pipe Stand Types: Assemble components and mount on smooth roof surface. Do not penetrate roof membrane.

G. Install hangers and supports complete with necessary inserts, bolts, rods, nuts, washers, and other accessories.

H. Equipment Support Installation: Fabricate from welded-structural-steel shapes.

I. Install hangers and supports to allow controlled thermal and seismic movement of piping systems, to permit freedom of movement between pipe anchors, and to facilitate action of expansion joints, expansion loops, expansion bends, and similar units.

J. Install lateral bracing with pipe hangers and supports to prevent swaying.

K. Install building attachments within concrete slabs or attach to structural steel. Install additional attachments at concentrated loads, including valves, flanges, and strainers, NPS 2-1/2 and larger

and at changes in direction of piping. Install concrete inserts before concrete is placed; fasten inserts to forms and install reinforcing bars through openings at top of inserts.

L. Load Distribution: Install hangers and supports so piping live and dead loads and stresses from movement will not be transmitted to connected equipment.

M. Pipe Slopes: Install hangers and supports to provide indicated pipe slopes and so maximum pipe deflections allowed by ASME B31.1 (for power piping) and ASME B31.9 (for building services piping) are not exceeded.

N. Insulated Piping: Comply with the following:

1. Attach clamps and spacers to piping.

    a. Piping Operating above Ambient Air Temperature: Clamp may project through insulation.
    b. Piping Operating below Ambient Air Temperature: Use thermal-hanger shield insert with clamp sized to match OD of insert.
    c. Do not exceed pipe stress limits according to ASME B31.1 for power piping and ASME B31.9 for building services piping.

2. Install MSS SP-58, Type 39, protection saddles if insulation without vapor barrier is indicated. Fill interior voids with insulation that matches adjoining insulation.

    a. Option: Thermal-hanger shield inserts may be used. Include steel weight-distribution plate for pipe NPS 4 and larger if pipe is installed on rollers.

3. Install MSS SP-58, Type 40, protective shields on cold piping with vapor barrier. Shields shall span an arc of 180 degrees.

    a. Option: Thermal-hanger shield inserts may be used. Include steel weight-distribution plate for pipe NPS 4 and larger if pipe is installed on rollers.

4. Shield Dimensions for Pipe: Not less than the following:

    a. NPS 1/4 to NPS 3-1/2: 12 inches long and 0.048 inch thick.

5. Insert Material: Length at least as long as protective shield.
6. Thermal-Hanger Shields: Install with insulation same thickness as piping insulation.

3.3 METAL FABRICATIONS

A. Cut, drill, and fit miscellaneous metal fabrications for trapeze pipe hangers.

B. Fit exposed connections together to form hairline joints. Field weld connections that cannot be shop welded because of shipping size limitations.

3.4 ADJUSTING

A. Hanger Adjustments: Adjust hangers to distribute loads equally on attachments and to achieve indicated slope of pipe.

B. Trim excess length of continuous-thread hanger and support rods to 1-1/2 inches.

3.5 PAINTING

A. Touch Up: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.

1. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils.

B. Touch Up: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint on miscellaneous metal are specified in Division 09 painting Sections.

END OF SECTION 230529

SECTION 230553 - IDENTIFICATION FOR HVAC PIPING AND EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Equipment labels.
2. Pipe labels.
3. Duct labels.
4. Valve tags.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples: For color, letter style, and graphic representation required for each identification material and device.

C. Equipment Label Schedule: Include a listing of all equipment to be labeled with the proposed content for each label.

D. Valve numbering scheme.

E. Valve Schedules: For each piping system to include in maintenance manuals.

1.4 COORDINATION

A. Coordinate installation of identifying devices with completion of covering and painting of surfaces where devices are to be applied.

B. Coordinate installation of identifying devices with locations of access panels and doors.

C. Install identifying devices before installing acoustical ceilings and similar concealment.

PART 2 - PRODUCTS

2.1 EQUIPMENT LABELS

A. Metal Labels for Equipment:

1. Material and Thickness: Brass, 0.032-inch minimum thickness, and having predrilled or stamped holes for attachment hardware.
2. Minimum Label Size: Length and width vary for required label content, but not less than 2-1/2 by 3/4 inch.
3. Minimum Letter Size: 1/4 inch for name of units if viewing distance is less than 24 inches, 1/2 inch for viewing distances up to 72 inches, and proportionately larger lettering for greater viewing distances. Include secondary lettering two-thirds to three-fourths the size of principal lettering.
4. Fasteners: Stainless-steel rivets
5. Adhesive: Contact-type permanent adhesive, compatible with label and with substrate.

B. Label Content: Include equipment's Drawing designation or unique equipment number, Drawing numbers where equipment is indicated (plans, details, and schedules), plus the Specification Section number and title where equipment is specified.

C. Equipment Label Schedule: For each item of equipment to be labeled, on 8-1/2-by-11-inch bond paper. Tabulate equipment identification number and identify Drawing numbers where equipment is indicated (plans, details, and schedules), plus the Specification Section number and title where equipment is specified. Equipment schedule shall be included in operation and maintenance data.

2.2 PIPE LABELS

A. General Requirements for Manufactured Pipe Labels: Preprinted, color-coded, with lettering indicating service, and showing flow direction.

B. Self-Adhesive Pipe Labels: Printed plastic with contact-type, permanent-adhesive backing.

C. Pipe Label Contents: Include identification of piping service using same designations or abbreviations as used on Drawings, pipe size, and an arrow indicating flow direction.

1. Flow-Direction Arrows: Integral with piping system service lettering to accommodate both directions, or as separate unit on each pipe label to indicate flow direction.
2. Lettering Size: At least 1-1/2 inches high.

2.3 VALVE TAGS

A. Valve Tags: Stamped or engraved with 1/4-inch letters for piping system abbreviation and 1/2-inch numbers.

1. Tag Material: Brass, 0.032-inch minimum thickness, and having predrilled or stamped holes for attachment hardware.
2. Fasteners: Brass wire-link or beaded chain; or S-hook.

B. Valve Schedules: For each piping system, on 8-1/2-by-11-inch bond paper. Tabulate valve number, piping system, system abbreviation (as shown on valve tag), location of valve (room or space), normal-operating position (open, closed, or modulating), and variations for identification. Mark valves for emergency shutoff and similar special uses.

1. Valve-tag schedule shall be included in operation and maintenance data.

PART 3 - EXECUTION

3.1 PREPARATION

A. Clean piping and equipment surfaces of substances that could impair bond of identification devices, including dirt, oil, grease, release agents, and incompatible primers, paints, and encapsulants.

3.2 EQUIPMENT LABEL INSTALLATION

A. Install or permanently fasten labels on each major item of mechanical equipment.

B. Locate equipment labels where accessible and visible.

3.3 PIPE LABEL INSTALLATION

A. Locate pipe labels where piping is exposed or above accessible ceilings in finished spaces; machine rooms; accessible maintenance spaces such as shafts, tunnels, and plenums; and exterior exposed locations as follows:

1. Near each valve and control device.
2. Near each branch connection, excluding short takeoffs for fixtures and terminal units. Where flow pattern is not obvious, mark each pipe at branch.
3. Near penetrations through walls, floors, ceilings, and inaccessible enclosures.
4. At access doors, manholes, and similar access points that permit view of concealed piping.
5. Near major equipment items and other points of origination and termination.
6. Spaced at maximum intervals of 50 feet along each run. Reduce intervals to 25 feet in areas of congested piping and equipment.
7. On piping above removable acoustical ceilings. Omit intermediately spaced labels.

B. Pipe Label Color Schedule:

1. Refrigerant Piping:

a. Background Color: Blue.
b. Letter Color: Black.

2. Condensate piping
   a. Background Color: Light Green.
   b. Letter Color: Black.

3.4 VALVE-TAG INSTALLATION

A. Install tags on valves and control devices in piping systems, except check valves; valves within factory-fabricated equipment units; shutoff valves; faucets; convenience and lawn-watering hose connections; and HVAC terminal devices and similar roughing-in connections of end-use fixtures and units. List tagged valves in a valve schedule.

B. Valve-Tag Application Schedule: Tag valves according to size, shape, and color scheme and with captions similar to those indicated in the following subparagraphs:

1. Valve-Tag Size and Shape:

   a. All: 1-1/2 inches round.
   b. Select contrasting valve-tag color and letter color in two subparagraphs below for each service. Retain "Natural" option for brass or stainless-steel valve tags.

2. Valve-Tag Color:
   a. Refrigerant: Blue
   b. Condensate: Light Green

3. Letter Color:
   a. Refrigerant: Black
   b. Condensate: Black

END OF SECTION 230553

SECTION 230700 - MECHANICAL: INSULATION

PART 1 – GENERAL

1.1 DESCRIPTION

A. The work required under this Section shall conform to the requirements of "General Conditions of Contractor for Construction", "Supplementary General Conditions", and "Supplementary Conditions for Mechanical and Electrical Trades".

1.2 WORK INCLUDED

A. All labor, materials, equipment, and services shall be provided. All operations required for complete installation of insulation and related work, as indicated on the Drawings or specified herein, shall be performed. The execution of the work shall be in strict accordance with the insulation manufacturer's recommendations and the best practice of the trade.

1.3 GENERAL REQUIREMENTS

A. Clean and dry all surfaces to be insulated of rust, scale, dirt, oil, water, and other foreign matter.

B. Apply insulation to completely cover metal surfaces. Apply surface finish to present a tight, smooth appearance.

C. Apply insulation to permit expansion or contraction of metal without causing damage to insulation or surface finish.

D. Do not apply seal or cement until all previous application of cements and adhesives have thoroughly dried.

E. Fill surface imperfections in the insulation such as chipped edges, small joints or cracks, and small voids or holes with insulation material and smooth with a skim coat of insulating cement.

F. Extend the surface finish to protect all insulation surfaces. No raw edges or ends shall be exposed.

G. Do not staple through vapor barrier finishes.

H. Contractor shall submit for approval the name of the manufacturer, type, and conductivity together with samples of insulation material.

1.4 PIPING INSULATION

A. Fit inside diameter of insulation sections or segments to outside curvature of pipe.

B. Where standard insulation shapes are not available, cut, score or miter segmental, or flat block to fit contour of pipe. Stagger joints of adjoining segments. Fit insulation carefully and secure with wire. Smooth with insulating cement.

C. Insulate valves, strainers, fittings, and flanges with identical material density, thickness and surface finish as the piping insulation. Use pre-molded insulation material where available, otherwise use shape block segments wired on with all edges filled with insulated cements or filler.

D. Insulate the entire surface of fittings and strainers. Insulate valves up to end including bonnets.

E. Bevel the ends of pipe insulation adjacent to flanges to permit bolt removal. Provide a collar of sectional block insulation over the flanges and extend a minimum of 2” over the adjacent pipe insulation. Fasten with wire or bands to permit easy removal. Fill annular spaces with loose insulation.

F. Insulate strainers to permit removal of the basket without disturbing the insulation of the strainer body.

G. Where pipelines pass through floor slab sleeves, interrupt the insulation at the sleeve for all piping services except chilled water and cold water.

H. Where pipelines pass through interior masonry walls or floor, completely fill the space between outside of pipe or insulation and the inside of the sleeve or frames opening with loose insulation.

I. Where insulation saddles are used, fill with insulating cement similar to the cement used with the piping insulation.

J. When in direct contact with the pipe, hangers and supports shall be insulated separately and sealed from the pipe in the same manner as the fittings. The vapor barrier shall be continuous and its integrity maintained throughout.

1.5 DUCTWORK INSULATION

A. Cut, score, or miter insulation to fit shape and contour of equipment. Where surfaces are flat, cylindrical or regularly curved, use pre-molded blocks or segments. Apply insulation in single layers up to 3” thickness; over 3” thick apply in multiple layers. Stagger the insulation joints.

B. Provide permanently fastened angles or plates, where required, to support insulation.

C. Apply insulation on cover plates, heads, and access openings as separate sections, with insulation cut back for access to bolt heads and other fasteners.

D. Do not insulate over nameplates. Cut back the insulation and line the insulation edges with 24 gauge galvanized steel.

1.6 FIRE AND SMOKE REQUIREMENTS

A. Insulation Materials: All insulations to be of non-combustible materials. All insulations, coverings, vapor barriers, and adhesive to have a flame-spread rating no higher than 25, a fuel contributed rating no higher than 50, and a smoke developed rating no higher than 50. Ratings as determined by the "Method of Test Surface Burning Characteristics of Buildings Materials", NFPA No. 255, ASTM E84-70, Underwriters' Laboratories, Inc. Standard.

PART 2 – PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. The insulation shall be the product of Owens Corning (whose product numbers are specified herein), KNAUF, or Certain Teed Corp. All insulation and adhesives shall have a flame-spread rating no higher than 25 and a smoke developed rating no higher than 50 as determined by test method ASTM E84.

2.2 PIPE INSULATION – INDOOR PIPE

A. Insulation P-1

1. Fiberglass SSL-II heavy density with ASJ/SSL jacket.

2. Maximum K-factor: 0.25 at 75°F mean.

3. Temperature Range: 0°F to 850°F.

B. Factory Applied Jacket

1. White, flame retardant, all service, vapor barrier jacket of minimum .001" aluminum foil laminated to kraft paper with a flame retardant snuffer type adhesive, reinforced with glass fibers and self-sealing lap.

2. Permeability: .02 perm.

3. Provide 2" longitudinal lap and 4" circumferential sealing strips.

C. Application

1. Pipe: Fit insulation to pipe, staggering longitudinal joints. Seal laps and sealing strips applied on circumferential joints per manufacturer's recommendations.

2. Fittings, Valves, and Flanges: Apply fabricated segments of insulation or pre-molded PVC fitting covers equal in thickness to adjoining pipe insulation.

D. Surface Finish

1. Piping – Exposed and Concealed: None.

2.3 PIPE INSULATION – OUTDOOR PIPE

A. Insulation P-2

1. Fiberglass SSL-II heavy density with ASJ/SSL jacket.

2. Maximum K-factor: 0.25 at 75°F mean.

3. Temperature Range: 0°F to 850°F.

B. Factory Applied Jacket

1. White, flame retardant, all service, vapor barrier jacket of minimum .001” aluminum foil laminated to kraft paper with a flame retardant snuffer type adhesive, reinforced with glass fibers and self-sealing lap.

2. Permeability: .02 perm.

3. Provide 2” longitudinal lap and 4” circumferential sealing strips.

C. Application

1. Pipe: Fit insulation to pipe, staggering longitudinal joints. Seal laps and sealing strips applied on circumferential joints per manufacturer’s recommendations.

2. Fittings, Valves, and Flanges: Apply fabricated segments of insulation or pre-molded PVC fitting covers equal in thickness to adjoining pipe insulation.

3. All outdoor piping shall be provided with aluminum jacket over insulation installed with seams down.

D. Surface Finish

1. Piping – Exposed and Concealed: None.

2.4 DUCT INSULATION – FLEXIBLE BLANKET – TYPE D-2

A. Insulation

1. Flexible fibrous glass blanket.
2. Minimum Density: 1 ½ pounds per cubic foot.
3. Maximum K-factor: 0.27 at 75°F mean.
4. Temperature Range: 40°F to 250°F.

B. Factory Applied Facing: Vapor barrier facing of minimum 0.7 mil aluminum foil laminated to fire-resistant Kraft paper and reinforced with glass fibers. Permeability -- 0.02 perm.

C. Installation

1. Prepare metal surface to receive adhesive in accordance with the requirements of the adhesive manufacturer.
2. Cement insulation to duct with fire-resistive adhesive of brush consistency and secure with annealed copper wires spaces not more than 12” on center.
3. Seal all insulation joints with pressure-sensitive tape matching the facing to maintain vapor barrier
4. Provide 1” acoustic lining of first 10 feet from self-contained rooftop units. Duct sizes on drawings are free area sizes. Acoustic lining on switch area systems are limited to 10 feet upstream of return fans only.

D. Alternate Manufacturers

1. Certain Teed: “Duct Wrap”
2. KNAUF Fiberglass: “Duct Wrap”

2.4 INSULATION SCHEDULE

A. Pipe

Service	Pipe Size	Spec. Type	Thickness
Refrigerant	All	P-1	1 1/2"
Condensate Drain Piping at HVAC Units	All	P-2	1”

B. Ductwork and plenums shall be insulated per the schedule below unless otherwise noted on the drawings.

Service	Description	Type	Thickness
Outdoor Air	All	D-2	1 1/2"
AC Supply and return 15 feet from units	All	Interior lining	1”
AC Supply (other)	All	D-2	1½”

PART 3 – EXECUTION

3.1 INSTALLATION AND WORKMANSHIP

A. No insulation shall be applied until all tests have been completed. Only insulation and finish materials including adhesives, cements, and mastics, which conform to the requirements of all governing codes and ordinances, shall be used.

END OF SECTION

SECTION 233113 - METAL DUCTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Single-wall rectangular ducts and fittings.
2. Single-wall round ducts and fittings.
3. Sheet metal materials.
4. Duct liner.
5. Sealants and gaskets.
6. Hangers and supports.
7. Seismic-restraint devices.

B. Related Sections:

1. Division 23 Section "Testing, Adjusting, and Balancing for HVAC" for testing, adjusting, and balancing requirements for metal ducts.
2. Division 23 Section "Air Duct Accessories" for dampers, sound-control devices, duct-mounting access doors and panels, turning vanes, and flexible ducts.

1.3 PERFORMANCE REQUIREMENTS

A. Delegated Duct Design: Duct construction, including sheet metal thicknesses, seam and joint construction, reinforcements, and hangers and supports, shall comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" and performance requirements and design criteria indicated in "Duct Schedule" Article.

B. Structural Performance: Duct hangers and supports and seismic restraints shall withstand the effects of gravity and seismic loads and stresses within limits and under conditions described in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible"

1. Seismic Hazard Level A: Seismic force to weight ratio, 0.48.

C. Airstream Surfaces: Surfaces in contact with the airstream shall comply with requirements in ASHRAE 62.1-2004.

1.4 SUBMITTALS

A. Product Data: For each type of the following products:

1. Liners and adhesives.
2. Sealants and gaskets.
3. Seismic-restraint devices.

B. Shop Drawings:

1. Fabrication, assembly, and installation, including plans, elevations, sections, components, and attachments to other work.
2. Factory- and shop-fabricated ducts and fittings.
3. Duct layout indicating sizes, configuration, liner material, and static-pressure classes.
4. Elevation of top of ducts.
5. Dimensions of main duct runs from building grid lines.
6. Fittings.
7. Reinforcement and spacing.
8. Seam and joint construction.
9. Penetrations through fire-rated and other partitions.
10. Equipment installation based on equipment being used on Project.
11. Locations for duct accessories, including dampers, turning vanes, and access doors and panels.
12. Hangers and supports, including methods for duct and building attachment, seismic restraints, and vibration isolation.

C. Coordination Drawings: Plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:

1. Duct installation in congested spaces, indicating coordination with general construction, building components, and other building services. Indicate proposed changes to duct layout.
2. Suspended ceiling components.
3. Structural members to which duct will be attached.
4. Size and location of initial access modules for acoustical tile.
5. Penetrations of smoke barriers and fire-rated construction.
6. Items penetrating finished ceiling including the following:

    a. Lighting fixtures.
    b. Air outlets and inlets.
    c. Speakers.
    d. Sprinklers.
    e. Access panels.
    f. Perimeter moldings.

D. Field quality-control reports.

1.5 QUALITY ASSURANCE

A. ASHRAE Compliance: Applicable requirements in ASHRAE 62.1-2004, Section 5 - "Systems and Equipment" and Section 7 - "Construction and System Start-Up."

B. ASHRAE/IESNA Compliance: Applicable requirements in ASHRAE/IESNA 90.1-2004, Section 6.4.4 - "HVAC System Construction and Insulation."

PART 2 - PRODUCTS

2.1 SINGLE-WALL RECTANGULAR DUCTS AND FITTINGS

A. General Fabrication Requirements: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" based on indicated static-pressure class unless otherwise indicated.

B. Transverse Joints: Select joint types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 1-4, "Transverse (Girth) Joints," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

C. Longitudinal Seams: Select seam types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 1-5, "Longitudinal Seams - Rectangular Ducts," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

D. Elbows, Transitions, Offsets, Branch Connections, and Other Duct Construction: Select types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Chapter 2, "Fittings and Other Construction," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

2.2 SINGLE-WALL ROUND DUCTS AND FITTINGS

A. General Fabrication Requirements: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Chapter 3, "Round, Oval, and Flexible Duct," based on indicated static-pressure class unless otherwise indicated.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following

a. Lindab Inc.
b. McGill AirFlow LLC.
c. SEMCO Incorporated.
d. Sheet Metal Connectors, Inc.
e. Spiral Manufacturing Co., Inc.

B. Transverse Joints: Select joint types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 3-2, "Transverse Joints - Round Duct," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

1. Transverse Joints in Ducts Larger Than 60 Inches in Diameter: Flanged.

C. Longitudinal Seams: Select seam types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 3-1, "Seams - Round Duct and Fittings," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

1. Fabricate round ducts larger than 90 inches in diameter with butt-welded longitudinal seams.

D. Tees and Laterals: Select types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 3-4, "90 Degree Tees and Laterals," and Figure 3-5, "Conical Tees," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

2.3 SHEET METAL MATERIALS

A. General Material Requirements: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" for acceptable materials, material thicknesses, and duct construction methods unless otherwise indicated. Sheet metal materials shall be free of pitting, seam marks, roller marks, stains, discolorations, and other imperfections.

B. Galvanized Sheet Steel: Comply with ASTM A 653/A 653M.

1. Galvanized Coating Designation: G60.
2. Finishes for Surfaces Exposed to View: Mill phosphatized.

C. Factory- or Shop-Applied Antimicrobial Coating:

1. Apply to the surface of sheet metal that will form the interior surface of the duct. An untreated clear coating shall be applied to the exterior surface.
2. Antimicrobial compound shall be tested for efficacy by an NRTL and registered by the EPA for use in HVAC systems.
3. Coating containing the antimicrobial compound shall have a hardness of 2H, minimum, when tested according to ASTM D 3363.
4. Surface-Burning Characteristics: Maximum flame-spread index of 25 and maximum smoke-developed index of 50 when tested according to UL 723; certified by an NRTL.
5. Shop-Applied Coating Color: Black
6. Antimicrobial coating on sheet metal is not required for duct containing liner treated with antimicrobial coating.

D. Reinforcement Shapes and Plates: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.

E. Tie Rods: Galvanized steel, 1/4-inch minimum diameter for lengths 36 inches or less; 3/8-inch minimum diameter for lengths longer than 36 inches.

2.4 DUCT LINER

A. Fibrous-Glass Duct Liner: Comply with ASTM C 1071, NFPA 90A, or NFPA 90B; and with NAIMA AH124, "Fibrous Glass Duct Liner Standard."
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following

      a. CertainTeed Corporation; Insulation Group.
      b. Johns Manville.
      c. Knauf Insulation.
      d. Owens Corning.
      e. Maximum Thermal Conductivity:

         1) Type I, Flexible: 0.27 Btu x in./h x sq. ft. x deg F at 75 deg F mean temperature.
         2) Type II, Rigid: 0.23 Btu x in./h x sq. ft. x deg F at 75 deg F mean temperature.

   2. Antimicrobial Erosion-Resistant Coating: Apply to the surface of the liner that will form the interior surface of the duct to act as a moisture repellent and erosion-resistant coating. Antimicrobial compound shall be tested for efficacy by an NRTL and registered by the EPA for use in HVAC systems.
   3. Water-Based Liner Adhesive: Comply with NFPA 90A or NFPA 90B and with ASTM C 916.

      a. For indoor applications, use adhesive that has a VOC content of 80 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

B. Flexible Elastomeric Duct Liner: Preformed, cellular, closed-cell, sheet materials complying with ASTM C 534, Type II, Grade 1; and with NFPA 90A or NFPA 90B.
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

      a. Aeroflex USA Inc.
      b. Armacell LLC.
      c. Rubatex International, LLC

   2. Surface-Burning Characteristics: Maximum flame-spread index of 25 and maximum smoke-developed index of 50 when tested according to UL 723; certified by an NRTL.
   3. Liner Adhesive: As recommended by insulation manufacturer and complying with NFPA 90A or NFPA 90B.

a. For indoor applications, use adhesive that has a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

C. Insulation Pins and Washers:

1. Cupped-Head, Capacitor-Discharge-Weld Pins: Copper- or zinc-coated steel pin, fully annealed for capacitor-discharge welding, 0.106-inch- diameter shank, length to suit depth of insulation indicated with integral 1-1/2-inch galvanized carbon-steel washer.
2. Insulation-Retaining Washers: Self-locking washers formed from 0.016-inch- thick galvanized steel; with beveled edge sized as required to hold insulation securely in place but not less than 1-1/2 inches in diameter.

D. Shop Application of Duct Liner: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 2-19, "Flexible Duct Liner Installation."

1. Adhere a single layer of indicated thickness of duct liner with at least 90 percent adhesive coverage at liner contact surface area. Attaining indicated thickness with multiple layers of duct liner is prohibited.
2. Apply adhesive to transverse edges of liner facing upstream that do not receive metal nosing.
3. Butt transverse joints without gaps, and coat joint with adhesive.
4. Fold and compress liner in corners of rectangular ducts or cut and fit to ensure butted-edge overlapping.
5. Do not apply liner in rectangular ducts with longitudinal joints, except at corners of ducts, unless duct size and dimensions of standard liner make longitudinal joints necessary.
6. Apply adhesive coating on longitudinal seams in ducts with air velocity of 2500 fpm.
7. Secure liner with mechanical fasteners 4 inches from corners and at intervals not exceeding 12 inches transversely; at 3 inches from transverse joints and at intervals not exceeding 18 inches longitudinally.
8. Secure transversely oriented liner edges facing the airstream with metal nosings that have either channel or "Z" profiles or are integrally formed from duct wall. Fabricate edge facings at the following locations:

    a. Fan discharges.
    b. Intervals of lined duct preceding unlined duct.
    c. Upstream edges of transverse joints in ducts where air velocities are higher than 2500 fpm or where indicated.

9. Terminate inner ducts with buildouts attached to fire-damper sleeves, dampers, turning vane assemblies, or other devices. Fabricated buildouts (metal hat sections) or other buildout means are optional; when used, secure buildouts to duct walls with bolts, screws, rivets, or welds.

2.5 SEALANT AND GASKETS

A. General Sealant and Gasket Requirements: Surface-burning characteristics for sealants and gaskets shall be a maximum flame-spread index of 25 and a maximum smoke-developed index of 50 when tested according to UL 723; certified by an NRTL.

B. Two-Part Tape Sealing System:

1. Tape: Woven cotton fiber impregnated with mineral gypsum and modified acrylic/silicone activator to react exothermically with tape to form hard, durable, airtight seal.
2. Tape Width: 3 inches.
3. Sealant: Modified styrene acrylic.
4. Water resistant.
5. Mold and mildew resistant.
6. Maximum Static-Pressure Class: 10-inch wg, positive and negative.
7. Service: Indoor and outdoor.
8. Service Temperature: Minus 40 to plus 200 deg F.
9. Substrate: Compatible with galvanized sheet steel (both PVC coated and bare), stainless steel, or aluminum.
10. For indoor applications, use sealant that has a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

C. Water-Based Joint and Seam Sealant:

1. Application Method: Brush on.
2. Solids Content: Minimum 65 percent.
3. Shore A Hardness: Minimum 20.
4. Water resistant.
5. Mold and mildew resistant.
6. VOC: Maximum 75 g/L (less water).
7. Maximum Static-Pressure Class: 10-inch wg, positive and negative.
8. Service: Indoor or outdoor.
9. Substrate: Compatible with galvanized sheet steel (both PVC coated and bare), stainless steel, or aluminum sheets.

D. Flanged Joint Sealant: Comply with ASTM C 920.

1. General: Single-component, acid-curing, silicone, elastomeric.
2. Type: S.
3. Grade: NS.
4. Class: 25.
5. Use: O.
6. For indoor applications, use sealant that has a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

E. Flange Gaskets: Butyl rubber, neoprene, or EPDM polymer with polyisobutylene plasticizer.

F. Round Duct Joint O-Ring Seals:

1. Seal shall provide maximum leakage class of 3 cfm/100 sq. ft. at 1-inch wg and shall be rated for 10-inch wg static-pressure class, positive or negative.
2. EPDM O-ring to seal in concave bead in coupling or fitting spigot.
3. Double-lipped, EPDM O-ring seal, mechanically fastened to factory-fabricated couplings and fitting spigots.

2.6 HANGERS AND SUPPORTS

A. Hanger Rods for Noncorrosive Environments: Cadmium-plated steel rods and nuts.

B. Hanger Rods for Corrosive Environments: Electrogalvanized, all-thread rods or galvanized rods with threads painted with zinc-chromate primer after installation.

C. Strap and Rod Sizes: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Table 4-1, "Rectangular Duct Hangers Minimum Size," and Table 4-2, "Minimum Hanger Sizes for Round Duct."

D. Steel Cables for Galvanized-Steel Ducts: Galvanized steel complying with ASTM A 603.

E. Steel Cable End Connections: Cadmium-plated steel assemblies with brackets, swivel, and bolts designed for duct hanger service; with an automatic-locking and clamping device.

F. Duct Attachments: Sheet metal screws, blind rivets, or self-tapping metal screws; compatible with duct materials.

G. Trapeze and Riser Supports:

1. Supports for Galvanized-Steel Ducts: Galvanized-steel shapes and plates.

2.7 SEISMIC-RESTRAINT DEVICES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following

1. Cooper B-Line, Inc.; a division of Cooper Industries.
2. Ductmate Industries, Inc.
3. Hilti Corp.
4. Kinetics Noise Control.
5. Loos & Co.; Cableware Division.
6. Mason Industries.
7. TOLCO; a brand of NIBCO INC.
8. Unistrut Corporation; Tyco International, Ltd.

B. General Requirements for Restraint Components: Rated strengths, features, and applications shall be as defined in reports by an agency acceptable to authorities having jurisdiction.

1. Structural Safety Factor: Allowable strength in tension, shear, and pullout force of components shall be at least four times the maximum seismic forces to which they will be subjected.

C. Channel Support System: Shop- or field-fabricated support assembly made of slotted steel channels rated in tension, compression, and torsion forces and with accessories for attachment to braced component at one end and to building structure at the other end. Include matching components and corrosion-resistant coating.

D. Restraint Cables: ASTM A 603, galvanized-steel cables with end connections made of cadmium-plated steel assemblies with brackets, swivel, and bolts designed for restraining cable service; and with an automatic-locking and clamping device or double-cable clips.

E. Hanger Rod Stiffener: Reinforcing steel angle clamped to hanger rod.

F. Mechanical Anchor Bolts: Drilled-in and stud-wedge or female-wedge type. Select anchor bolts with strength required for anchor and as tested according to ASTM E 488.

PART 3 - EXECUTION

3.1 DUCT INSTALLATION

A. Drawing plans, schematics, and diagrams indicate general location and arrangement of duct system. Indicated duct locations, configurations, and arrangements were used to size ducts and calculate friction loss for air-handling equipment sizing and for other design considerations. Install duct systems as indicated unless deviations to layout are approved on Shop Drawings and Coordination Drawings.

B. Install ducts according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" unless otherwise indicated.

C. Install round ducts in maximum practical lengths.

D. Install ducts with fewest possible joints.

E. Install factory- or shop-fabricated fittings for changes in direction, size, and shape and for branch connections.

F. Unless otherwise indicated, install ducts vertically and horizontally, and parallel and perpendicular to building lines.

G. Install ducts close to walls, overhead construction, columns, and other structural and permanent enclosure elements of building.

H. Install ducts with a clearance of 1 inch, plus allowance for insulation thickness.

I. Route ducts to avoid passing through transformer vaults and electrical equipment rooms and enclosures.

J. Where ducts pass through non-fire-rated interior partitions and exterior walls and are exposed to view, cover the opening between the partition and duct or duct insulation with sheet metal flanges of same metal thickness as the duct. Overlap openings on four sides by at least 1-1/2 inches.

K. Where ducts pass through fire-rated interior partitions and exterior walls, install fire dampers. Comply with requirements in Division 23 Section "Air Duct Accessories" for fire and smoke dampers.

L. Protect duct interiors from moisture, construction debris and dust, and other foreign materials. Comply with SMACNA's "Duct Cleanliness for New Construction Guidelines."

3.2 INSTALLATION OF EXPOSED DUCTWORK

A. Protect ducts exposed in finished spaces from being dented, scratched, or damaged.

B. Trim duct sealants flush with metal. Create a smooth and uniform exposed bead. Do not use two-part tape sealing system.

C. Maintain consistency, symmetry, and uniformity in the arrangement and fabrication of fittings, hangers and supports, duct accessories, and air outlets.

D. Repair or replace damaged sections and finished work that does not comply with these requirements.

3.3 DUCT SEALING

A. Seal ducts for duct static-pressure, seal classes, and leakage classes specified in "Duct Schedule" Article according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

B. Seal ducts to the following seal classes according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible":

1. Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."
2. Outdoor, Supply-Air Ducts: Seal Class A.
3. Outdoor, Exhaust Ducts: Seal Class C.
4. Outdoor, Return-Air Ducts: Seal Class C.
5. Unconditioned Space, Supply-Air Ducts in Pressure Classes 2-Inch wg and Lower: Seal Class B.
6. Unconditioned Space, Supply-Air Ducts in Pressure Classes Higher Than2-Inch wg: Seal Class A.
7. Unconditioned Space, Exhaust Ducts: Seal Class C.
8. Unconditioned Space, Return-Air Ducts: Seal Class B.
9. Conditioned Space, Supply-Air Ducts in Pressure Classes 2-Inch wg and Lower: Seal Class C.
10. Conditioned Space, Supply-Air Ducts in Pressure Classes Higher Than 2-Inch wg: Seal Class B.
11. Conditioned Space, Exhaust Ducts: Seal Class B.
12. Conditioned Space, Return-Air Ducts: Seal Class C.

3.4 HANGER AND SUPPORT INSTALLATION

A. Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Chapter 4, "Hangers and Supports."

B. Building Attachments: Concrete inserts, powder-actuated fasteners, or structural-steel fasteners appropriate for construction materials to which hangers are being attached.

1. Where practical, install concrete inserts before placing concrete.
2. Install powder-actuated concrete fasteners after concrete is placed and completely cured.
3. Use powder-actuated concrete fasteners for standard-weight aggregate concretes or for slabs more than 4 inches thick.
4. Do not use powder-actuated concrete fasteners for lightweight-aggregate concretes or for slabs less than 4 inches thick.
5. Do not use powder-actuated concrete fasteners for seismic restraints.

C. Hanger Spacing: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Table 4-1, "Rectangular Duct Hangers Minimum Size," and Table 4-2, "Minimum Hanger Sizes for Round Duct," for maximum hanger spacing; install hangers and supports within 24 inches of each elbow and within 48 inches of each branch intersection.

D. Hangers Exposed to View: Threaded rod and angle or channel supports.

E. Support vertical ducts with steel angles or channel secured to the sides of the duct with welds, bolts, sheet metal screws, or blind rivets; support at each floor and at a maximum intervals of 16 feet (5 m).

F. Install upper attachments to structures. Select and size upper attachments with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.

3.5 SEISMIC-RESTRAINT-DEVICE INSTALLATION

A. Install ducts with hangers and braces designed to support the duct and to restrain against seismic forces required by applicable building codes. Comply with SMACNA's "Seismic Restraint Manual: Guidelines for Mechanical Systems."

1. Space lateral supports a maximum of 40 feet o.c., and longitudinal supports a maximum of 80 feet o.c.
2. Brace a change of direction longer than 12 feet.

B. Select seismic-restraint devices with capacities adequate to carry present and future static and seismic loads.

C. Install cables so they do not bend across edges of adjacent equipment or building structure.

D. Install cable restraints on ducts that are suspended with vibration isolators.

E. Install seismic-restraint devices using methods approved by an agency acceptable to authorities having jurisdiction.

F. Attachment to Structure: If specific attachment is not indicated, anchor bracing and restraints to structure, to flanges of beams, to upper truss chords of bar joists, or to concrete members.

G. Drilling for and Setting Anchors:

1. Identify position of reinforcing steel and other embedded items prior to drilling holes for anchors. Do not damage existing reinforcement or embedded items during drilling. Notify the Architect if reinforcing steel or other embedded items are encountered during drilling. Locate and avoid prestressed tendons, electrical and telecommunications conduit, and gas lines.
2. Do not drill holes in concrete or masonry until concrete, mortar, or grout has achieved full design strength.
3. Wedge Anchors: Protect threads from damage during anchor installation. Heavy-duty sleeve anchors shall be installed with sleeve fully engaged in the structural element to which anchor is to be fastened.
4. Set anchors to manufacturer's recommended torque, using a torque wrench.
5. Install zinc-coated steel anchors for interior applications and stainless-steel anchors for applications exposed to weather.

3.6 CONNECTIONS

A. Make connections to equipment with flexible connectors complying with Division 23 Section "Air Duct Accessories."

B. Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" for branch, outlet and inlet, and terminal unit connections.

3.7 PAINTING

A. Paint interior of metal ducts that are visible through registers and grilles and that do not have duct liner. Apply one coat of flat, black, latex paint over a compatible galvanized-steel primer. Paint materials and application requirements are specified in Division 09 painting Sections.

3.8 FIELD QUALITY CONTROL

A. Perform tests and inspections.
   1. Test for leaks before applying external insulation.
   2. Conduct tests at static pressures equal to maximum design pressure of system or section being tested. If static-pressure classes are not indicated, test system at maximum system design pressure. Do not pressurize systems above maximum design operating pressure.
   3. Give seven days' advance notice for testing.

B. Duct System Cleanliness Tests:

   1. Visually inspect duct system to ensure that no visible contaminants are present.
   2. Test sections of metal duct system, chosen randomly by Owner, for cleanliness according to "Vacuum Test" in NADCA ACR, "Assessment, Cleaning and Restoration of HVAC Systems."

      a. Acceptable Cleanliness Level: Net weight of debris collected on the filter media shall not exceed 0.75 mg/100 sq. cm.

C. Duct system will be considered defective if it does not pass tests and inspections.

D. Prepare test and inspection reports.

3.9 DUCT CLEANING

A. Clean new and existing duct system(s) before testing, adjusting, and balancing.

B. Use service openings for entry and inspection.

1. Create new openings and install access panels appropriate for duct static-pressure class if required for cleaning access. Provide insulated panels for insulated or lined duct. Patch insulation and liner as recommended by duct liner manufacturer. Comply with Division 23 Section "Air Duct Accessories" for access panels and doors.
2. Disconnect and reconnect flexible ducts as needed for cleaning and inspection.
3. Remove and reinstall ceiling to gain access during the cleaning process.

C. Particulate Collection and Odor Control:

1. When venting vacuuming system inside the building, use HEPA filtration with 99.97 percent collection efficiency for 0.3-micron-size (or larger) particles.
2. When venting vacuuming system to outdoors, use filter to collect debris removed from HVAC system, and locate exhaust downwind and away from air intakes and other points of entry into building.

D. Clean the following components by removing surface contaminants and deposits:

1. Air outlets and inlets (registers, grilles, and diffusers).
2. Supply, return, and exhaust fans including fan housings, plenums (except ceiling supply and return plenums), scrolls, blades or vanes, shafts, baffles, dampers, and drive assemblies.
3. Air-handling unit internal surfaces and components including mixing box, coil section, air wash systems, spray eliminators, condensate drain pans, humidifiers and dehumidifiers, filters and filter sections, and condensate collectors and drains.
4. Coils and related components.
5. Return-air ducts, dampers, actuators, and turning vanes except in ceiling plenums and mechanical equipment rooms.
6. Supply-air ducts, dampers, actuators, and turning vanes.
7. Dedicated exhaust and ventilation components and makeup air systems.

E. Mechanical Cleaning Methodology:

1. Clean metal duct systems using mechanical cleaning methods that extract contaminants from within duct systems and remove contaminants from building.
2. Use vacuum-collection devices that are operated continuously during cleaning. Connect vacuum device to downstream end of duct sections so areas being cleaned are under negative pressure.
3. Use mechanical agitation to dislodge debris adhered to interior duct surfaces without damaging integrity of metal ducts, duct liner, or duct accessories.

4. Clean fibrous-glass duct liner with HEPA vacuuming equipment; do not permit duct liner to get wet. Replace fibrous-glass duct liner that is damaged, deteriorated, or delaminated or that has friable material, mold, or fungus growth.
5. Clean coils and coil drain pans according to NADCA 1992. Keep drain pan operational. Rinse coils with clean water to remove latent residues and cleaning materials; comb and straighten fins.
6. Provide drainage and cleanup for wash-down procedures.
7. Antimicrobial Agents and Coatings: Apply EPA-registered antimicrobial agents if fungus is present. Apply antimicrobial agents according to manufacturer's written instructions after removal of surface deposits and debris.

3.10 START UP

A. Air Balance: Comply with requirements in Division 23 Section "Testing, Adjusting, and Balancing for HVAC."

3.11 DUCT SCHEDULE

A. Supply Ducts:

1. Ducts Connected to Constant-Volume Air-Handling Units

a. Pressure Class: Positive 1-inch wg.
b. Minimum SMACNA Seal Class: B.
c. SMACNA Leakage Class for Rectangular: 12
d. SMACNA Leakage Class for Round: 12

B. Return Ducts:

1. Ducts Connected to Air-Handling Units

a. Pressure Class: Positive or negative 1-inch wg.
b. Minimum SMACNA Seal Class: B.
c. SMACNA Leakage Class for Rectangular: 12
d. SMACNA Leakage Class for Round and Flat Oval: 12

C. Intermediate Reinforcement:

1. Galvanized-Steel Ducts: Galvanized steel

D. Liner:

1. Supply Air Ducts: Fibrous glass, Type I, 1 inch thick.
2. Return Air Ducts: Fibrous glass, Type I, 1 inch thick.

E. Elbow Configuration:

1. Rectangular Duct: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 2-2, "Rectangular Elbows."

    a. Velocity 1000 fpm or Lower:

        1) Radius Type RE 1 with minimum 0.5 radius-to-diameter ratio.
        2) Mitered Type RE 4 without vanes.

    b. Velocity 1000 to 1500 fpm:

        1) Radius Type RE 1 with minimum 1.0 radius-to-diameter ratio.
        2) Radius Type RE 3 with minimum 0.5 radius-to-diameter ratio and two vanes.
        3) Mitered Type RE 2 with vanes complying with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 2-3, "Vanes and Vane Runners," and Figure 2-4, "Vane Support in Elbows."

    c. Velocity 1500 fpm or Higher:

        1) Radius Type RE 1 with minimum 1.5 radius-to-diameter ratio.
        2) Radius Type RE 3 with minimum 1.0 radius-to-diameter ratio and two vanes.
        3) Mitered Type RE 2 with vanes complying with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 2-3, "Vanes and Vane Runners," and Figure 2-4, "Vane Support in Elbows."

2. Rectangular Duct: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 2-2, "Rectangular Elbows."

    a. Radius Type RE 1 with minimum 1.5 radius-to-diameter ratio.
    b. Radius Type RE 3 with minimum 1.0 radius-to-diameter ratio and two vanes.
    c. Mitered Type RE 2 with vanes complying with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 2-3, "Vanes and Vane Runners," and Figure 2-4, "Vane Support in Elbows."

3. Round Duct: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 3-3, "Round Duct Elbows."

    a. Minimum Radius-to-Diameter Ratio and Elbow Segments: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Table 3-1, "Mitered Elbows." Elbows with less than 90-degree change of direction have proportionately fewer segments.

        1) Velocity 1000 fpm or Lower: 0.5 radius-to-diameter ratio and three segments for 90-degree elbow.
        2) Velocity 1000 to 1500 fpm: 1.0 radius-to-diameter ratio and four segments for 90-degree elbow.
        3) Velocity 1500 fpm or Higher: 1.5 radius-to-diameter ratio and five segments for 90-degree elbow.
        4) Radius-to Diameter Ratio: 1.5.

b. Round Elbows, 12 Inches and Smaller in Diameter: Stamped or pleated.
c. Round Elbows, 14 Inches and Larger in Diameter: Standing seam

F. Branch Configuration:

1. Rectangular Duct: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 2-6, "Branch Connections."

a. Rectangular Main to Rectangular Branch: 45-degree entry.
b. Rectangular Main to Round Branch: Spin in.

2. Round: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 3-4, "90 Degree Tees and Laterals," and Figure 3-5, "Conical Tees." Saddle taps are permitted in existing duct.

a. Velocity 1000 fpm or Lower: 90-degree tap.
b. Velocity 1000 to 1500 fpm: Conical tap.
c. Velocity 1500 fpm or Higher: 45-degree lateral.

END OF SECTION 233113

SECTION 234171–HEAT PUMP UNITS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 GENERAL DESCRIPTION

A. This Section includes the design, controls and installation requirements for heat pump units.

1.3 QUALITY ASSURANCE

A. Packaged air-cooled condenser units shall be certified in accordance with ANSI/AHRI Standard 340/360 performance rating of commercial and industrial unitary air-conditioning and heat pump equipment.

B. Unit shall be certified in accordance with UL Standard 1995/CSA C22.2 No. 236, Safety Standard for Heating and Cooling Equipment.

C. Unit and refrigeration system shall comply with ASHRAE 15, Safety Standard for Mechanical Refrigeration.

D. Unit Seasonal Energy Efficiency Ratio (SEER) shall be equal to or greater that prescribed by ASHRAE 90.1, Energy Efficient Design of New Buildings except Low-Rise Residential Buildings.

E. Unit shall be safety certified by ETL and ETL US listed. Unit nameplate shall include the ETL/ETL Canada label.

1.4 SUBMITTALS

A. Product Data: Literature shall be provided that indicates dimensions, operating and shipping weights, capacities, ratings, fan performance, filter information, factory supplied accessories, electrical characteristics and connection requirements. Installation, Operation and Maintenance manual with startup requirements shall be provided.

B. Shop Drawings: Unit drawings shall be provided that indicate assembly, unit dimensions, construction details, clearances and connection details. Computer generated fan curves for each fan shall be submitted with specific design operation point noted. Wiring diagram shall be provided with details for both power and control systems and differentiate between factory installed and field installed wiring.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Unit shall be shipped with doors bolted shut to prevent damage during transport and thereafter while in storage awaiting installation.

B. Follow Installation, Operation and Maintenance manual instructions for rigging, moving, and unloading the unit at its final location.

C. Unit shall be stored in a clean, dry place protected from construction traffic in accordance with the Installation, Operation and Maintenance manual.

1.6 WARRANTY

A. Provide a parts only warranty for a period of 24 months from the date of original equipment shipment from the factory. Warranty shall cover material and workmanship that prove defective, within the specified warranty period, provided manufacturer's written instructions for installation, operation and maintenance have been followed. Warranty excludes parts associated with routine maintenance, such as belts and air filters.

1.7 STARTUP REPAIR PROGRAM

A. Provide startup repair for a period of 12 months from the date of original equipment shipment from the factory. Program shall cover labor for materials and workmanship that prove defective, within the specified warranty period, provided manufacturer's written instructions for installation, operation and maintenance have been followed. Program excludes labor associated with routine maintenance, such as belt and air filter replacement.

PART 2 - PRODUCTS

2.1 MANUFACTURER

A. Products shall be provided by the following manufacturers:
   1. Samsung or approved equal.
   2. Substitute equipment shall include:
      a. R-410A refrigerant
      b. Direct drive supply fans
      c. Double wall cabinet construction
      d. Insulation with a minimum R-value of 13
      e. Hinged access doors with lockable handles
      f. Inverter driven variable speed compressor
      g. VFD controlled variable speed compressor
      h. All other provisions of the specifications must be satisfactorily addressed

2.2 HEAT PUMP UNITS

1. GENERAL

1.1 SYSTEM DESCRIPTION

A. The variable capacity, heat pump/heat recovery air conditioning system shall be a SAMSUNG Electronics DVM S (Variable Refrigerant Flow) System or approved equal. The DVM S systems shall be HR (simultaneous cooling and heating) split system heat recovery or HP (cool/heat) split system heat pump with multiple indoor units.

1.2 PIPING

A. Piping to multiple indoor units requires additional piping components. The VRF equipment manufacturer's Y-joint fittings and/or Heat Recovery Mode Control Units (MCU) must be used to branch the main refrigerant lines.

B. The VRF equipment manufacturer's Tee fittings must be used to connect outdoor units when multiple module systems are being installed (systems with more than one outdoor unit).

1.3 QUALITY ASSURANCE

A. The units shall be listed by Electrical Laboratories (ETL) and bear the ETL label.

B. All wiring shall be in accordance with the National Electrical Code (N.E.C.).

C. The units shall be manufactured in a facility registered to ISO 9001 and ISO14001 which is a set of standards applying to environmental protection set by the International Standard Organization (ISO).

D. A full charge of R-410A for the condensing unit only shall be provided in the condensing unit. Additional refrigerant is required based on diameters and lengths of system liquid refrigerant lines and indoor equipment model and quantity.

E. The installing contractor must have attended Samsung DVM S or equivalent manufacturerinstallation training prior to installing the system.

F. Service and installation manuals must be readily available on the manufacturer's website without entering a username and password.

2. OUTDOOR UNITS

2.1 HEAT PUMP CONDENSING UNIT (208/230V, 3Ø)

A. General:

The heat pump outdoor unit shall be specifically used with SAMSUNG DVM S2 Heat pump components. The SAMSUNG DVM S2 HP outdoor unit shall consist of the AM***BXVGFH/AA outdoor unit, indoor units (AM****N****/AA), and SAMSUNG DVM S NASA Control Network Solution (Control systems). The outdoor units shall be equipped with multiple circuit boards that interface to the SAMSUNG DVM S NASA Control Network Solution (Control systems) and shall perform all functions necessary for operation. The outdoor unit shall have a powder coated finish. The outdoor unit shall be completely factory assembled, piped and wired. Each unit shall be run tested at the factory.

1. The sum of connected capacity of all indoor air handlers shall range from 50% to 130% of outdoor rated capacity. Connection up to 184% is possible under certain design conditions (refer to details in engineering manuals provided by the manufacturer).

2. The Heat Pump condensing unit salt spray test method: ASTM B117-18 - the heat exchanger showed no unusual rust or corrosion development to 3,000 hours.

3. The heat pump system compressors shall be SAMSUNG, asymmetric, hermetically sealed, inverter driven, flash injected, DC scroll type. No fixed capacity compressors shall be present in the refrigerant system.

4. The heat pump system shall have the ability to change operation mode without turning off the compressors allowing for constant heating and cooling operation

5. The outdoor unit shall have advanced oil recovery cycle logic operation that shall not interrupt heating or cooling operation. The oil recovery cycle duration shall not exceed three (3) minutes while in cooling mode or six (6) minutes while in heating mode. While in heat mode, any defrost cycle lasting over three (3) minutes shall be considered an oil recovery cycle.

6. Advanced intelligent defrost logic to significantly reduce defrost cycle frequency by monitoring air resistance across the condenser coil during heating operation to determine defrost operation initiation to prevent unnecessary defrost cycles.

7. Outdoor unit (individual modules) shall have a sound rating no higher than 67 dB (A).

8. Both refrigerant lines from the outdoor unit shall be insulated.

9. The heat pump outdoor unit shall have an accumulator with ARV (accumulator return valve) control.

10. The heat pump outdoor unit shall have a high pressure safety switch, high voltage fuses, over-current protection, phase detection protection, thermal fan protection, low pressure protection, compressor overcurrent protection, fan motor voltage protection, current transformer(s), crank case heating, and intelligent logic to ensure proper operation within unit design limitations and operational parameters.

11. The inverter compressor PCB(s) shall be cooled with liquid refrigerant circuit(s) and air-cooling fins to operate at optimal temperatures and to prevent failure due to overheating.

12. The heat pump outdoor unit shall have the ability to operate with a maximum height difference of 361 feet between the outdoor unit and the lowest indoor unit when the condensing unit is installed higher than the indoor units (with modified piping and PDM kit when greater than 164 feet). The heat pump outdoor unit shall have the ability to operate with a maximum height difference of 361 feet between the outdoor unit and the highest indoor unit when the condensing unit is installed lower than the indoor units (conditions apply when over 131). Maximum 3,280 feet total refrigerant tubing length. The greatest length is not to exceed 656 (722 equivalent) feet between outdoor unit and the farthest indoor unit.

13. Indoor units on Heat Pump system shall have a maximum vertical separation of 164 feet between the highest and lowest indoor units.

14. The heat pump outdoor unit shall be capable of operating in cooling mode between 23°F ~ 122°F (-5°C to 50°C) outside ambient temperatures.

15. The heat pump outdoor unit shall be capable of operating in cooling mode below 23°F (-5°C) down to 5°F (-15°C) outside ambient temperature with the addition of accessory low ambient cooling side guards (LACH).

16. The heat pump outdoor unit shall be capable of operating in heating mode between -22°F ~ 75°F (-30°C ~ 24°C) ambient temperatures.

17. The heat pump system shall allow adjustment of target evaporator coil temperatures in cooling mode and target heating discharge pressures depending on project conditions for heating and cooling calibration thus saving energy.

18. The heat pump outdoor unit shall have a high efficiency, individual oil separators for each compressor plus additional logic controls to ensure adequate oil volume in the compressor is maintained.

19. The heat pump outdoor unit shall have a flat-plate type subcooler to sub cool liquid refrigerant further to increase capacity and performance with long pipe lengths and to decrease refrigerant sounds at indoor equipment.

20. The heat pump system shall have optional snow blowing settings to prevent snow accumulation on top of unit.

21. The heat pump system shall have optional night quite modes to reduce unit sound in evenings (4 levels).

22. The heat pump system shall have current control to limit current (50% - 100% of design current) adjustable at outdoor unit or web accessible, central control devices provided by the VRF manufacturer.

23. The heat pump outdoor unit shall have a removable EEPROM at the main PCB to store all unit data. All data on the outdoor unit EEPROM shall be viewable from the manufacturer provided service software. The outdoor unit main EEPROM shall be removable allowing replacement of outdoor unit PCB without losing digital, field programmed data. The outdoor unit removable EEPROM shall store the following unit data: unit model number, unit serial number, unit main PCB firmware and MICOM version, sub-PCB firmware and MICOM version, fan PCB firmware and MICOM version, inverter PCB 1 and inverter PCB 2 firmware and MICOM version, auto-trial commissioning startup data, the last 30 minutes of operation data, and field programmed unit name/tag viewable on controls and service software.

24. The heat pump outdoor unit shall have the ability to discharge inverter PCB capacitor voltage using service buttons on the outdoor unit main PCB. The capacitor stored-voltage discharge feature shall allow safe inverter PCB replacement.

25. The heat pump outdoor unit shall have outdoor unit pump-down operation capability allowing storage of refrigerant while opening sealed refrigerant pipe system outside of outdoor unit chassis while performing service. The outdoor unit refrigerant storage shall be greater than the supplied factory R-410A charge.

26. The heat pump outdoor unit shall have individual outdoor module pump-out operation capability allowing the majority of refrigerant in an outdoor unit to be pumped out. The

pump-out feature shall allow service of sealed refrigerant system within an outdoor unit chassis.

27. The heat pump outdoor unit shall allow temporary disabling of individual compressors to allow system operation at reduced capacity after a compressor or compressor component related issue (when more than one compressor is present in system). Disabling of a compressor shall temporarily remove error codes and allow system operation.

28. The heat recovery outdoor unit shall have capability to reduce compressor Hz (heating capacity) further when average indoor unit ((set temperature – room temperature) < 3.6º F) while operating in heating mode, thus saving energy.

29. The heat recovery outdoor unit shall have capability to reduce compressor Hz (cooling capacity) when average indoor unit ((room temperature – set temperature) < 3.6º F) while operating in cooling mode, thus saving energy.

30. The heat pump outdoor unit compressors shall have a soft-start function to reduce electricity demand during system start and to increase compressor reliability.

31. In the event of system error due to outdoor unit failure, the heat pump outdoor unit shall display codes that specify a precise error and which outdoor unit PCB is the cause.

32. The heat pump system shall support system auto-addressing allowing system commissioning without manually configuring indoor unit addresses.

33. The Heat Pump system (does not apply to Heat Recovery systems) shall feature a Cooling Priority option that will switch the heat pump to cooling mode if there is a demand for cooling from any indoor unit. Cooling Priority shall be used on systems where indoor units have an external heat source (ex: electric heat). While the heat pump is in heating mode (all units in heat mode or off), the compressor shall operate in heating mode. When one or more indoor unit(s) demand cooling, the heat pump will stop heating operation and changeover to cooling mode. Indoor units that are in heating mode will no longer heat using the heat pump but with the connected external heat source. After all indoor units in cooling mode have satisfied, the outdoor unit will changeover to heating mode again (if a heating demand still exists). All indoor units must be in Auto mode for this function to work.

B. Unit Cabinet:

1. The chassis shall be fabricated of galvanized steel, bonderized and finished with a powder coated baked enamel.

C. Fan:

1. All fan motors shall be variable speed BLDC type.
2. All fan motors shall have inherent protection, thermal protection, and have permanently lubricated bearings, and be completely variable speed.
3. All fan motors shall be mounted for quiet operation.
4. All fans shall be provided with a raised guard to prevent contact with moving parts.
5. The outdoor unit shall have vertical discharge airflow.
6. The heat pump outdoor units shall not require any field installed components or component modification to allow ducting of discharge air. Outdoor unit capacities 6 – 14 tons (nominal) shall have the capability for ducting of discharge air up to 0.43" WC static pressure with factory provided dimensional design drawings. Outdoor unit capacities 16 – 20 tons (nominal) shall have the capability for ducting of discharge air up to 0.32" WC static pressure with factory provided dimensional design drawings.

D. Refrigerant:

1. R410A refrigerant shall be required for the heat pump system.
2. Additional refrigerant is required. Amount is based on installed refrigerant pipe diameters and lengths and indoor equipment model number and quantity.
3. Modular systems shall require outdoor refrigerant kits for module connection provided by the manufacturer

E. Coil:

1. The outdoor coil shall be of nonferrous construction with lanced or corrugated plate fins on copper tubing.
2. The Heat Pump condensing unit salt spray test method: ASTM B117-18 - the heat exchanger showed no unusual rust or corrosion development to 2,280 hours.
3. The coil shall be protected with an integral metal guard.
4. The heat exchanger shall consist of two separate circuits to enhance the heat pump defrost cycle. The unit shall use the entire coil initially for the defrost cycle. To resume

heating faster in extreme conditions, the upper section shall return to heating operation while the lower section continues to defrost.

F. Compressor:

1. The compressors shall have flash injection capability to increase performance in heating mode. This will be automatically enabled by the outdoor unit(s) by forcing saturated refrigerant as a liquid flash mix directly into the scroll compression cycle increasing mass flow and overall system capacity. Compressors without flash injection shall not be present in the VRF heat pump system.

2. All compressors shall be modulation capable, flash injected, DC inverter, scroll type.

3. Refrigerant flow from the outdoor unit shall be controlled by means of capacity modulation capable flash injection scroll compressor.

4. Crankcase heaters shall be factory mounted on the compressors. For units without crankcase heaters, the compressors shall be warmed by the compressor inverter control PCB and motor windings.

5. The outdoor unit compressor shall have a variable modulation technology to modulate capacity. System capacity shall be completely variable down to 7,513 Btu/h.

6. The outdoor unit compressor shall have flash injection technology which can increase the mass flow rate of refrigerant and offset refrigerant condensing temperaturesresulting in a capacity and performanceimprovementin heating mode.

7. The compressor(s) will be equipped with an internal thermal overload.

8. The compressor(s) shall be mounted to avoid the transmission of vibration.

G. Electrical:

1. The outdoor unit electrical power shall be 208/230 volts, 3 phase, 60 hertz.

2. The 208/230 VAC unit shall be capable of satisfactory operation within voltage limitations of 187-228 volts (208V/60Hz) or 207-253 volts (230V/60Hz).

3. The outdoor unit shall be controlled by integral microprocessors.

4. The control circuit between the indoor units and the outdoor unit shall be 0.5VDC - 7VDC completed using stranded, annealed copper conductor, 16 AWG, shielded, two-core cable to provide total integration of the system.

3. OUTDOOR UNIT ACCESSORIES

3.1 BASE PAN HEATER FOR 3Ø AIR-COOLED CONDENSING UNITS

A. General

1. The optional Base Pan Heater Kit shall be compatible with Heat Pump and Heat Recovery models.

2. Base pan heater used to prevent ice formation in the bottom of the outdoor units and to promote water drainage after defrost cycles in extreme low ambient temperatures.

3. Application of base pan heaters is recommended when:

   (a) The outdoor unit will operate in low temperature, high humidity conditions for periods 72 hours or longer.

   (b) When outside temperatures will drop below freezing for 24 hours.

4. The base pan heater shall activate when:

   (a) Outdoor temperature is below 30°F (-1°C)

   (b) The outdoor unit is in heating mode

   (c) When an outdoor unit has been idle for 30 minutes and outside temperature is 41°F (5°C) or lower the base pan heater will turn on every 30 minutes and for 5 minutes and the fan will operate for 1 minute (if snow accumulation prevention is enabled).

B. Required components

1. Each outdoor unit will require a base pan heater and a control box.

2. Refer to manufacturer documentation for compatible wind/hail guard accessory model numbers and compatibility.

4. INDOOR UNITS AND ACCESSORIES

4.1 WINDFREE™*MINI 4-WAY CEILING CASSETTE WITH GRILLE INDOOR UNIT (AM0**NNNDCH/AA)

A. General:

The indoor unit shall be a WindFree™*mini 4-way cassette style indoor unit that recesses into the ceiling with a ceiling grille (ordered separately, WindFree™* facia panel part number: PC4SUFMUN) and shall have a modulating expansion device. The mini 4-way cassette shall be compatible with DVM S HR (Heat Recovery) outdoor units and MCU (Mode Control Unit) or DVM S HP (Heat Pump) outdoor units. The WindFree™*mini 4-way cassette shall have an optional motion detection sensor (MCR-SMD, MCR-SMDU) to enable/disable the unit based on motion with optional time delay settings. (Refer to Part 4 of this specification for more MCR-SMD(U) details). The WindFree™*mini 4-way cassette shall support individual control using SAMSUNG DVM S NASA Control Network Solution (Control systems).

1. The indoor unit shall be factory assembled, wired and run tested. Contained within the unit shall be all factory wiring, piping, electronic modulating expansion device, control circuit board and fan motor. The unit shall have a self-diagnostic function, time delay mechanism, and an auto restart function. Indoor unit and refrigerant pipes shall be charged with dehydrated air (Nitrogen gas) before shipment from the factory.

2. The indoor unit shall include a WindFree™* function that will close the supply air outlet louvers while in cooling mode to gently disperse cool air into the space through thousands of micro-holes on the fascia panel without blowing directly onto occupants. WindFree™* operation prevents direct airflow onto occupants thus increasing occupant comfort.

3. The WindFree™* feature is optional and can be enabled using local and central control options provided by the VRF manufacturer

4. The indoor unit WindFree™* fascia panel shall include a humidity sensor to prevent condensation formation by restricting WindFree™* operation in high humidity conditions.

** The WindFree™* unit delivers an air current that is under 0.15 m/s while in WindFree™* mode. Air velocity that is below 0.15 m/s is considered "still air" as defined by ASHRAE (American Society of Heating, Refrigerating, and Air-Conditioning Engineers).*

B. Unit Cabinet:

1. The cabinet shall be space-saving ceiling-recessed cassette.

2. Service of electronics, high and low voltage connection, condensate pump, fan, fan motor, sensors, EEV, condensate pan, and other components shall be accessible from the bottom of the cassette unit not requiring access from the sides of the unit.

3. Construction shall be insulated HIPS chassis with a galvanized steel frame and fascia panel certified to UL94 V0.

4. The cabinet panel shall have provisions for a field installed, filtered, outside air intake. A booster fan is necessary. A 12V DC relay terminal is available to control the booster fan (with separate PCB connector).

5. The compact cabinet size can be installed in one standard ceiling tile (24” x 24”).

6. The indoor unit fascia panel shall have LED indicator lights on the front and an IR receiver for wireless controller use.

7. PC4SUFMUN cassette fascia panel is 24 3/8” X 24 3/8” to not overlap past a standard 24” X 24” ceiling grid.

C. Fan:

1. The indoor fan assembly shall be a turbo fan direct driven by a single motor.

2. The indoor fan shall be statically and dynamically balanced to run on a motor with permanently lubricated bearings.

1. The indoor fan shall consist of three (3) speeds, Low, Mid, and High. Auto fan speed setting is available.

3. The auto air swing vanes (4) shall be capable of automatically swinging up and down for uniform air distribution.

4. The supply air vanes shall have independent control capability (32° – 65° control range) adjustable with optional wireless or wired controllers.

5. The cabinet shall have a fresh air intake opening to accommodate the introduction of fresh air into the space.

D. Filter:

1. Return air shall be filtered by means of a long-life washable permanent filter included with fascia panel.

E. Coil:

1. The indoor coil shall be of nonferrous construction with slit fins on copper tubing.

2. The tubing shall have inner grooves for high efficiency heat exchange.

3. All tube joints shall be brazed with phos-copper or silver alloy.

4. The coils shall be pressure tested at the factory.

5. A condensate pan and drain outlet shall be provided under the coil.

6. The coil fins are coated with hydrophilic paints.

7. The condensate lift mechanism shall be able to raise drain water 29 inches above the condensate pan with float switch.

8. Both refrigerant lines to the mini four-way cassette indoor units shall be insulated.

F. Electrical:

1. The unit electrical power shall be 208/230 volts, 1-phase, and 60 hertz.

2. The system shall be capable of satisfactory operation within voltage limits of 187-228 volts (208V/60Hz) or 207-253 volts (230V/60Hz).

3. The control circuit between the indoor units, MCU(Mode Control Unit) and the heat pump/heat recovery outdoor unit shall be 0.5VDC - 7VDC completed using stranded, annealed copper conductor, two-core, 16 AWG, shielded cable to provide total integration of the system

4. The indoor unit shall have a thermal fuse under high-voltage terminal block to disable unit in the event of overheating due to electrical malfunction/poor connection.

G. Controls:

1. The indoor unit shall use controls provided by the VRF manufacturer to perform functions necessary to operate the system. Please refer to the “Controls” section of this guide specification for details on controllers and other control options.

2. The indoor unit shall have a removable EEPROM on its PCB to store all unit data. All data on the indoor unit EEPROM shall be viewable from the manufacturer provided service software. The indoor unit main EEPROM shall be removable allowing replacement of indoor unit PCB without losing digital, field programmed data. The indoor unit removable EEPROM shall store the following unit data: unit model number, unit serial number, unit PCB firmware and MICOM version, and field programmed unit name/tag viewable on controls and service software.

3. The indoor unit shall have advanced external heater control programming capability for supplemental heat. External heat control shall be done with MIM-B14(U) external contact control module (refer to the “Controls” section of this guide specification). External heat control signal shall enable and disable a supplemental heat source based on selectable room temperature and set temperature differences. External heat control signal shall include a selectable time delay before the supplemental external heat source is activated.

4. The indoor unit shall have advanced unoccupied room control capability. Unoccupied room control can be used to reduce system demand when a room is not occupied by changing zone settings. Unoccupied room control shall be done with MIM-B14(U) external contact control module (refer to the “Controls” section of this guide specification). The unoccupied settings can be modified central control gateways provided by the VRF manufacturer or programmed with the manufacturer provided service software. Unoccupied room control shall provide four setting options to modify indoor unit operation when in “unoccupied mode”. Settings shall include indoor unit ON/OFF, fan speed, and set temperature adjustment.

5. The indoor unit shall feature a Dual Set point function that allows users to set separate heating and cooling set temperatures using MWR-WG00UN wired controller and central control options MIM-D01AUN, MIM-B17BUN, and MIM-B18BUN. Dual set temperature allows the user to specify a deadband where the unit will not heat or cool when room temperature is between the heating and cooling set temperatures. Dual set temperature can be used with heat pump or heat recovery systems.

6. The indoor unit shall feature an Emergency Temperature Output (ETO) function that will provide a signal when an indoor unit is in error status. When enabling ETO, a high room temperature threshold can also be programmed to provide a signal when the room temperature limit has been exceeded. The ETO signal can be used to activate backup systems, provide a simple signal to a building management system, or to provide a simple visual/audible notification locally (ex: LED, buzzer, etc.). An MIM-B14(U) External Contact Control interface module is required for each unit that will provide or receive an ETO signal.

5. CONTROLS

5.1 CONTROLS OVERVIEW

A. General:

The DVM S Controls Network Solution shall be capable of supporting remote controllers, schedule timers, system controllers, centralized controllers, an integrated web based interface, graphical user workstation, and system integration to Building Management Systems via BACnet® and LonWorks®.

B. Electrical Characteristics:

1. General:

(a) Local DVM S Controls Solution devices shall operate at 12V DC. Controller power and communications shall be via a common communications bus.

(b) Central DVM S Controls Solution devices shall communicate via a common central layer communications bus.

C. Wiring:

1. Main system control wiring (COM1, F1/F2) shall be installed in a system daisy chain configuration from the indoor equipment to MAIN outdoor unit. This cable shall be 16 AWG X 2, shielded cable.

2. Zone control wiring (COM2, F3/F4) to wired remote controllers (MWR-*****N) shall be run from the indoor unit terminal block to the controller associated with that unit. This cable shall be 16 AWG X 2, shielded cable.

3. Control wiring for system controllers and centralized controllers (upper level) shall be installed in a daisy chain configuration from main condensing unit to main condensing unit (R1/R2), to system controllers.

4. Communication wire connection (OF1/OF2) between mainoutdoor unit modules (systems with 2 or more modules) must be connected from the MAIN unit to SUB1 and SUB2 (where applicable). This wire shall be 2-conductor, 16 AWG X 2, shielded cable.

5. MST-P3P (S-NET 3 software) shall be capable of being networked with up to 16: MIM-D00AN (DMS2), MIM-D01AUN (DMS2.5), MIM-B17N (BACnet gateway 2.0), MIM-B17BUN (BACnet gateway 2.5), MIM-B18 (LonWorks gateway2.0), and/or MIM-B18BUN (Lon Works gateway 2.5) system controllers for web/LAN

based control for consolidated control.

D. Wiring type:

1. COM1 and COM2 control wiring shall be 2-conductor, 16 AWG X 2, shielded cable.

2. Network wiring shall be CAT-5e with RJ-45 connection.

5.2 MULTI-FUNCTION CONTROLLER – ADVANCED WIRED CONTROLLER (MWR-WG00UN)

A. Compatibility:

1. DVM S systems (AM**********AA, MCM-D211UN), DVM Chiller FCU kits (MCM-F00N), 2020 RAC single zone high-wall units (AR**TSF*BWKNCV, RNS***BT), CAC indoor units (AC0***N****/AA) and FJM indoor units (AJ0**TN*DCH/AA, JNH***DT).

B. Connection:

1. The wired controller shall control up to 16 SAMSUNG indoor units (defined and controlled as one group).

C. Dimensions:

1. The wired controller shall be approximately 4 3/4” x 4 3/4” in size and white in color

D. The wired controller shall control SAMSUNG indoor units as follows:

1. Air handler operation ON/OFF

2. Air handler operation mode, set temperature, air flow direction, fan speed, individual louver control (with supported indoor units).

3. Discharge air temperature (with supported indoor units)

4. Dual Set Temperature (with supported indoor units)

5. Setback function

6. Quiet and sleep modes

7. Error display (up to 10 error codes with descriptions)

8. Filter replacement alarm display and reset

9. Single indoor unit control or multiple unit control (maximum 16 units)

10. Energy saving operation:

    (a) Upper/lower temperature setting

    (b) Automatic operation stop function

    (c) Energy saving operation mode

    (d) Energy consumption monitoring

11. Weekly operating schedule setting:

    (a) Weekly and yearly operating schedule

    (b) Options to set: desired A/C operation mode, setting temperature, power mode (ON/OFF), and fan speed to operate based on weekly or daily schedules

    (c) Optional schedule exception day setting

12. Advanced HP auto changeover control and configuration

13. Supports multiple languages

14. Error code display with description (ten most recent error codes)

E. Other wired controller features:

1. Different button permission levels

2. Partial button lock option (on/off, temperature setting, fan speed, all modes, auto mode, cool mode, heat mode, dry mode, fan mode, and schedule setting buttons can be locked individually)

3. Backlight with option to dim the display after a specified time

4. Daylight savings clock advance option

5. Upper and lower temperature setting restriction

6. Heat mode skip (cooling only)

7. Restrict wireless controller signal (optional)
8. Real-time clock function - current time/day display function
9. Built in IR receiver for indoor unit control using a wireless controller and integral room temperature sensor.
10. Indoor unit operation state display
11. Indoor unit service mode support
12. Micro SD card slot for simple firmware updating
13. Individual louver/blade control for 4-way and mini 4-way cassettes.
14. Individual air direction control for 360 Cassette indoor units.
15. Quiet Mode setting (for supported units)
16. Service mode for connected indoor unit operation monitoring, addressing, and setup
17. Built-in room temperature sensor
18. Indoor unit operation state display
19. Service mode support (Indoor unit addressing, indoor unit cycle data monitoring, option code monitoring and setting, and option setting/monitoring).
20. Time synchronization with central control gateways provided by the VRF manufacturer.
21. WindFree™* display and control for supported indoor unit models.
22. Motion Detection Sensor Control (On/Off, Indirect/Direct) for supported indoor unit models. Indirect/Direct control only applies to supported units that have MCR-SMC(U) and MCR-SMD(U) installed.
23. Clean and Long reach function for supported indoor unit models.
24. Automatic air volume enable and status viewing (for Duct S models AM0**ANMDCH/AA and AM0**ANHDCH/AA).
25. Maximum current control for DVM S 3Ø outdoor systems

F. Specifications:

1. Two (2) conductor connection, PLC, (F3/F4).
2. DC 12V (power supplied by indoor unit via F3/F4 connection).
3. RS485 communication (F3/F4).
4. Can sense temperature via internal sensor, temperature sensor inside the air handler, or use the average temperature between controller and air handler temperature sensors.
5. The wired controller shall have two screw terminals for wiring connections. Wire is not included with controller.
6. 16AWG X 2 shielded cable is necessary for proper operation.
7. The wired controller shall allow up to 328 feet of wire from the farthest connected indoor unit to the controller.

Multi-Function Controller			
Item	***Description***	***Operation***	***Display***
ON/OFF	Run and stop operation for a single group	Each Group	Each Group
Operation Mode	Switches between Auto/Cool/Dry/ Fan/Heat	Each Group	Each Group
Temperature Setting	1. Sets temperature for a single group. 2. Range of temperature setting (may vary depending on connected indoor unit) a. Auto/Cool/Dry: 65°F-86°F b. Heat: 47°F-86°F 3. Setting discharge outlet air temperature for supported indoor units.	Each Group	Each Group
Discharge Air Temperature Setting	Sets temperature for supported ducted units	Each Group	Each Group
Fan Speed Setting	1. Models with 3 air flow speed settings: High /Mid/Low/Auto 2. WindFree™* mode enable/disable 3. Motion Detection Sensor Control 4. Clean and Long reach function for supported indoor unit models.	Each Group	Each Group

Multi-Function Controller			
Item	***Description***	***Operation***	***Display***
Air Flow Direction Setting	1. Air flow 2-step direction (Swing/Stop) 2. Direct setting at a specific angle. 3. Air flow operation varies depending on the model.	Each Group	Each Group
Scheduling	1. Weekly and yearly schedule settings (maximum 8 yearly schedule groups) 2. Power ON/OFF, mode, temperature, and fan speed settings can be set. 3. Configurable “Temporary Hold”/override duration for changes made when a schedule has been programmed. 4. Maximum 49 total weekly and yearly schedule settings can be set. 5. Real-time clock function: current time, day display function	Each Group	Each Group
Setback	1. Four (4) configuration patterns can be set (Wake, Leave, Return, Sleep). 2. Specify time, heating and cooling set temperatures and mode.	Each Group	Each Group
Button lock	1. Button permission level setting (On/Off / Temperature setting / Mode button / Fan speed) 2. Temperature limit setting 3. After power reset, the setting value is restored 4. Various restriction capabilities	Each Group	Each Group
Specified Function	Automatic stop setting (setting time range: 0-12 hours)	Each Group	Each Group

Multi-Function Controller			
Item	***Description***	***Operation***	***Display***
Service Mode	1. Viewing/setting indoor unit option code 2. Viewing/setting indoor unit MAIN address 3. Viewing/setting indoor unit RMC address 4. Viewing indoor unit cycle data 5. Setting/Viewing temperature sensor compensation of the wired remote controller (-9°F~ +9°F) 6. Viewing RPM compensation 7. Viewing/setting EEV stop step when indoor unit is thermal-off during heating mode 8. Viewing/setting filter reminder time interval (1000 hours, 2000 hours) 9. Viewing/setting indoor unit temperature sensor compensation during Heating (+2°F or +5°F) 10. Viewing the H/W option setting 11. Viewing wired remote controller software version 12. Viewing/setting individual louver lock 13. Viewing indoor unit status 14. Power Master Reset 15. Resetting ODU (K3) 16. Automatic air volume enable and status viewing (for supported indoor units)	Each Unit	Each Unit
Blade	Setting individual blade positions on 4-Way Cassette (AM0**RN4DCH/AA, AC0**NN4DCH/AA, AJ0**TNNDCH/AA, JNH***NDT)	Each Unit	Each Unit
Error	When an error is currently occurring in the system, the afflicted unit and the error code are displayed	Each Group	Each Group
Permit / Prohibit Local Operation	Setting/releasing of simplified locking of remote control buttons	Each Group	N/A

Multi-Function Controller			
Item	***Description***	***Operation***	***Display***
Quiet Mode	Select the quiet mode to lower the fan noise level (for supported units)	Each Group	N/A
Room Tempera-ture	Actual room temperature or set temperature can be displayed	Each Group	Each Group
Energy and Usage	1. Display instantaneous power (current power use), weekly usage, monthly usage, and yearly usage, in graph format with year-over-year display option. a. The weekly display follows ISO 8601 standards. 2. Display weekly operating time, monthly operating time, yearly operating time, in graph format with year-over-year display option. 3. Target energy consumption and target operating times can be specified. When energy consumption or operating time has exceeded the target(s), an alarm popup will appear for notification.	Each group	Each group

**Some features may not be available depending on the model of connected air handler(s).*

***The WindFree™* unit delivers an air current that is under 0.15 m/s while in WindFree™* mode. Air velocity that is below 0.15 m/s is considered "still air" as defined by ASHRAE 55-2013 (American Society of Heating, Refrigerating, and Air-Conditioning Engineers).*

PART 3 - EXECUTION

3.1 Installation, Operation and Maintenance

A. Installation, Operation and Maintenance manual shall be supplied with the units.

B. Install units, including field installed components, in accordance with Installation, Operation and Maintenance manual instructions.

C. Start up and maintenance requirements shall be complied with to ensure safe and correct operation of the units.

END OF SECTION 234171

SECTION 237200 – AIR TO AIR ENERGY RECOVERY VENTILATOR

PART 1 - GENERAL

1.1 SUMMARY

A. This section includes air-to-air energy recovery ventilators (ERV) for indoor installation.

B. The ERV shall be a packaged unit and shall transfer both sensible and latent energy using static plate core technology.

C. Within this document, these units may be referred to as ERV for brevity.

1.2 RELATED

Drawing and general provisions of the contract, including General Requirements, Division 23, Division 26 Specifications Sections, and common work requirements for HVAC apply to work specified in this section.

1.3 SUBMITTALS

- Product data: For each type or model of ERV, include the following:
    - Home Ventilating Institute (HVI) Certified Performance Data for both Supply Air and Exhaust Air with net airflow at varying external static pressures.
    - Dimensioned drawings showing front, side and plan views, to include location of attached ductwork and service clearance requirements.
    - Estimated gross weight of each installed unit.
    - Filter types, quantities, and sizes
    - Installation, Operating and Maintenance manual (IOM) for each model.
- Shop Drawings: For air-to-air energy recovery ventilators, include plans, elevations, sections, details, and attachments to other work.
    - Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
- Operation and maintenance data for air-to-air ERV.

1.4 QUALITY ASSURANCE

- Source Limitations: Obtain air-to-air ERV with all appurtenant components or accessories from a single manufacturer.

- For the actual fabrication, installation, and testing of work under this section, use only thoroughly trained and experienced workers completely familiar with the items required and with the manufacturer's current recommended methods of installation.

- The ERV core shall be warranted to be free of manufacturing defects and to retain its functional characteristics, under circumstances of normal use, for a period of ten (10) years from the date of purchase. The balance-of-unit shall be warranted to be free of manufacturing defects and to retain its functional characteristics, under circumstances of normal use, for a period of five (5) years from the date of purchase.

- Manufacturer shall be able to provide evidence of independent testing of the core by Underwriters Laboratory (UL), verifying a maximum flame spread index (FSI) of 25 and a maximum smoke developed index (SDI) of 50 thereby meeting NFPA90A and NFPA 90B requirements for materials in a compartment handling air intended for circulation through a duct system. The method of test shall be UL Standard 723.
- Certifications:
    - The ERV shall be certified by the HVI under CSA 439. Both a heating and a cooling test must be run to demonstrate year-round energy recovery.
    - Unit shall be listed under UL 1812 Standard for Ducted Air to Air Heat Exchangers. The unit must pass commercial flammability requirements and shall not be labeled “For Residential Use Only.”

1.5 COORDINATION

- Coordinate size and location of all building penetrations required for installation of each ERV and associated electrical systems.
- Coordinate sequencing of construction for associated plumbing, HVAC, electrical supply.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

- Available manufacturers: Subject to compliance with specifications contained within this document, manufacturers offering products that may be incorporated into the work include, but are not limited to:
    - RenewAire or approved equal
- Manufacturer should be in business for minimum 10 years manufacturing energy recovery ventilators.

2.2 MANUFACTURED UNITS

- Air-to-air ERV shall be fully assembled at the factory and consist of a fixed-plate cross-flow heat exchanger with no moving parts, an insulated single wall G90 galvanized painted 22-gauge steel cabinet, filter assemblies for both intake and exhaust air, enthalpy core, supply air blower assembly, exhaust air blower assembly and electrical control box with all specified components and internal accessories factory installed and tested and prepared for single-point high voltage connection. Entire unit with the exception of field-installed components shall be assembled and test operated at the factory.
- ERV shall be capable of being installed in ceiling or wall mount type with a minimum height or depth of 9.5".
- The ERV shall be capable of being installed in between 24" on center joists with the ability to easily open the unit for service and maintenance.
- The ERV shall be provided with springs (chain by others) for ceiling mounting or hanging the units.
- The ERV shall be provided with optional wall mounting kits for mounting the unit onto 12" to 22" on center wall studs.

- The ERV shall have pressure taps on the unit door and onboard adjustable airflow controls for easy airflow balancing of unit.
- The onboard airflow setting controls shall be factory installed and tested.
- The ERV onboard control center shall have the ability to set the high and low airflow for the supply and exhaust fans independently of each airstream.
- The onboard control shall have the capability to set the high and low airflow setting for the supply and exhaust fan using easy to use adjustable airflow dials that are clearly labeled outdoor air or return air and high or low for airflow setting.
- The adjustable airflow setting dial shall have the capability to vary the desired airflow in infinite increments for the supply and exhaust airflows.
- ERV shall have the capability to provide 117 cfm net airflow on the supply air at 0.4" w.g. external static pressure.
- The power consumption of the ERV shall be 1.7CFM/watt at HVI tested and rated performance conditions.
- The ERV shall be capable of transferring both sensible and latent energy between airstreams. Latent energy transfer shall be accomplished by direct water vapor transfer from one airstream to the other, without exposing transfer media in succeeding cycles directly to the exhaust air and then to the fresh air.
- Unit shall have the capacity to operate continuously without the need for bypass, recirculation, pre-heaters, or defrost cycles under normal operating conditions.
- Water vapor transfer shall be through molecular transport by hydroscopic resin and shall not be accomplished by “porous plate” mechanisms. Exhaust and fresh airstreams shall travel at all times in separate passages, and airstreams shall not mix. No metal separators or metal core material shall be acceptable.
- Airflow through the ERV core shall be laminar over the product’s entire operating airflow range, avoiding deposition of particulates on the interior of the energy exchange plate material.
- Power rating of the unit shall be 120 volts and 60 Hz.
- The power supply for the SL75units shall be from a 34" line cord while the SL75H models shall have hard wired line voltage connections.

2.3 CABINET

- Materials: Formed single wall insulated metal cabinet, fabricated to permit access to internal components for maintenance.
- The energy recovery component shall be of fixed-plate cross-flow construction, with no moving parts.
    - Enthalpy core: Energy recovery core shall be of the total enthalpy type, capable of transferring both sensible and latent energy between airstreams. Latent energy transfer shall be accomplished by direct water vapor transfer from one airstream to the other, without exposing transfer media in succeeding cycles directly to the exhaust air and then to the fresh air. No condensate drains shall be

allowed. The energy recovery core shall be designed and constructed to permit cleaning and removal for servicing.

- Outside casing: Shall be constructed of 22-gauge steel, with lapped corners and zinc-plated screw fasteners. The case shall be finished with smooth pre-painted or powder coat white paint.
- Case walls and doors shall be fully insulated with 1", expanded polystyrene foam insulation faced with a cleanable foil face on all exposed surfaces.
- Access door shall provide easy access to blowers, ERV cores, and filters. Access door shall be hinged with airtight closed cell foam gaskets. Doors shall have an airtight compression seal using closed cell foam gaskets.
- The ERV shall have locking door hinges so that the ERV can be installed in multiple orientations.
- Door pressure taps, with captive plugs, shall be provided for cross-core pressure measurement allowing for accurate airflow measurement.Unit shall have (4) pressure ports allow for easy airflow balancing and verification.
- No condensate drain pans or drains shall be allowed and unit shall be capable of operating in both winter and summer conditions without generating condensate.
- Unit shall have factory-supplied 6"/8"duct collars for easy installation of ductwork to the unit.
- Passive Frost Control: The ERV core shall perform without condensing or frosting under normal operating conditions (defined as outside temperatures above -10ºF and inside relative humidity below 40%). Occasional more extreme conditions shall not affect the usual function, performance or durability of the core. No condensate drains will be allowed.

2.4 BLOWER SECTION

- The impeller type shall be backward-curved.
- Blower assemblies: Shall be statically and dynamically balanced and designed for continuous operation at maximum rated fan speed and horsepower.

2.5 MOTORS

- The supply and exhaust fans shall be electronically commutated (EC) motors with multispeed capability as standard offering.

2.6 UNIT CONTROLS

- Unit shall have the capacity to operate continuously without the need for bypass, recirculation, pre-heaters, or defrost cycles under normal operating conditions.
- The unit shall be capable of operating continuously or intermittently at the low airflow setting with the ability to go temporarily to the high airflow boost mode.
- The unit shall have an internal 24VAC transformer and relay.
- The ERV shall be capable of going into low or high airflow mode by any of the following methods.

- Occupancy Sensor
- Carbon Dioxide Sensor
- Boost Mode push button switch
- Proportional Run Time Controller

2.7 FILTER SECTION

- The ERV cores shall be protected by a MERV8 rated, spun polyester, disposable filter in both airstreams.
- ERV shall have the capability to incorporate an optional1" thick MERV 13 disposable pleated filters located in the outdoor air airstream.
- All filters shall be accessible from the exterior of the unit.

PART 3 – EXECUTION

3.1 EXAMINATION

- Prior to start of installation, examine area and conditions to verify correct location for compliance with installation tolerances and other conditions affecting unit performance. See unit IOM.
- Examine roughing-in of plumbing, electrical and HVAC services to verify actual location and compliance with unit requirements. See unit IOM.
- Proceed with installation only after all unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- Installation shall be accomplished in accordance with these written specifications, project drawings, manufacturer’s installation instructions as documented in manufacturer’s IOM, best practices and all applicable building codes.
- Install unit with clearances for service and maintenance.
- Locate, orient, and connect ductwork per AMCA, ASHRAE, and SMACNA guidelines. Provide service clearances as indicated on the plans. Locate units distant from sound critical occupancies.
- Use factory supplied mounting flange to mount the unit per manufacturer's installation manuals to a structurally suitable surface. The units may be mounted in any orientation.
- Utilize factory provided springs as necessary to help provide vibration isolation for the unit.
- Provide flexible duct connections at unit duct flanges.
- To control sound associated with the two blower outlets:
  - Utilize insulated, flexible duct.

3.3 CONNECTIONS

- In all cases, industry best practices shall be incorporated. Connections are to be made subject to the installation requirements shown above.
- Duct installation and connection requirements are specified in Division 23 of this document.
- Electrical installation requirements are specified in Division 26 of this document.
- All ductwork shall be designed, constructed, supported and sealed in accordance with SMACNA HVAC Duct Construction Standards and pressure classifications.
- At a minimum all duct runs to the outdoors shall be thermally insulated at levels appropriate to the local climate. A continuous vapor barrier shall also be provided on both sides of the insulation.

3.4 FIELD QUALITY CONTROL

- Contractor to inspect field assembled components and equipment installation, to include electrical and piping connections. Report results to Engineer in writing. Inspection must include a complete startup checklist to include (as a minimum) the following: Completed start up checklists as found in manufacturer’s IOM.

3.5 STARTUP SERVICE

- Contractor to perform startup service. Refer to the manufacturer’s installation, operation and maintenance IOM manual for startup procedure.
- Test and balancing may not begin until 100% of the installation is complete and fully functional.
- Follow National Environmental Balancing Bureau (NEBB) air test and balance procedures specific to energy recovery devices. Provide balancing reports to owner's representatives.

3.6 DEMONSTRATION AND TRAINING

- Contractor to train owners or owner’s maintenance personnel to adjust, operate and maintain the ERV.

END OF SECTION

SECTION 26 01 00 - BASIC ELECTRICAL REQUIREMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Owner's Agreement, including General Conditions and Division 1 Specification Sections, apply to this and other Sections of Division 16.

1.02 SUMMARY

A. The work under this Division shall consist of all labor, materials, equipment, and services necessary and required to complete all work as shown on the Drawings and in the Specifications (Contract Documents) and as inferable from the Drawings and Specifications.

B. This Section includes general administrative and procedural requirements for electrical installations. The following administrative and procedural requirements are included in this Section to expand the requirements specified in Division 1:

1. Submittals.
2. Coordination drawings.
3. Record Documents.
4. Operation and Maintenance Manuals.
5. Rough-ins.
6. Electrical installations.
7. Temporary light and power.
8. Field testing.
9. Quality control and acceptance testing.
10. Selective demolition.
11. Concrete equipment bases.
12. Fire Stopping and Touchup painting.
13. Lockout/tagout of overcurrent protective devices.
15. Hazmat Disposal

C. Related Sections: The following Sections contain requirements that relate to this Section and/or are governed by the requirements of this Section:

Raceways, Boxes and Cabinets

Wires and Cables

Wiring Devices

Electrical Identification

Grounding

Interior Lighting

Addressable Fire Alarm Systems

1.03 RELATED WORK NOT INCLUDED IN THIS DIVISION

A. Raceways and conductors or connections to the Owner's equipment beyond the point indicated on the Electrical Drawings.

B. Furnishing, setting, mounting or aligning of motors, motor driven equipment that is specified under other Divisions of these Specifications.

C. Furnishing motor starters and control devices (except for those in the motor starter panel/Motor Control Centers, which are part of this division) or assembled and wired panels or cabinets containing these devices for heating, ventilating, air conditioning or other systems which are specified under other Sections, except as otherwise specified in this Section.

D. Painting, except where specifically called for in other sections of this division (i.e.: identification) and except for factory applied prime or finish painting specified for equipment, fixtures, devices or materials furnished under this Section.

1.04 WORKMANSHIP

A. All work performed shall be first class work in every respect. The work shall be performed by mechanics skilled in their respective trades, who shall at all times be under the supervision of competent persons.

B. Work that is slipshod, poorly laid out, not perfectly aligned, or that is not consistent with the requirements generally accepted in the trade for "first class work" will not be acceptable.

C. In addition to the materials specified elsewhere, furnish and install all other miscellaneous items necessary for the completion of the work to the extent that all systems be complete and operative.

D. All work under this Section shall be performed in cooperation with the work performed under all other Sections of the Specifications on the Project in order to avoid interference's and to secure the proper installation of all work. Review the Drawings and Specifications covering the work to be performed under all Sections, so that the relation and extent of the work of this Section with respect to the work of all other Sections is understood.

1.05 REGULATIONS AND CERTIFICATES

A. All work under this Section shall comply with the applicable requirements of the National Electrical Code, other codes, laws, regulations and standards of all local and State authorities. Where references are made to laws, codes, regulations and standards, these documents, including the latest revisions and amendments thereto in effect as of the date of Bid Opening, shall form part of these Specifications.

B. Upon completion of the work, furnish Certificates of Approval from the local authorities having jurisdiction for approving materials, equipment installation and procedures under this Section and such other certificates pertaining to the electrical work as may be required by the authorities for the issuance of a permanent Certificate of Occupancy. Pay all expenses arising from the procurement of these certificates and included in the lump sum Contract Price.

1.06 BUILDING ACCESS

A. The access into the building for Contractor's employees, equipment and materials furnished under this Contract shall be through openings and entrances designated by Owner. Refer to Division 1, Section 01500 - Temporary Facilities, for specific requirements relative to the use of building loading dock, staging areas and other existing facilities.

1.07 EXPEDITING THE WORK

A. Cooperate with all other subcontractors on the project. This Division shall be responsible for prompt delivery of all materials and equipment and for the installation of all work under this Division, at a time and in a manner that will ensure that there will be no delay in the construction schedule. Including but not limited to coordination with the utility company.

B. Verify all conditions on the job which may affect the installation of the work, and become familiar with applicable local and State regulations. Any discrepancies or interferences shall be reported immediately to the Owner. Additions to the Contract Price will not be allowed when they are due to the failure to carefully inspect existing conditions.

C. Method of Procedure (MOP) will be required as outlined in Division 1 of these Specifications and for all work that will involve disruption of service to the building. Submit Method of Procedure to the Owner and Architect for approval. The MOP shall state proposed starting dates of each item of work, transitions,

shutdowns, etc. with the expected duration of each. Revise the MOP to address the concerns of the Owner or as specifically directed by the Owner.

D. Upon award of contract, provide a graphic schedule detailing the entire electrical installation. The schedule shall be prepared using Microsoft Project. Cooperate with the General contractor and other trades to integrate the electrical schedule with the overall project schedule. The schedule shall include the following:

1. Indicate line items indicating each task including the work of all other trades.

2. Identify all linked tasks.

3. Indicate the critical path.

4. Indicated percent complete, start, duration times and completion dates for each task.

5. Group tasks into summary groups as applicable.

6. Indicate milestones for completion dates and delivery dates.

7. Indicate CINGULAR Wireless' established "quiet times" as non-working times.

E. Update the project schedule for each project meeting or every two weeks which ever is more often.

F. Provide updated "look ahead" schedules that indicate the work to be performed for the upcoming two-week period. This schedule will contain all the features of the basic project schedule but will be much more detailed than the basic project schedule.

1.08 PROTECTION OF THE WORK

A. All work, materials and equipment, whether incorporated into the building or not, shall be protected from damage due to moisture, dirt, plaster, concrete or from carelessness.

B. All material and equipment which is damaged, including installed work, shall be repaired or replaced to the satisfaction of the Owner, at no additional cost to the owner.

C. After work is completed, all work, equipment, shall be cleaned of all construction dirt. All waste and debris resulting from the electrical installation shall be removed from the site and disposed of in a legal manner.

1.09 SUBMITTALS

A. All shop drawings and manufacturer's literature shall conform to the requirements set forth in the General Conditions. The contractor shall verify the compliance of all shop drawings with the requirement of the contract documents. The contractor shall certify that the shop drawings comply with the requirements of the contract documents. Any deviation from the specified items shall be clearly marked and brought to the engineer’s attention as deviations. Items that deviate from the specified that are not clearly highlighted (that manage pass through the approval) shall be changed after the installation when the deviation is discovered, at the cost of the contractor.

B. Immediately after the Contract is awarded, submit, for approval, a complete list of materials, devices and equipment to be incorporated in the work. The list shall include manufacturers' names, catalog numbers, description of material, equipment, devices, etc. proposed to be utilized on this project only. The list shall clearly identify the proposed application of the materials and equipment. The list shall not preclude the necessity of submitting shop drawings for the items included herein.

C. Shop drawings shall include descriptive data, manufacturer's ratings and application recommendations, cuts, diagrams, drawings, test reports, performance curves and such other information or samples as may be required by the Owner to judge compliance with the requirements of the Contract and suitability to the application. Items on the list shall be clearly identified as to proposed application. Approval of materials and equipment will be based on manufacturer's published ratings. Shop drawings shall clearly indicate the requirements for this specific project only.

D. Each item shall be clearly identified as to proposed application. Where items of specified material and equipment are assembled to make up a larger apparatus, submit for approval the manufacturer's or fabricator's assembly shop drawings. Such drawings shall include dimensions and all essential details of arrangement, construction, assembly and connections. Wiring diagrams for special signal and control systems furnished under this Section shall also be submitted for approval. When directed by the Owner, submit in approved form for the record a Certificate of Compliance with a cited code or standard for the materials and equipment designated. Such certificates may be accepted in lieu of samples. Any materials, fixtures or equipment submitted for approval which are not in accordance with the Specifications requirements may be rejected. Any shop drawings marked “Revise and resubmit”, “proceed with fabrication” or “Not Approved” shall be revised and resubmitted until accepted with "Approved”.

E. As part of the coordination work required, prepare installation drawings as necessary. It is intended that these drawings be used to coordinate the work of the various trades and to clarify details of proposed assembly, erection and installation.

F. When indicated in these Specifications or on the Drawings, or when directed by the Owner, installation drawings shall be submitted for approval. Any

installation drawing may be submitted to the Owner for comment and approval when an installation condition or problem arises which the Contractor wishes the Owner to review. All installation drawings submitted for review will be considered and treated as shop drawings and the requirements pertaining to shop drawings shall govern.

G. The following tabulation lists the major components for which shop drawings are required:

1. Conduit and fittings.
2. Wire and cable.
3. Equipment, panels, switchboards and circuit breakers.
4. Splice and pull boxes.
5. Cable Megger reports.
6. Grounding system megger test reports.
7. Written system description.
8. Lighting Fixtures.
9. Wiring Devices.
10. Fire Alarm systems.

H. Shop drawings for all devices shall be submitted within 30 calendar days from Award of Contract. If any equipment is not submitted within this time and/or in accordance with the requirements for shop drawings, and cannot be furnished in time to meet the construction schedule, provide temporary equipment that will perform the equivalent function, for the duration of the time until the specified equipment has arrived. Remove the temporary equipment and install the specified equipment at the Owner’s convenience and at no additional cost to the Owner.

I. Furnish to the Architect operating and maintenance instructions for each piece of equipment and each device. The instructions shall provide detailed description of the operation and maintenance of the equipment or device and shall include manufacturers' literature, detailed wiring diagrams, device internal wiring diagrams and descriptive literature. The instructions shall be furnished to the Architect 30 days prior to the completion of the building work. The instructions shall be submitted initially as a rough draft for approval. After the required corrections have been made, four sets in loose hardback covers shall be furnished to the Architect.

J. Detail Drawings of fabrication and installation of supports and anchorage for electrical items.

K. Coordination Drawings for electrical installation.

1. Prepare Coordination Drawings according to Division 1 Section 01300 - Submittals to a 1/4-inch-equals-1-foot scale or larger. Detail major elements, components, and systems of electrical equipment and materials in relation to each other and to other systems, installations, and building components. Indicate locations and space requirements for installation, access, and working clearance. Indicate where work requiring MOP approvals occur and show where sequence and coordination of installations are important to the efficient flow of the Work. Coordinate drawing preparation with effort specified in other Specification Sections. Include the following:

a. Provisions for scheduling, sequencing, moving and positioning large equipment in the building during construction.

b. Floor plans, elevations and details, including the following:

1) Clearances to meet safety requirements and for servicing and maintaining equipment, including space for equipment disassembly required for periodic maintenance.

2) Equipment support details.

3) Exterior wall, roof and foundation penetrations of cable and raceway; and their relation to other penetrations and installations.

4) Fire-rated interior wall and floor penetrations by electrical installations.

5) Sizes and locations of required concrete pads and bases.

c. Reflected ceiling plans to coordinate and integrate installing air outlets and inlets, light fixtures, alarm and communication systems components, sprinklers and other ceiling-mounted items.

d. Methods of Procedures as specified in Division 1 - Methods of Procedure

L. Samples of color, lettering style and other graphic representation required for each identification product for Project.

1.10 RECORD DRAWINGS

A. Maintain an accurate record of all work as actually installed. This record shall be kept current and shall be kept available at the site for inspection. Utilize the contract design drawings for marking up the work as installed. Upon completion of the work, and before final payment is authorized, AutoCAD® revision 14 drafted mylars of the as-built conditions with signed certification of accuracy shall be delivered to the Owner (this supersedes Supplementary and General Conditions). Provide the AutoCAD® "drawing" data files to the Owner.

1.11 GUARANTEE

A. Guarantee all wiring free from unwanted grounds and short circuits.

B. Guarantee all materials and workmanship free from defects for a period of one year starting from the date of acceptance by the Owner.

C. Obtain from the various manufacturers or vendors standard guarantees or warranties for their particular equipment or components, and deliver them to the Owner.

1.12 FINAL INSPECTION

A. Conduct a final inspection of all work installed under this Division of the Specification after the installation has been completed; the testing hereinafter specified has been performed; and test reports have been submitted to the Owner.

B. During the conduct of the final inspection, have present a representative of the various manufacturers and a representatives of the manufacturers of other equipment as directed by the Owner.

1.13 TRAINING

A. Provide a minimum of eight (4) hours training for the Owner's on-site workforce for each type of equipment and/or system provided under this Division.

B. The contractor shall provide two (2) VHS videotape copies of each training sessions to the Owner. Each session shall be provided on dedicated tapes. Tape labels shall be type written and dated.

1.14 QUALITY CONTROL AND ACCEPTANCE TESTING

A. Provide Quality Control Performance Tests, and Acceptance Testing for all systems, devices and equipment installed or wired under this Division. Tests shall be performed to the satisfaction of the Owner and the Owner's Representative.

1.15 SHUTDOWNS AND PREMIUM COSTS

A. Should the contractor not be ready for the owner's occupancy and shutdown and/or tie-ins be required when the owner's equipment is on site the provisions of

this paragraph will hold. Plan the installation of this work and connections to existing building systems and relocation of existing work to ensure minimum interference with building services.

B. Submit for approval a schedule of necessary temporary shutdowns of the existing electrical services and shall secure such approval in writing before proceeding.

C. All costs for performing specified overtime work and specified premium time work shall be at the contractor's expense.

D. Electrical service, building services and systems shall not be interrupted during regular non-working hours. All work requiring the interruption of alarm systems or interruption or shutdown of electric power shall be performed during premium time. Provide temporary connections, if necessary, to maintain continuous electrical power for the operation of any area affected by the work of this Section.

E. Once a system has been energized, any work requiring the interruption of alarm systems or interruption shutdown of an electrical panel shall be performed during premium time except as otherwise indicated. The installation of circuit breakers, connections to active circuit breakers and disconnecting from circuit breakers in active panelboards or switchboards shall be performed only during the shutdown of electric service to the panel.

F. Any work under this Section which may cause interference with the Owner's operation shall be done in such a manner and at such time as is approved by the Owner and/or the Building Supervisor. Removal and alteration of electrical equipment, conduit and wiring and the installation of new work shall be performed with minimum interruption. Where the situation permits, make temporary connections as required to prevent electrical service interruptions.

G. Approval for temporary shutdown of electrical services shall be secured from the Owner in writing a minimum of two weeks in advance. Provide temporary UPS systems for any critical load during shutdowns.

H. Scheduled shutdowns shall be arranged to facilitate the phasing of the work. Complete as much preparatory work as can be done in advance of shutdown, so as to minimize the length of shutdowns. The shutdowns shall be arranged with the Owner.

I. Provide sufficient personnel for all shutdowns to accomplish the required work within the time available.

J. Should any work impair or limit the effectiveness of any existing system, provide adequate manpower to supervise any and all areas compromised by the work for the duration of the work. For example, if the work causes or requires the loss of fire alarm system coverage in part or full, provide certified dedicated fire warden personnel for each room and area lacking coverage, to detect and announce any potential fire or life safety hazard.

1.16 DELIVERY, STORAGE AND HANDLING

A. Deliver products to the project properly identified with names, model numbers, types, grades, compliance labels, and other information needed for identification.

B. Storage: Materials stored at the project site which become soiled with construction dirt, concrete or earth work shall be removed from the site and replaced with new. Do not install soiled material.

C. Cleaning: Clean wipe the interior of all conduit, pullboxes and panel board backboxes, soiled by masonry trades, before proceeding with wiring.

D. Generally, do not install damaged, broken or marred material or products; replace with new. On long delivery items that are damaged in shipping or storage, field repair these items and temporarily install them in the interim until replacement items have arrived. Replace the damaged items when the replacement item has arrived.

1.17 SEQUENCING AND SCHEDULING

A. Coordinate installation with other building components and the work of other trades.

B. Coordinate the installation of required supporting devices and set sleeves in poured-in-place concrete and other structural components as they are constructed.

C. Sequence, coordinate and integrate installations of materials and equipment for efficient flow of the Work. Coordinate installation of large equipment requiring positioning or greater access prior to closing in the building.

D. Coordinate connection of electrical services to equipment of other trades and Divisions.

E. Coordinate installation of identifying devices after completing covering and painting where devices are applied to surfaces. Install identifying devices prior to installing acoustical ceilings and similar concealment.

F. Coordinate delivery and setting of all equipment that require concrete pads, with Division 3.

G. Prior to the commencement of the work of other Divisions, mark the area of all electrical distribution equipment and inform the other trades of required clearances. Designate the area equal to the footprint of the electrical equipment, from the top of the equipment to the structural ceiling above as dedicated electrical space. Inform all trades not to interlope this area. This applies to all distribution boards, switchgear, motor control centers (FBO) and panelboards.

H. Arrange for chases, slots and openings in building structure during progress of construction to allow for electrical installations.

I. Coordinate connecting electrical systems with exterior underground and overhead utilities and services. Comply with requirements of governing regulations, franchised service companies, and controlling agencies.

1.18 DRAWINGS AND SPECIFICATIONS

A. The Drawings are to be considered schematic only and do not necessarily show the exact location and details of the work to be installed. It shall be the responsibility of the Contractor to provide the work in conformity with the requirements of these Specifications, the applicable codes, regulations and standards, and the best trade practices meeting with the approval of the Owner. If any departures from the Drawings are deemed necessary, details of such departures and the reasons therefore shall be submitted immediately to the Owner for approval. If any conflicts or discrepancies are found to exist on the Drawings, in the Specifications or between the Drawings and the Specifications, assume the most expensive option and include such costs in the Bid. It shall be understood that the Owner reserves the right to change the location of equipment and apparatus to a reasonable extent as building conditions may dictate, without extra cost to the Owner.

B. Locations of lighting fixtures, outlets, panels, devices and other equipment are approximately correct, but are subject to such revision as may be found necessary or desirable at the time work is installed in consequence of increase or reduction in the number of outlets, to meet field conditions, to coordinate with modular requirements of ceilings, to simplify work, or for other legitimate causes.

C. Architect's Drawings of the building shall be examined to ascertain whether any changes have been made since Electrical Drawings were completed. Particular caution shall be exercised with reference to location of panels, outlets, switches, etc. and precise and definite locations shall be approved by the Owner before proceeding with installation. It shall be distinctly understood that the Drawings show only general run of conduit and approximate location of outlets.

D. Any significant changes in location of outlets, cabinets, etc., found necessary in order to meet field conditions, shall be brought to the immediate attention of the Owner and written approval must be obtained before such alterations are made.

E. Locations of outlets and equipment not definitely located on the Drawings shall be obtained from the Architect in the field.

F. Electrical Drawings show general arrangement of conduit, equipment and appurtenances and shall be followed as closely as actual building construction and work of other trades will permit. Verify dimensions in field and measure off building construction for locations of equipment and devices. Electrical work shall conform to requirements shown on each trade's Drawings. Architectural layout on Construction Drawings shall take precedence over Architectural layout on Electrical Drawings. Because of the small scale of Electrical Drawings, it is not possible to indicate every offset, fitting and accessory which may be required. Investigate structural and finish conditions affecting work and arrange electrical work accordingly, providing all accessories required to meet such conditions.

G. Circuit "tags" in the form of arrows are used to indicate home runs of conduit to electrical panels. These tags show quantity of circuits in each home run, number of each circuit and panel designation. Circuit numbers shown are for reference only to indicate devices on a common circuit, not necessarily the exact circuit position to be utilized. Show actual circuit numbers on the finished record drawings and on the panel directory card.

H. The Drawings generally do not indicate the quantity of wires or conduit for branch circuit wiring nor the conduit size for feeders. Provide the correct wire size and quantity of wires installed in conduit of proper size as required by the indicated circuiting, control wire diagrams, if any, specified voltage drop or maximum distance limitations and applicable requirements of the National Electrical Code. Show branch circuit and feeder wiring and conduit runs on the record drawings.

1.19 WRITTEN SYSTEM DESCRIPTION

A. Submit a complete written description of the electrical distribution system as finally installed. Description shall be written in simple English providing a general understanding of the operation of the AC power distribution system.

B. Refer to as-built drawings and shop drawings as well as manufacturers descriptive data for detailed information.

1.20 TEMPORARY POWER

A. Arrange, obtain and pay for temporary utility service to the site during construction. Provide temporary lighting and receptacles for the use of all contractors during construction. Maintain the existing electrical service to accommodate temporary power to the building while waiting for final power. Remove as directed.

B. All temporary circuits shall be provided with GFI protection in accordance with OSHA standards.

C. Remove all temporary distribution at the completion of the project or as directed by the owner.

PART 2 - PRODUCTS

2.01 EQUIPMENT

A. General: All equipment shall be the capacity and types specified and as shown in the Contract Documents, and shall be the listed manufacturers and model numbers unless otherwise noted.

B. All equipment, materials, devices and accessories shall be in full compliance with all State, city and local codes and laws and shall comply with the NFPA, ANSI, NEMA, and shall be UL listed and labeled for the application.

2.02 MATERIAL

A. Provide all materials required for a complete and proper installation.

B. In addition to the materials specified elsewhere, all other miscellaneous items necessary for the completion of the work shall be furnished and installed by the Contractor to the extent that all systems be complete and operative.

C. All material and equipment furnished under this Division shall be new and listed and/or labeled by the Underwriters' Laboratories, Inc. for the application, unless otherwise specified herein. Materials, material sizes and methods of construction not specified shall be at least equal to or better than the standards listed by the Underwriters' Laboratories, Inc. and/or requirements of the laws, regulations and codes mentioned hereinafter.

2.03 SUPPORTING DEVICES

A. Channel and angle support systems, hangers, anchors, sleeves, brackets, fabricated items and fasteners are designed to provide secure support from the building structure for electrical components.

1. Material: Steel, except as otherwise indicated, protected from corrosion with zinc coating or with treatment of equivalent corrosion resistance using approved alternative finish or inherent material characteristics.

2. Material: Nonconductive structurally rated fiberglass for equipment and materials connected to any isolated ground plane.

3. Metal Items for Use Outdoors or in Damp Locations: Hot-dip galvanized steel, except as otherwise indicated.

B. Steel channel supports have 9/16-inch diameter holes at a maximum of 8 inches O.C., in at least 1 surface.

1. Fittings and accessories mate and match with channels and are from the same manufacturer.

C. Nonmetallic Channel and Angle Systems: Structural-grade, factory formed, fiber glass-resin channels and angles with 9/16-inch diameter holes at a maximum of 8 inches O.C., in at least 1 surface.

1. Fittings and accessories mate and match with channels or angles and are from the same manufacturer.

2. Fitting and Accessory Material: Same as channels and angles, except metal items may be stainless steel.

D. Raceway and Cable Supports: Manufactured clevis hangers, riser clamps, straps, threaded C-clamps with retainers, ceiling trapeze hangers, wall brackets and spring steel clamps or "click"- type hangers.

E. Sheet-Metal Sleeves: 0.0276-inch or heavier galvanized sheet steel, round tube, closed with welded longitudinal joint.

F. Pipe Sleeves: ASTM A 53, Type E, Grade A, Schedule 40, galvanized steel, plain ends.

G. Cable Supports for Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug for non-armored electrical cables in riser conduits. Plugs have number and size of conductor gripping holes as required to suit individual risers. Body constructed of malleable iron casting with hot-dip galvanized finish.

H. Expansion Anchors: Carbon-steel wedge or sleeve type.

I. Toggle Bolts: All-steel springhead type.

J. Powder-Driven Anchors are not allowed.

2.04 ELECTRICAL IDENTIFICATION

A. Manufacturer's Standard Products: Where more than one type is listed for a specified application, selection is Installer's option, but provide single type for each application category. Use colors prescribed by ANSI A13.1, NFPA 70, and these Specifications.

B. Raceway and Cable Labels: Conform to ANSI A13.1, Table 3, for minimum size of letters for legend and minimum length of color field for each raceway or cable size.

1. Type: Preprinted, flexible, self-adhesive, vinyl. Legend is overlaminated with a clear, weather- and chemical-resistant coating.

2. Color: Black legend on orange field.

3. Legend: Indicates voltage.

C. Colored Adhesive Marking Tape for Raceways, Wires, and Cables: Self-adhesive vinyl tape not less than 3 mils thick by 1 inch wide.

D. Underground Line Warning Tape: Permanent, bright-colored, continuous-printed, vinyl tape with the following features:

1. Size: Not less than 4 mils thick by 6 inches wide.

a. Compounded for permanent direct-burial service.

2. Embedded continuous metallic strip or core.

a. Printed Legend: Indicates type of underground line.

E. Tape Markers: Vinyl or vinyl-cloth, self-adhesive, wraparound type with preprinted numbers and letters.

F. Color-Coding Cable Ties: Type 6/6 nylon, self-locking type. Colors to suit coding scheme.

G. Engraved, Plastic-Laminated Labels, Signs, and Instruction Plates: Engraving stock, melamine plastic laminate punched for mechanical fasteners 1/16-inch minimum thick for signs up to 20 sq. in., 1/8 inch thick for larger sizes. Engraved legend in black letters on white face.

H. Interior Warning and Caution Signs: Preprinted, aluminum, baked enamel finish signs, punched for fasteners, with colors, legend and size appropriate to the application.

I. Exterior Warning and Caution Signs: Weather-resistant, non-fading, preprinted, cellulose acetate butyrate signs with 0.0396-inch, galvanized steel backing, with colors, legend and size appropriate to the application. 1/4-inch grommets in corners for mounting.

J. Fasteners for Plastic-Laminated and Metal Signs: Self-tapping stainless-steel screws or No. 10/32 stainless-steel machine screws with nuts and flat and lock washers.

2.05 TOUCHUP PAINT

A. For Equipment: Provided by equipment manufacturer and selected to match equipment finish.

B. For Non-Equipment Surfaces: Matching type and color of undamaged, existing adjacent finish.

C. For Galvanized Surfaces: Zinc-rich paint recommended by item manufacturer.

2.06 LOCKOUT/TAGOUT OF BRANCH-CIRCUIT DEVICES

A. Each overcurrent protective device, switch and/or means of disconnect shall be provided with the capability of being locked out in compliance with OSHA Standard 1910.147.

B. Where factory furnished permanent lockout features are not available, each overcurrent protective device enclosure shall be provided with Stranco, Inc. Circuit Safe™ lockout system. Provide circuit safe unit with length to match the total length of the overcurrent protective devices, including the future devices. Coordinate the centerline separation of breakers and the distances from the enclosure center. Provide one pin holder and two of each type lockout pins for each enclosure. Provide mounting shims and offset brackets as required.

PART 3 - EXECUTION

3.01 GENERAL

A. Inspection: Prior to all work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence. Verify that the work of this Division may be completed in strict accordance with all pertinent codes and regulations, the approved shop drawings and the manufacturer's recommendations.

B. Discrepancies: In the event of discrepancy, immediately notify the Owner. Do not proceed in areas of discrepancy until all such discrepancies have been fully resolved.

C. Do not install work without approved shop drawings.

D. Should the Contractor proceed without submittals and approvals of submittals, any costs incurred to correct problems that could have been corrected in the shop drawing or coordination drawings shall be the responsibility of the Contractor.

E. All work performed shall be first class work in every respect. The work shall be performed by mechanics skilled in their respective trades, who shall at all times be under the supervision of competent persons.

F. Work that is slipshod, poorly laid out, not perfectly aligned, or that is not consistent with the requirements generally accepted in the trade for "first class work" will not be acceptable.

G. All work under this Section shall be performed in cooperation with the work performed under all other Sections of the Specifications on the Project in order to avoid interferences and to secure the proper installation of all work. Review the Drawings and Specifications covering the work to be performed under all Sections, so that the relation and extent of the work of this Section with respect to the work of all other Sections is understood.

3.02 INSTALLATION OF EQUIPMENT

A. Locations: Install all equipment in the locations shown on the approved shop drawings, except where specifically otherwise approved on the job by the Owner. Do not install motor control centers and electrical equipment directly under the work of other trades (including new and existing work) even if such work is in the locations indicated on the contract documents or approved submittals. If such a condition occurs contact the Owner's representative for specific direction regarding the exact location of such equipment.

B. Interferences: Avoid interference with structure, and with the work of other trades, preserving adequate headroom and clearing all doors and passageways to the approval of the Owner.

C. Inspection: Check each piece of equipment in the system for defects, verifying that all parts are properly furnished and installed, that all items function properly, and that all adjustments have been made.

D. Fabricate, test, assemble and install all material, equipment and systems in accordance with the requirements of the following:

1. National Fire Protection Code – NFPA

2. Occupational Safety and Health Administration (OSHA)

3. American National Standards Institute (ANSI)

4. Underwriters' Laboratories, Inc. (UL)

E. Install components and equipment to provide the maximum possible headroom where mounting heights or other location criteria are not indicated.

F. Install items level, plumb, and parallel and perpendicular to other building systems and components, except where otherwise indicated.

G. Install equipment to facilitate service, maintenance, and repair or replacement of components. Connect for ease of disconnecting, with minimum interference with other installations.

H. Give right of way to raceways and piping systems installed at a required slope.

I. Install motor control equipment, motor control centers and other equipment furnished under other Divisions for mounting and wiring by this Division in accordance with the Specification Sections of the Division that is furnishing the equipment.

J. Anchor all floor mounted electrical equipment to the floor or equipment pad at each corner of each section of the equipment. Provide seismic bracing as specified elsewhere.

3.03 CLOSING-IN OF UNINSPECTED WORK

A. General: Do not allow or cause any of the work of this Division to be covered up or enclosed until it has been inspected, tested and approved by the Owner's representative and by all other authorities having jurisdiction.

B. Uncovering: Should any of the work of this Division be covered up or enclosed before it has been completely inspected, tested and approved, do all things necessary to uncover all such work. After the work has been completely inspected, tested and approved, provide all materials and labor necessary and make all repairs necessary to restore the work to its original and proper condition at no additional cost to the Owner.

3.04 COOPERATION WITH OTHER TRADES

A. Do all things necessary to cooperate with other trades in order that all systems in the work may be installed in the best arrangements.

B. Coordinate as required with all other trades to share space in common areas and to provide the maximum of access to each system.

C. Accept delivery, set, mount and wire all motor control centers, starters, adjustable frequency drives and other HVAC control equipment specified and provided under Division 15.

3.05 CLEANING

A. It is the intent of these Specifications that all work, including the inside of equipment, be left in a clean condition. All construction dirt shall be removed from material and equipment.

3.06 COMPLETENESS

A. It is the intent of these Specifications to provide a complete system. All material and equipment shall be installed properly. All material and equipment shall be adjusted so that it is operating as designed, to the satisfaction of the Owner.

3.07 ELECTRICAL SUPPORTING METHODS

A. Damp Locations and Outdoors: Hot-dip galvanized materials or nonmetallic, U-channel system components.

B. Dry Locations: Steel materials.

C. Support Clamps for PVC Raceways: Click-type clamp system.

D. Conform to manufacturer's recommendations for selecting supports.

E. Strength of Supports: Adequate to carry all present and future loads, times a safety factor of at least 4; 200 lb. minimum design load.

3.08 CUTTING AND PATCHING

A. Cut, channel, chase and drill floors, walls, partitions, ceilings and other surfaces necessary for electrical installations. Perform cutting by skilled mechanics of the trades involved.

B. Repair disturbed surfaces to match adjacent undisturbed surfaces.

3.09 TOUCHUP PAINTING

A. Thoroughly clean damaged areas and provide primer, intermediate and finish coats to suit the degree of damage at each location.

B. Follow paint manufacturer's written instructions for surface preparation and for timing and application of successive coats.

3.10 TEMPORARY POWER FOR TOOLS AND EQUIPMENT

A. The contractor shall provide ground fault circuit interrupters on each temporary power feed, including all extension cords.

3.11 DISPOSAL

A. All materials removed under this contract shall be disposed of in a legal and approved manor. Items considered hazardous or that require manifested disposal shall be removed from equipment and/or devices separately contained and disposed of in such manor. Such items include but are not limited to ballasts (PCB or Not), fluorescent tubes (lamps), Mercury lamps and switches.

END OF SECTION 260100

SECTION 260519 - WIRES AND CABLES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Owner's Agreement, including General Conditions and Division 1 Specification Sections, apply to this and other Sections of Division 26.

1.02 SUMMARY

A. This Section includes building wires and cables and associated splices, connectors, and terminations for wiring systems rated 600 volts and less.

B. Related Sections: The following Sections contain requirements that relate to this Section:

1. Section - Firestopping.

2. Section - Basic Electrical Requirements for supporting devices for supports and anchors for fastening cable directly to building finishes.

3. Section - Basic Electrical Requirements for insulation color-coding and wire and cable markers.

1.03 SUBMITTALS

A. General: Submit the following according to the Conditions of the Contract and Division 1 Specification Sections.

B. Field test reports indicating and interpreting test results relative to compliance with performance requirements of testing standard.

1.04 QUALITY ASSURANCE

A. Testing Firm Qualifications: In addition to the requirements specified in Division 1 Section 01400 - Quality Control, an independent testing firm shall meet OSHA criteria for accreditation of testing laboratories, Title 29, Part 1907, or shall be a full member company of the International Electrical Testing Association (NETA) and shall be an approved testing agency.

1. Testing Firm's Field Supervisor Qualifications: A person currently certified by the NETA National Institute for Certification in Engineering Technologies to supervise on-site testing specified in Part 3.

B. Comply with NFPA 70 "National Electrical Code" for components and installation.

C. Listing and Labeling: Provide products specified in this Section that are listed and labeled.

1. The Terms "Listed and Labeled": As defined in the "National Electrical Code," Article 100.

1.05 SEQUENCING AND SCHEDULING

A. Coordination: Coordinate layout and installation of cable with other installations.

1. Revise locations and elevations from those indicated as required to suit field conditions and as approved by the Owner's representative.

1.06 DELIVERY, STORAGE AND HANDLING

A. Deliver wire and cable according to NEMA WC-26.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Wires and Cables

a. American Insulated Wire Corporation, Leviton Manufacturing Company
b. Brand-Rex Cable Systems, Brintec Corporation
c. Carol Cable Company, Inc.
d. Senator Wire & Cable Company
e. Southwire Company

2. Connectors for Wires and Cables

a. Burndy
b. Electrical Products Division, 3M Company
c. O-Z/Gedney Unit, General Signal

2.02 BUILDING WIRES AND CABLES

A. UL-listed Class B concentric round copper building wires and cables with conductor material, insulation type, cable construction, and rating as specified in Part 3 "Applications" Article.

B. Rubber Insulation: Conform to NEMA WC 3.

C. Thermoplastic Insulation: Conform to NEMA WC 5.

D. Cross-Linked Polyethylene Insulation: Conform to NEMA WC 7.

E. Ethylene Propylene Rubber Insulation (EPR): Conform to NEMA WC 8.

F. Solid conductor for lighting and receptacle circuit conductors and all conductors 10 AWG and smaller; stranded conductor for larger than 10 AWG.

2.03 CONNECTORS AND SPLICES

A. Provide UL-listed factory-fabricated compression style wiring connectors of size, ampacity rating, material, and type and class for application and for service indicated. Select to comply with Project's installation requirements and as specified in Part 3 "Applications" Article.

B. For conductors #10 AWG and smaller: Wire and cable connectors shall be solderless, mechanical, solid copper or copper alloy types. Connectors shall be Buchanan Electrical Products copper squeeze-on type with molded rubber or vinyl cap, Minnesota Mining and Manufacturing Company "Scotchlock" or Ideal Industries "Super-Nut" spring connectors with molded vinyl cap or as approved.

C. Connectors and/or terminations for conductors #8 AWG and larger: UL Standard 486A Dual crimp long barrel compression lugs with two bolt holes, Suitable for 90°C, insulated with clear heat shrink molded covers over the entire barrel portion of the lug. Similar to "Hylugs" manufactured by Burndy to accommodate 1/2" bolts. Compression crimp shall be performed utilizing dies that impress a mark indicating the die used to crimp the connection. Die mark shall be visible through the clear heat shrink cover.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine raceways and building finishes to receive wires and cables for compliance with installation tolerances and other conditions. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.02 APPLICATIONS

A. Service Entrance: Type USE rated RHW-2, copper conductor rated 90°C insulation, in raceway.

B. Feeders

1. Cables 500MCM and smaller: Type THHN/THWN-2/XHHW-2/RHW-2, copper conductor, in raceway.

2. Cables over 500MCM: Type THW, RHW, copper conductor, in raceway.

C. Branch Circuits: Type THHN/THWN, copper conductor, in raceway.

D. Lighting circuit drops to fixtures (limited to runs of no more than 5 feet where concealed): Type MC Cable, copper conductor, 90°C insulation.

E. Instrument cabling: Twisted shielded pair or triads with aluminum mylar shield and copper drain wire, Type XHHW or THHN insulation.

F. Class 1 Control Circuits: Type THHN/THWN, copper conductor, in raceway.

G. Class 2 Control Circuits: Type THHN/THWN, copper conductor, in raceway.

H. Direct Current Circuits: Type EPR, copper conductor, in raceway.

3.03 INSTALLATION

A. Install wires and cables as indicated, according to manufacturer's written instructions and the NECA "Standard of Installation." Install all wires and cabling concealed.

B. Remove existing wire from raceway before pulling in new wire and cable.

C. Pull conductors into raceway simultaneously where more than one is being installed in same raceway.

1. Use pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation.

2. Use pulling means, including fish tape, cable, rope, and basketweave wire/cable grips that will not damage cables or raceway.

D. Where specifically allowed by the architect, Install exposed cable. Install parallel and perpendicular to surfaces or exposed structural members, and follow surface contours where possible.

E. Conductor Splices: Keep to minimum.

1. Splices are not permitted in feeders.

2. Splices are permitted only where required to circuit specific devices on shared circuits.

3. Install splices and tapes that possess equivalent or better mechanical strength and insulation ratings than conductors being spliced.

4. Use only compression type splice and tap connectors that are compatible with conductor material.

F. Wiring at Outlets: Install with at least 12 inches of slack conductor at each outlet.

G. Connect outlets and components to wiring and to ground as indicated and instructed by manufacturer. Tighten connectors and terminals, including screws and bolts, according to equipment manufacturer's published torque-tightening

values for equipment connectors. Where manufacturer's torquing requirements are not indicated, tighten connectors and terminals according to tightening torques specified in UL Standard 486A.

H. Provide each branch circuit with a dedicated ground conductor. Do not use multiconductor branch circuits, provide dedicated neutral conductors for each circuit requiring a neutral conductor.

I. Connect each ground conductor to grounding bushings as it enters and/or exits boxes and enclosures.

H. The drawings generally do not indicate the quantity of wires or conduit for branch circuit wiring nor the conduit size. Provide the correct wire size and quantity of wires installed in conduit of proper size as required by the indicated circuiting, control wire diagrams, if any, specified voltage drop or maximum distance limitations and applicable requirements of the national electrical code. Show branch circuit and feeder wiring and conduit runs on the record drawing.

3.04 FIELD QUALITY CONTROL

A. Testing Firm: Provide the services of a qualified independent testing firm to perform specified field quality-control testing.

B. Testing: Upon installation of wires and cables and before electrical circuitry has been energized, demonstrate product capability and compliance with requirements.

1. Procedures: Perform each visual and mechanical inspection and electrical test stated in NETA Standard ATS, Section 7.3.1. Certify compliance with test parameters.

2. Test all cables with 1000VDC megger test. Test branch circuit wiring for one minute. Test feeder wiring for 15 minutes with readings at one-minute intervals.

3. Parallel feeders: Provide full load current tests for all parallel feeder conductors. Verify that current division between the parallel conductors does not vary more than 5%.

4. Terminations: Provide infrared thermoscans of all terminations of conductors #8AWG and larger. Perform scans with conductors carrying the designed load.

C. Correct malfunctioning products at site, where possible, and retest to demonstrate compliance; otherwise, remove and replace with new units, and retest.

END OF SECTION

SECTION 260526 - GROUNDING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Owner's Agreement, including General Conditions and Division 1 Specification Sections, apply to this and other Sections of Division 26.

1.02 SUMMARY

A. This Section includes grounding of electrical systems and equipment and basic requirements for grounding for protection of life, equipment, circuits, and systems. Grounding requirements specified in this Section may be supplemented in other Sections of these Specifications.

B. Related Sections: The following Sections contain requirements that relate to this Section:

1. Division 26 Section 26 0519 - Wires and Cables for requirements for grounding conductors.

1.03 SUBMITTALS

A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.

B. Product Data for grounding rods, connectors and connection materials, and grounding fittings.

C. Qualification data for firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

D. Field tests and observation reports certified by the testing organization and indicating and interpreting the test reports for compliance with performance requirements.

1.04 QUALITY ASSURANCE

A. Testing Agency Qualifications: A "Nationally Recognized Testing Laboratory" (NRTL) as defined in OSHA Regulation 1910.7, or a full member company of the International Electrical Testing Association (NETA).

1. Testing Agency Field Supervision: Use persons currently certified by NETA or the National Institute for Certification in Engineering Technologies to supervise on-site testing specified in Part 3.

B. Comply with NFPA 70.

C. Comply with UL 467.

D. Listing and Labeling: Provide products specified in this Section that are listed and labeled.

1. The Terms "Listed" and "Labeled": As defined in the National Electrical Code, Article 100.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Burndy
2. O-Z/Gedney Company
3. Thomas & Betts, Electrical

2.02 GROUNDING AND BONDING PRODUCTS

A. Governing Requirements: Where types, sizes, ratings, and quantities indicated are in excess of National Electrical Code (NEC) requirements, the more stringent requirements and the greater size, rating, and quantity indications govern.

2.03 WIRE AND CABLE GROUNDING CONDUCTORS

A. Comply with Division 26 Section 26 0519 - Wires and Cables. Conform to NEC Table 8, except as otherwise indicated, for conductor properties, including stranding.

1. Material: Copper. Use only copper wire for both insulated and bare grounding conductors in direct contact with earth, concrete, masonry, crushed stone, and similar materials.

B. Equipment Grounding Conductors: Insulated with green color insulation.

C. Bare Copper Conductors: Conform to the following:

1. Solid Conductors: ASTM B 3.
2. Assembly of Stranded Conductors: ASTM B 8.
3. Tinned Conductors: ASTM B 33.

2.04 MISCELLANEOUS CONDUCTORS

A. Grounding Bus: Bare, annealed-copper bars of rectangular cross section.

B. Braided Bonding Jumpers: Copper tape, braided No. 30 AWG bare copper wire, terminated with copper ferrules.

C. Bonding Straps: Soft copper, 0.05 inch thick and 2 inches wide, except as indicated.

2.05 CONNECTOR PRODUCTS

A. Pressure Connectors: High-conductivity-plated units.

B. Bolted Clamps: Heavy-duty type.

C. Exothermic-Welded Connections: Provided in kit form and selected per manufacturer's written instructions for specific types, sizes, and combinations of conductors and connected items.

PART 3 - EXECUTION

3.01 APPLICATION

A. Equipment Grounding Conductors: Provide all branch circuits and feeders with ground conductors. Comply with NEC Article 250 for types, sizes, and quantities of equipment grounding conductors, except where specific types, larger sizes, or more conductors than required by NEC are indicated.

1. Install equipment-grounding conductor with all circuit conductors.

2. Busway Supply Circuits: Install separate equipment grounding conductor from the grounding bus in the switchgear to equipment grounding-bar terminal on busway.

3. Non-metallic Raceways: Install Central office equipment grounding conductors in non-metallic raceways.

B. Separately Derived Systems: Where NEC requires grounding, ground according to NEC Paragraph 250-26.

C. Metal Poles Supporting Outdoor Lighting Fixtures: Ground pole to a grounding electrode in addition to separate equipment grounding conductor run with supply branch circuit.

3.02 INSTALLATION

A. General: Ground electrical systems and equipment according to NEC requirements, except where Drawings or Specifications exceed NEC requirements.

B. Grounding Rods

1. Drive until tops are 2 inches below finished floor or final grade, except as otherwise indicated.

2. Interconnect with grounding-electrode conductors. Use exothermic welds, except at test wells and as otherwise indicated. Make these connections without damaging copper coating or exposing steel.

D. Grounding Conductors: Route along the shortest and straightest paths possible, except as otherwise indicated. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage. Route and support so that conductors are not encircled by magnetic or conductive materials.

E. Underground Grounding Conductors: Use bare copper wire. Bury at least 24 inches below grade.

3.03 CONNECTIONS

A. General: Make connections so possibility of galvanic action or electrolysis is minimized. Select connectors, connection hardware, conductors, and connection methods so metals in direct contact will be galvanically compatible.

1. Use silver-plated materials to assure high conductivity and to make contact points closer in order of galvanic series.

2. Make connections with clean, bare metal at points of contact.

3. Provide antiox compounds at all bolted and compression connections.

4. Coat and seal connections having dissimilar metals with inert material to prevent future penetration of moisture to contact surfaces.

5. Cover crimp connections and barrels with clean heat shrink insulation.

B. Exothermic-Welded Connections: Use for connections to structural steel and for underground connections, including those at test wells. 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-Wire Terminations: For No. 8 AWG and larger, use two hole long barrel dual crimp tongue lugs. Apply antiox compound and clear heatshrink cover over all visible copper areas. No. 10 AWG and smaller grounding conductors may be tapped with “C” or “H” style compression connectors.

D. Metal Raceway Terminations: Where metallic raceways terminate Provide each conduit with a grounding bushing. Connect grounding bushings with grounding conductor. Bond conduits at both entrances and exits with grounding bushings and continuous grounding conductors, except as otherwise indicated.

E. Metal Box Terminations: Provide bonding conductors from grounding bushings to ground bars and to back boxes. Provide brazed or welded posts in each back box to accommodate the lugs specified.. Bond electrically non-continuous conduits at both entrances and exits with grounding bushings and bare grounding conductors, except as otherwise indicated.

F. Tighten screws and bolts for grounding and bonding connectors and terminals according to manufacturer's published torque-tightening values. Where these requirements are not available, use those specified in UL 486A and UL 486B.

G. Compression-Type Connections: Use hydraulic compression tools to provide correct circumferential pressure for compression connectors. Use tools and dies recommended by manufacturer of connectors. Provide embossing die code to make a visible indication that a connector has been adequately compressed on grounding conductor. Provide clear heat shrink insulating cover over the barrel section of the lug.

H. Moisture Protection: Where insulated grounding conductors are connected to grounding rods or grounding buses, insulate entire area of connection and seal against moisture penetration of insulation and cable.

3.04 FIELD QUALITY CONTROL

A. Perform tests described below.

B. Tests: Subject the completed grounding system to a megger test at each location where a maximum ground-resistance level is specified, at service disconnect enclosure grounding terminal, and at ground test wells. Measure ground resistance not less than 2 full days after the last trace of precipitation, and without the soil being moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance. Perform tests by the 2-point method according to IEEE 81.

C. Maximum grounding-to-resistance values are as follows:

1. Equipment Rated 500 kVA and Less: 10 ohms.

2. Equipment Rated 500 to 1000 kVA: 5 ohms.

3. Equipment Rated More than 1000 kVA: 3 ohms.

D. Excessive Ground Resistance: Where resistance to ground exceeds specified values, notify Owner promptly and include recommendations to reduce ground resistance and to accomplish recommended work.

E. Report: Prepare test reports, certified by the testing organization, of ground resistance at each test location. Include observations of weather and other phenomena that may affect test results. Describe measures taken to improve test results.

3.05 ADJUSTING AND CLEANING

A. Restore surface features, at areas disturbed by work of this Section.

END OF SECTION

SECTION 260533 - RACEWAYS, BOXES AND CABINETS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Owner's Agreement, including General Conditions and Division 1 Specification Sections, apply to this and other Sections of Division 26.

1.02 SUMMARY

A. Section includes raceways, fittings, boxes, enclosures and cabinets for electrical wiring. All raceways are to be installed concealed.

B. Raceways include the following:

1. Rigid metal conduit.

2. Intermediate metal conduit.

3. Electrical metallic tubing (EMT).

4. PVC Conduit.

C. Boxes, enclosures and cabinets include the following:

1. Pull and junction boxes.

2. Cabinets and hinged cover enclosures.

D. Related Sections: The following Sections contain requirements that relate to this Section:

1. Division 26 Section 26 0500 - Basic Electrical Requirements for supporting devices and anchors for raceway and box supports.

1.03 SUBMITTALS

A. General: Submit the following according to the Conditions of the Contract and Division 1 Specification Sections.

B. Product data for surface raceway, wireway and fittings, floor boxes, hinged cover enclosures and cabinets.

C. Shop drawings for nonstandard boxes, enclosures, and cabinets. Include layout drawings showing components and wiring.

1.04 QUALITY ASSURANCE

A. Comply with NFPA 70 "National Electrical Code" for components and installation.

B. Listing and Labeling: Provide products specified in this Section that are listed and labeled.

1. The Terms "Listed and Labeled": As defined in the "National Electrical Code," Article 100.

C. Comply with NECA "Standard of Installation."

D. Coordinate layout and installation of raceway and boxes with other construction elements to ensure adequate headroom, working clearance, and access.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide Products by of one of the following:

1. Metal Conduit and Tubing

a. Anamet, Inc., Anaconda Metal Hose
b. Triangle PWC, Inc.
c. Wheatland Tube Company

2. Conduit Bodies and Fittings

a. Emerson Electric Company, Appleton Electric Company
b. Hubbell, Inc., Killark Electric Manufacturing Company
c. General Signal, O-Z/Gedney Unit

3. Boxes, Enclosures and Cabinets

a. Butler Manufacturing Company, Walker Division
b. Cooper Industries, Midwest Electric
c. Hubbell Inc., Killark Electric Manufacturing Company
d. General Signal, O-Z/Gedney
e. Square D Company
f. Thomas & Betts Corporation

4. PVC Conduit and Tubing

a. Carlon, Inc.

2.02 METAL CONDUIT AND TUBING

A. Rigid Steel Conduit: UL 6, ANSI C80.1.

B. Intermediate Metal Conduit: UL 1242, ANSI C80.6.

C. Electrical Metallic Tubing and Fittings: UL 797, ANSI C80.3 with compression-type fittings.

D. Fittings: NEMA FB 1, compatible with conduit/tubing materials except that only threaded and compression type fittings are acceptable.

2.03 PULL AND JUNCTION BOXES

A. Small Sheet Metal Boxes: NEMA OS 1.

B. Cast Metal Boxes: NEMA FB 1, cast aluminum with gasketed cover.

2.04 CABINETS AND ENCLOSURES

A. Hinged Cover Enclosures: NEMA 250, steel enclosure with continuous hinge cover and flush latch. Finish inside and out with manufacturer's standard enamel.

B. Cabinets: NEMA 250, type 1, galvanized steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel. Hinged door in front cover with flush latch and concealed hinge. Key latch to match panelboards. Include metal barriers to separate wiring of different systems and voltage, and include accessory feet where required for freestanding equipment.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine surfaces to receive raceways, boxes, enclosures, and cabinets for compliance with installation tolerances and other conditions affecting performance of the raceway system. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.02 WIRING METHODS

A. Indoors: Use the following wiring methods:

1. Damp or Wet Locations: Rigid steel conduit.

2. Exposed: Electrical metallic tubing, except where exposed to physical damage.

3. Concealed: Electrical metallic tubing, except where exposed to physical damage.

5. Boxes and Enclosures: NEMA Type 1, except in damp or wet locations use NEMA Type 4, stainless steel.

6. Where subject to physical damage: Rigid or intermediate metal conduit.

7. All other locations: Rigid or intermediate metal conduit.

B. Outdoors: Use the following wiring methods:

1. Damp or Wet Locations: Rigid steel conduit.

2. Exposed: Rigid steel conduit.

3. Underground: Schedule 40 PVC Conduit

4. Concealed Rigid steel conduit.

5. Boxes and Enclosures: NEMA Type 4.

6. Where subject to physical damage: Rigid or intermediate metal conduit.

7. All other locations: Rigid or intermediate metal conduit.

C. The following conditions are defined as subject to physical damage for this section:

1. Exposed below 10’ above the finished floor where conduit travels up from the floor level or enters the bottom of a box. Except at typical floor lobbies.

3.03 INSTALLATION

A. Install raceways, boxes, enclosures, and cabinets as indicated, according to manufacturer's written instructions. Unless otherwise noted all race way is to be installed concealed.

B. Do not use EMT in areas where raceway will be exposed to physical damage. Conceal conduit and EMT, unless otherwise indicated, within finished walls, ceilings, and floors.

C. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot water pipes. Install horizontal raceway runs above water and steam piping.

D. Install raceways level and square and at proper elevations. Provide adequate headroom.

E. Complete raceway installation before starting conductor installation.

F. Support raceway as specified in Division 26 Section 26 0500 - Basic Electrical Requirements for supporting devices."

G. Use temporary closures to prevent foreign matter from entering raceway.

H. Protect stub-ups from damage where conduits rise through floor slabs. Arrange so curved portion of bends is not visible above the finished slab.

I. Make bends and offsets so the inside diameter is not reduced. Unless otherwise indicated, keep the legs of a bend in the same plane and the straight legs of offsets parallel.

J. Use raceway fittings compatible with raceway and suitable for use and location. For intermediate steel conduit, use threaded rigid steel conduit fittings, except as otherwise indicated. Unthreaded fittings shall not be used except for EMT.

K. Run raceways concealed with a minimum of bends in the shortest practical distance considering the type of building construction and obstructions, except as otherwise indicated.

L. Raceways Embedded in Slabs: Install in middle third of the slab thickness where practical, and leave at least 1-inch concrete cover.

1. Secure raceways to reinforcing rods to prevent sagging or shifting during concrete placement.

2. Space raceways laterally to prevent voids in the concrete.

3. Run conduit larger than 1-inch trade size parallel to or at right angles to main reinforcement. When at right angles to reinforcement, place conduit close to slab support.

4. Transition nonmetallic tubing to Schedule 80 non-metallic conduit, rigid steel conduit, or IMC before rising above floor.

M. Where in unfinished spaces or where specifically approved by the architect, install raceways exposed. Install parallel to or at right angles to nearby surfaces or structural members, and follow the surface contours as much as practical.

1. Run parallel or banked raceways together, on common supports where practical.

2. Make bends in parallel or banked runs from same center line to make bends parallel. Use factory elbows only where they can be installed parallel; otherwise, provide field bends for parallel raceways.

N. Join raceways with fittings designed and approved for the purpose and make joints tight.

1. Make raceway terminations tight. Use bonding bushings at connections subject to vibration. Use ground conductors through the bonding bushings.

2. Use insulating bushings to protect conductors.

3. Use compression fitting for non-threaded connections.

O. Terminations: Terminate raceways with locknuts and grounding bushings, align the raceway to enter squarely, and install the locknuts with dished part against the box. Where terminations cannot be made secure with one locknut, use two locknuts, one inside and one outside the box. Provide grounding bushings for all raceway terminations

P. Where terminating in threaded hubs, screw the raceway or fitting tight into the hub so the end bears against the wire protection shoulder. Where chase nipples are used, align the raceway so the coupling is square to the box, and tighten the chase nipple so no threads are exposed.

Q. Install pull wires in empty raceways. Use No. 14 AWG zinc-coated steel or monofilament plastic line having not less than 200-lb. tensile strength. Leave not less than 12 inches of slack at each end of the pull wire.

R. Telephone and Signal System Raceways and underground raceways: In addition to the above requirements, install in maximum lengths of 150 feet and with a maximum of two 90° bends or equivalent. Install pull, junction boxes or hand holes where necessary to comply with these requirements.

S. Install raceway sealing fittings according to the manufacturer's written instructions. Locate fittings at suitable, approved, accessible locations and fill them with UL-listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings at the following points and elsewhere as indicated:

1. Where conduits enter or leave hazardous locations.

2. Where conduits pass from warm locations to cold locations, such as the boundaries of refrigerated spaces and air-conditioned spaces.

3. Where otherwise required by the NEC.

T. Stub-Up Connections: Extend conduits through concrete floor for connection to freestanding equipment with an adjustable top or coupling threaded inside for plugs, and set flush with the finished floor. Extend conductors to equipment with rigid steel conduit; flexible metal conduit may be used 6 inches above the floor. Where equipment connections are not made under this Contract, install screwdriver-operated threaded flush plugs flush with floor.

U. Flexible Connections: Use maximum of 6 feet of flexible conduit for recessed and semi-recessed lighting fixtures; for equipment subject to vibration, noise transmission, or movement; and for all motors. Use liquidtight flexible conduit in wet or damp locations. Install separate ground conductor across flexible connections.

V. Do not install aluminum conduit embedded in or in contact with concrete.

W. Set floor boxes level and adjust to floor surface.

X. Install hinged cover enclosures and cabinets plumb. Support at each corner.

Y. Provide grounding connections for all raceway, boxes, and components. Tighten connectors and terminals, including screws and bolts, according to equipment manufacturer's published torque-tightening values for equipment connectors. Where manufacturer's torquing requirements are not indicated, tighten connectors and terminals according to tightening torques specified in UL Standard 486A.

Z. Install cast type boxes for all surface mounted devices, lighting etc. where boxes are surface mounted and mounted 10 foot above finished floor and below (including boxes under access floor).

AA. Install electrical work that originates from different or diverse panelboards, load busses, services or derived systems (i.e: service switchboards or standby power) so that they are physically separated from each other. Distribution components that do not originate from the same load busses shall be run at extreme opposite ends of the facility. Where such can not be run at the extreme opposite ends of the facility, separate them to the extreme opposite ends of the room or space.

3.04 PROTECTION

A. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, to ensure that coatings, finishes, and cabinets are without damage or deterioration at Substantial Completion.

1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.

2. Repair damage to PVC or paint finishes with matching touch-up coating recommended by the manufacturer.

3.05 IDENTIFICATION

A. Provide identification for the following:

1 All accessible raceway 2 inches and larger.
2. Fire alarm raceway.

3. Security raceway.

4. HVAC control.

5. Emergency lighting raceways.

6. Communication raceways.

7. Junction, Pull and Splice boxes.

8. Switchgear Control circuits.

B. Use plastic sheet raceway markers extending 360° around conduits with a minimum length of 8 inches. Text shall be legible to the naked eye from the floor level below.

1. Identify system voltage.

2. Identify conduit function or system.

3. Provide at minimum intervals of every 20’ on center.

C. Use plastic laminated labels to identify boxes. Text shall be legible to the naked eye from the floor level below.

1. Identify system voltage.

2. Identify function or system.

3. Identify box name or designation.

3.06 CLEANING

A. Upon completion of installation of system, including outlet fittings and devices, inspect exposed finish. Remove burrs, dirt, and construction debris and repair damaged finish, including chips, scratches, and abrasions.

END OF SECTION

SECTION 26 05 53 - ELECTRICAL IDENTIFICATION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Owner's Agreement, including General Conditions and Division 1 Specification Sections, apply to this and other Sections of Division 26.

1.02 SUMMARY

A. This Section includes identification of electrical materials, equipment, and installations.

1.03 SUBMITTALS

A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.

B. Product Data for each type of product specified.

C. Schedule of identification nomenclature to be used for each identification signs and labels. Prior to fabrication submit schedule to the on-site work force representative, Building engineer and owner's design representative.

D. Samples for each color, lettering style, and other graphic representation required for identification materials; samples of labels and signs.

1.04 QUALITY ASSURANCE

A. Comply with NFPA 70.

B. Comply with ANSI C2.

1.05 SEQUENCING AND SCHEDULING

A. Coordinate installing electrical identification after completion of finishing where identification is applied to field-finished surfaces.

B. Coordinate installing electrical identifying devices and markings prior to installing acoustical ceilings and similar finishes that conceal such items.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Stranco, Inc.

2. Ideal Industries, Inc.

3. Panduit Corporation

4. Ready Made Sign Company; Cornerstone Direct Corporation Division

5. Seton Name Plate Corporation

6. Standard Signs, Inc.

2.02 RACEWAY AND CABLE LABELS

A. Manufacturer's Standard Products: Where more than one type is listed for a specified application, selection is Installer's option, but provide single type for each application category. Use colors prescribed by ANSI A13.1, NFPA 70, and these Specifications.

B. Conform to ANSI A13.1, Table 3, for minimum size of letters for legend and minimum length of color field for each raceway or cable size.

1. Color: Black legend on orange field.

2. Legend: Indicates Designation, voltage, rating, date of installation and service.

C. Adhesive Labels: Preprinted, flexible, self-adhesive vinyl. Legend is overlaminated with a clear, weather- and chemical-resistant coating.

D. Pre-tensioned, Wraparound Plastic Sleeves: Flexible, preprinted, color-coded, acrylic bands sized to suit the diameter of the line it identifies and arranged to stay in place by pre-tensioned gripping action when placed in position.

E. Colored Adhesive Tape: Self-adhesive vinyl tape not less than 3 mils thick by 1 to 2 inches wide.

F. Tape Markers: Vinyl or vinyl-cloth, self-adhesive, wraparound type with preprinted numbers and letters.

G. Aluminum, Wraparound Marker Bands: Bands cut from 0.014-inch thick aluminum sheet, with stamped or embossed legend, and fitted with slots or ears

for permanently securing around wire or cable jacket or around groups of conductors.

H. Plasticized Card-Stock Tags: Vinyl cloth with preprinted and field-printed legends. Orange background, except as otherwise indicated, with eyelet for fastener.

I. Aluminum-Faced Card-Stock Tags: Weather-resistant, 18-point minimum card stock faced on both sides with embossable aluminum sheet, 0.002 inch thick, laminated with moisture-resistant acrylic adhesive, and punched for the fastener. Preprinted legends suit each application.

J. Brass Tags: Metal tags with stamped legend, punched for fastener. Dimensions: 2 by 2 inches by 0.05 inch.

2.03 ENGRAVED NAMEPLATES AND SIGNS

A. Manufacturer's Standard Products: Where more than one type is listed for a specified application, selection is Installer's option, but provide single type for each application category. Use colors prescribed by ANSI A13.1, NFPA 70, and these Specifications.

B. Engraving stock, melamine plastic laminate, 1/16-inch minimum thick for signs up to 20 sq. in., 1/8 inch thick for larger sizes.

1. Engraved Legend: Black letters on white face or white letters on red face where directed.

2. Punched for mechanical fasteners.

C. Baked-Enamel Signs for Interior Use: Preprinted aluminum signs, punched for fasteners, with colors, legend, and size as indicated or as otherwise required for the application. 1/4-inch grommets in corners for mounting.

D. Exterior, Metal-Backed, Butyrate Signs: Weather-resistant, non-fading, preprinted, cellulose acetate butyrate signs with 0.0396-inch, galvanized steel backing, with colors, legend, and size appropriate to the application. 1/4-inch grommets in corners for mounting.

E. Fasteners for Plastic-Laminated and Metal Signs: Self-tapping stainless-steel screws or No. 10/32 stainless-steel machine screws with nuts and flat and lock washers.

2.04 MISCELLANEOUS IDENTIFICATION PRODUCTS

A. Cable Ties: Fungus-inert, self-extinguishing, 1-piece, self-locking, Type 6/6 nylon cable ties with the following features:

1. Minimum Width: 3/16 inch.

2. Tensile Strength: 50 lb minimum.

3. Temperature Range: Minus 40 to 185 degrees F.

4. Color: As indicated where used for color-coding.

B. Paint: Alkyd-urethane enamel over primer as recommended by enamel manufacturer.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install identification devices according to manufacturer's written instructions.

B. Install labels where indicated and at locations for best convenience of viewing without interference with operation and maintenance of equipment.

C. Lettering, Colors, and Graphics: Coordinate names, abbreviations, colors, and other designations used for electrical identification with corresponding designations used in the Contract Documents or required by codes and standards. Use consistent designations throughout the Project.

D. Sequence of Work: Where identification is to be applied to surfaces that require finish, install identification after completion of finish work.

E. Self-Adhesive Identification Products: Clean surfaces of dust, loose material, and oily films before applying.

F. Identify feeders with "DANGER—120/208 *(277/480 as applicable)* VOLTS" in black letters 2 inches high, stenciled with paint at 10-foot intervals over a continuous, painted orange background. Identify the following:

1. Entire floor area directly above conduits running beneath and within 12 inches of a basement or ground floor that is in contact with earth or is framed above unexcavated space.

2. Wall surfaces directly external to conduits concealed within wall.

3. All accessible surfaces of concrete envelope around conduits in vertical shafts, exposed in the building, or concealed above suspended ceilings.

4. Entire surface of exposed conduits.

G. Install painted identification as follows:

1. Clean surfaces of dust, loose material, and oily films before painting.

2. Prime Surfaces: For galvanized metal, use single-component, acrylic vehicle coating formulated for galvanized surfaces. For concrete

masonry units, use heavy-duty, acrylic-resin block filler. For concrete surfaces, use clear, alkali-resistant, alkyd binder-type sealer.

3. Apply one intermediate and one finish coat of silicone alkyd enamel.

4. Apply primer and finish materials according to manufacturer's instructions.

H. Identify Raceways and Exposed Cables of Certain Systems with Color Banding: Band exposed and accessible raceways of the systems listed below for identification.

1. Bands: Pre-tensioned, snap-around, colored plastic sleeves; colored adhesive tape; or a combination of both. Make each color band 2 inches wide, completely encircling conduit, and place adjacent bands of 2-color markings in contact, side by side.

2. Locate bands at changes in direction, at penetrations of walls and floors, at 20-foot maximum intervals in straight runs, and at 5 feet in congested areas.

3. Colors: As follows:

a. Fire-Alarm System: Red.

b. Fire-Suppression Supervisory and Control System: Red and yellow.

c. Security System: Blue and yellow.

d. Mechanical and Electrical Supervisory System: Green and blue.

I. Install Caution Signs for Enclosures: Use pressure-sensitive, self-adhesive label indicating system voltage in black, preprinted on orange field. Install on exterior of door or cover.

J. Install Circuit Identification Labels on Boxes: Label externally as follows:

1. Exposed Boxes: Pressure-sensitive, self-adhesive plastic label on cover.

2. Concealed Boxes: Plasticized card-stock tags.

3. Labeling Legend: Permanent, waterproof listing of panel and circuit number or equivalent.

K. Color-Code Conductors: Secondary service, feeder and branch circuit conductors throughout the secondary electrical system.

1. 208/120-V System: As follows:

a. Phase A: Black.
b. Phase B: Red.
c. Phase C: Blue.
d. Neutral: White.
e. Ground: Green.

2. Factory-apply color the entire length of the conductors.

L. Power Circuit Identification: Use metal tags or aluminum wraparound marker bands for cables, feeders, and power circuits in vaults, pull boxes, junction boxes, manholes and switchboard rooms.

1. Legend: 1/4-inch steel letter and number stamping or embossing with legend corresponding to indicated circuit designations.
2. Fasten tags with nylon cable ties; fasten bands using integral ears.

M. Apply identification to conductors as follows:

1. All Conductors: Indicate source and circuit numbers.
2. Multiple Power or Lighting Circuits in the Same Enclosure: Identify each conductor with source, voltage, circuit number, and phase. Use color-coding for voltage and phase indication of secondary circuit.
3. Multiple Control and Communications Circuits in the Same Enclosure: Identify each conductor by its system and circuit designation. Use a consistent system of tags, color-coding, or cable marking tape.

N. Apply warning, caution, and instruction signs and stencils as follows:

1. Install warning, caution and instruction signs where indicated or required to ensure safe operation and maintenance of electrical systems and of items to which they connect. Install engraved, plastic-laminated instruction signs with approved legend where instructions or explanations are needed for system or equipment operation. Install butyrate signs with metal backing for outdoor items.

2. Emergency-Operating Signs: Install engraved laminate signs with white legend on red background with minimum 3/8-inch high lettering for emergency instructions on power transfer, load shedding, and other emergency operations.

O. Install identification as follows:

1. Apply equipment identification labels of engraved plastic laminate on each major unit of equipment, including central or master unit of each system. This includes communication, signal, and alarm systems, unless units are specified with their own self-explanatory identification. Except as otherwise indicated, provide a single line of text with 1/2-inch high lettering on 1-1/2-inch high label; where 2 lines of text are required, use lettering 2 inches high. Use white lettering on black field. Apply labels for each unit of the following categories of equipment:

a. Control devices.
b. Transformers.
c. Power-generating units.
d. Pull and splice boxes.
e. Overcurrent Protective devices.

2. Apply designation labels of engraved plastic laminate for disconnect switches, breakers, pilot lights, and similar items for power distribution and control components above, except panelboards and alarm/signal components where labeling is specified elsewhere. For panelboards, provide framed, typed circuit schedules with explicit description and identification of items controlled by each individual breaker.

END OF SECTION

SECTION 262416 - PANELBOARDS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Owner Agreement, including General Conditions and Division 1 Specification Sections, apply to this and other Sections of Division 26

1.02 SUMMARY

A. This Section includes lighting and power panelboards and associated auxiliary equipment rated 600 V and less.

B. Related Sections include the following:

1. Division 16 Section 260500 - Basic Electrical Materials and Methods for general materials and installation methods.

1.03 SUBMITTALS

A. Product Data: For each type of panelboard, accessory item, and component specified.

B. Shop Drawings: For panelboards. Include dimensioned plans, sections, and elevations. Show tabulations of installed devices, major features, and voltage rating. Include the following:

1. Enclosure type with details for types other than NEMA 250, Type 1.

2. Bus configuration and current ratings.

3. Short-circuit current rating of panelboard.

4. Features, characteristics, ratings, and factory settings of individual protective devices and auxiliary components.

5. Wiring Diagrams: Details of schematic diagram including control wiring and differentiating between manufacturer-installed and field-installed wiring.

C. Qualification Data: For firms and persons specified in "Quality Assurance" Article.

D. Field Test Reports: Indicate and interpret test results for compliance with performance requirements.

E. Panelboard Schedules: For installation in panelboards. Submit final versions after load balancing.

F. Maintenance Data: For panelboard components to include in the maintenance manuals specified in Division 1. Include manufacturer's written instructions for testing circuit breakers.

1.04 QUALITY ASSURANCE

A. Testing Agency Qualifications: In addition to the requirements specified in Division 1 Section "Quality Control," an independent testing agency shall meet OSHA criteria for accreditation of testing laboratories, Title 29, Part 1907, or shall be a full member company of the International Electrical Testing Association.

1. Testing Agency's Field Supervisor: Person currently certified by the International Electrical Testing Association or National Institute for Certification in Engineering Technologies, to supervise on-site testing specified in Part 3.

B. Listing and Labeling: Provide products specified in this Section that are listed and labeled.

1. The Terms "Listed" and "Labeled": As defined in the National Electrical Code, Article 100.

C. Comply with NFPA 70.

D. Comply with NEMA PB 1.

1.05 EXTRA MATERIALS

A. Keys: 6 spares of each type for panelboard cabinet lock.

B. Circuit Safe One-way Lockout Pins: 3 spares for each panel board provided.

C. Circuit Safe Two-way Lockout Pins: 3 spares for each panel board provided.

D. Circuit Safe Hook Pins: 3 spares for each panel board provided.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by the same manufacturer as the switchgear.

2.02 PANELBOARD FABRICATION

A. Enclosures: Code gage steel with welded finished seams. Flush- or surface-mounted cabinets as indicated. NEMA PB 1, Type 1, unless otherwise indicated to meet environmental conditions at installed location.

1. Outdoor Locations: NEMA 250, Type 3R.

2. Other Wet or Damp Indoor Locations: NEMA 250, Type 4.

B. Front: Hinged Front Cover: Entire front trim hinged to box with standard door within hinged trim cover. Secured one side to box with continuous piano hinge. Secure other side with flush catches and tumbler lock, all keyed alike. Front for surface-mounted panelboards shall be same dimensions as box. Fronts for flush panelboards shall overlap box, unless otherwise indicated. Construct so that dead front covers are attached to and move with the front trim cover.

C. Directory Frame: Metal, mounted inside each panelboard door.

D. Bus: Hard drawn copper of 98 percent conductivity.

E. Main and Neutral Lugs: To accommodate two hole long barrel dual crimp Compression lugs.

F. Equipment Ground Bus: Hard drawn copper of 98 percent conductivity. Adequate for feeder and branch-circuit equipment ground conductors. Bonded to box. Provide brazed ground lug on each backbox.

G. Future Devices: Equip with mounting brackets, bus connections, and necessary appurtenances, for the overcurrent protective device ampere ratings indicated for future installation of devices.

H. Special Features: Include the following features for panelboards as indicated:

1. Isolated Equipment Ground Bus: Adequate for branch-circuit equipment ground conductors; insulated from box.

2. Split Bus: Vertical bus of indicated panelboards divided into 2 vertical sections with connections as indicated.

3. Skirt for Surface-Mounted Panelboards: Same gage and finish as panelboard front with flanges for attachment to panelboard, wall, and floor.

I. Extra Gutter Space: Provide cabinets with double (minimum) the code required Gutter Space.

2.03 LIGHTING AND APPLIANCE BRANCH-CIRCUIT PANELBOARDS

A. Overcurrent Protective Devices: Bolt-on circuit breakers, replaceable without disturbing adjacent units.

B. Doors: Hinged Front Cover: Entire front trim hinged to box with standard door within hinged trim cover. Secured one side to box with continuous piano hinge. Secure other side with flush catches and tumbler lock, all keyed alike. Front for surface-mounted panelboards shall be same dimensions as box. Fronts for flush

panelboards shall overlap box, unless otherwise indicated. Construct so that dead front covers are attached to and move with the front trim cover.

2.04 OVERCURRENT PROTECTIVE DEVICES

A. Molded-Case Circuit Breaker: NEMA AB 1, handle lockable.

1. Characteristics: 100% rated. Frame size, trip rating, number of poles and auxiliary devices as indicated and interrupting capacity rating to meet available fault current in accordance with UL 67.

2. Application Listing: Appropriate for application, including Type SWD for switching fluorescent lighting loads and Type HACR for heating, air-conditioning, and refrigerating equipment.

3. Circuit Breakers, 100 A and Larger: Trip units interchangeable within frame size.

4. Circuit Breakers, 200 A and Larger: True RMS sensing with field-adjustable long time, short-time, i^2t in/out and continuous current settings.

5. Current-Limiting Trips: Let-through ratings less than NEMA FU 1, Class RK-5.

6. Lugs: To accommodate compression lugs specified elsewhere in these specifications. Fully rated for 90ºC and power-distribution connectors for number, size, and material of conductors indicated.

7. Shunt Trip: Where indicated.

2.05 ACCESSORY COMPONENTS AND FEATURES

A. Accessory Set: Include tools and miscellaneous items as required for overcurrent protective device test, inspection, maintenance, and operation.

B. Portable Test Set: Arranged to permit testing of functions of solid-state trip devices without removal from panelboard.

C. Lock-on devices for 1-pole circuit breaker handles.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install panelboards and accessory items according to NEMA PB 1.1.

B. Mounting Heights: Top of trim 74 inches above finished floor, unless otherwise indicated.

C. Mounting: Plumb and rigid without distortion of box. Mount flush panelboards uniformly flush with wall finish. Secure panels using minimum size 3/8” bolts and vibration isolators.

D. Circuit Directory: Typed directory to indicate installed circuit loads after balancing panelboard loads. Obtain approval before installing.

E. Install filler plates in unused spaces.

F. Provision for Future Circuits at Flush Panelboards: Stub four 1-inch empty conduits from panelboard into accessible ceiling space or space designated to be ceiling space in the future. Stub four 1-inch empty conduits into raised floor space or below slab not on grade.

G. Wiring in Panelboard Gutters: Arrange conductors into groups, and bundle and wrap with wire ties after completing load balancing.

H. Seismic Bracing: Provide seismic bracing in accordance with the manufacturer’s recommendations and in compliance with the seismic zone requirements for the zone in which the equipment is located.

3.02 IDENTIFICATION

A. Identify field-installed wiring and components and provide warning signs as specified in Division 16 Section "Electrical Identification."

B. Panelboard Nameplates: Label each panelboard with engraved laminated-plastic or metal nameplates mounted with corrosion-resistant screws.

1. Indicate panel designation, voltage ratings and phase.

2. Indicate source of power (feeder origin).

3. Indicate location of panelboard.

4. Indicate date of installation.

5. Feeder origin shall include source switchgear or panelboard designation, floor number and floor location number or nearest column number.

C. Breaker Nameplates: Label each breaker, regardless of size, in distribution panelboards and switchboards with engraved laminated-plastic or metal nameplates mounted with corrosion-resistant screws.

1. Indicate breaker rating.

2. Indicate breaker number: Breakers shall be numbered sequentially from top to bottom and left to right.

3. Indicate load served, location of load and date of installation.

3.03 GROUNDING

A. Make equipment grounding connections for panelboards as indicated and/or specified.

B. Provide ground conductor to main electrical ground bus as indicated and/or specified.

C. Provide each back box with brazed ground studs. Provide ground conductor to bond the back box to the feeder ground and the equipment ground bus in the panel.

3.04 CONNECTIONS

A. Tighten electrical connectors and terminals, including grounding connections, according to manufacturer's published torque-tightening values. Where manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

3.05 FIELD QUALITY CONTROL

A. Prepare for acceptance tests as follows:

1. Make insulation-resistance tests of each panelboard bus, component, and connecting supply, feeder and control circuits.

2. Make continuity tests of each circuit.

B. Testing Agency: Provide services of a qualified independent testing agency to perform specified testing.

C. Testing: After installing panelboards and after electrical circuitry has been energized, demonstrate product capability and compliance with requirements.

1. Procedures: In addition to the requirements of division 16 “Acceptance testing”, Perform each visual and mechanical inspection and electrical test stated in NETA ATS, Section 7.5 for switches and Section 7.6 for molded-case circuit breakers. Certify compliance with test parameters.

2. Manually exercise all switches, circuit breakers and other operating mechanisms.

3. Test all breakers rated 100 Amperes and larger. Provide the services of a NETA certified testing agency. Test all functions and ranges of all over current protective devices.

4. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, remove and replace with new units, and retest.

5. Submit Certified final test report to the owner's representative for record.

D. Balancing Loads: After Substantial Completion, but not more than 2 months after Final Acceptance, conduct load-balancing measurements and make circuit changes as follows:

1. Perform measurements during period of normal working load as advised by Owner.

2. Perform load-balancing circuit changes outside normal occupancy/working schedule of the facility. Make special arrangements with Owner to avoid disrupting critical 24-hour services such as fax machines and on-line data processing, computing, transmitting, and receiving equipment.

3. Recheck loads after circuit changes during normal load period. Record all load readings before and after changes and submit test records.

4. Tolerance: Difference exceeding 20 percent between phase loads, within a panelboard, is not acceptable. Rebalance and recheck as required to meet this minimum requirement.

5. Update panel directory to reflect changes.

E. Infrared Scanning: After Substantial Completion, but not more than 2 months after Final Acceptance, perform an infrared scan of each panelboard. Remove fronts to make joints and connections accessible to a portable scanner.

1. Follow-up Infrared Scanning: Perform an additional follow-up infrared scanning of each panelboard 11 months after date of Substantial Completion.

2. Instrument: Use an approved infrared scanning device designed to measure temperature or detect significant deviations from normal values. Provide calibration record for device used.

3. Record of Infrared Scanning: Prepare a certified report identifying panelboards checked and describing results of scanning. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

3.06 ADJUSTING

A. Set field-adjustable switches and circuit-breaker trip ranges as indicated.

3.07 CLEANING

A. On completion of installation, inspect interior and exterior of panelboards. Remove paint splatters and other spots, dirt and debris. Touch up scratches and mars of finish to match original finish.

END OF SECTION

SECTION 265100 - INTERIOR LIGHTING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

A. This Section includes interior lighting fixtures, lamps, ballasts, emergency lighting units, and accessories.

1.03 DEFINITIONS

A. Emergency Lighting Unit: A fixture with integral AC/DC inverter fed from normal AC power, and a switch leg for lighting control.

B. Fixture: A complete lighting unit, exit sign, or emergency lighting unit. Fixtures include lamps and parts required to distribute light, position and protect lamps, and connect lamps to power supply. Internal battery-powered exit signs and emergency lighting units also include a battery and the means for controlling and recharging the battery. Emergency lighting units include ones with and without integral lamp heads.

C. Average Life: The time after which 50 percent fails and 50 percent survive under normal conditions.

1.04 SUBMITTALS

A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.

B. Product Data describing fixtures, lamps, ballasts, and emergency lighting units. Arrange Product Data for fixtures in order of fixture designation. Include data on features and accessories and the following:

1. Outline drawings indicating dimensions and principal features of fixtures.
2. Electrical Ratings and Photometric Data: Certified results of independent laboratory tests for fixtures and lamps.

3. Battery and charger data for emergency lighting units.

C. Shop Drawings detailing nonstandard fixtures and indicating dimensions, weights, method of field assembly, components, features and accessories.

D. Wiring diagrams detailing wiring for control system showing both factory-installed and field-installed wiring for specific system of this Project, and differentiating between factory-installed and field-installed wiring.

E. Coordination Drawings showing fixtures mounted on ceiling. Indicate coordination with other equipment installed in vicinity.

F. Maintenance data for fixtures to include in the operation and maintenance manual specified in Division 1.

1.05 QUALITY ASSURANCE

A. Electrical Component Standard: Provide components that comply with NFPA 70 and that are listed and labeled by UL where available.

B. Listing and Labeling: Provide fixtures, emergency lighting units, and accessory components specified in this Section that are listed and labeled for their indicated use and installation conditions on Project.

1. Special Listing and Labeling: Provide fixtures for use in damp or wet locations, underwater, and recessed in combustible construction that are specifically listed and labeled for such use. Provide fixtures for use in hazardous (classified) locations that are listed and labeled for the specific hazard.

2. The Terms "Listed" and "Labeled": As defined in the National Electrical Code, Article 100.

3. Listing and Labeling Agency Qualifications: A "Nationally Recognized Testing Laboratory" (NRTL) as defined in OSHA Regulation 1910.7.

C. Fixtures for Hazardous Locations: Conform to UL 844. Provide units that have Factory Mutual Engineering and Research Corporation (FM) certification for indicated class and division of hazard.

D. Coordinate fixtures, mounting hardware, and trim with ceiling system and other items, including work of other trades, required to be mounted on ceiling or in ceiling space.

1.06 WARRANTY

A. General Warranty: The special warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.

B. Special Warranty: Provide a written warranty executed by the manufacturer agreeing to replace fixture components that fail within the specified warranty period. Such warrantee shall include the placements as MOP items performed at the owner’s convenience and during premium time.

C. Special Warranty Period: Manufacturer's standard but not less than 1 years after date of Substantial Completion. Full warranty shall apply for first year, and prorated warranty for last 9 years.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. lighting fixtures are existing. Clean, remove, re-install/Relocate fixtures to accommodate the work under this contrract.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Set units plumb, square and level with ceiling and walls, and secure according to manufacturer's written instructions and approved Shop Drawings. Support fixtures according to requirements of Division 16 Section "Basic Electrical Materials and Methods."

B. Support for Suspended Fixtures: Install a minimum of 2 metal rope cables at diametrically opposed corners for each fixture. Support fixtures directly from the building structure. Do not support fixtures by ceiling acoustical panels.

3.02 CONNECTIONS

A. Ground lighting units. Tighten electrical connectors and terminals, including grounding connections, according to manufacturer's published torque-tightening values. Where manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

B. Circuit Emergency inverter ballasts with unswitched AC source to provide power failure sensing allowing the ballast to automatically switch over to the DC source and illuminate the fixture upon AC power failure. Provide AC switch leg to each inverter ballast as well to accommodate standard switching functions as designated on the contract drawings. DC power to the inverter ballast shall be constant DC power source. Switching to DC source shall be accomplished at each inverter ballast. Do not connect a switched DC power source to the inverter ballast.

3.03 FIELD QUALITY CONTROL

A. Protect lighting fixture that are to be reused/re-installed. Inspect each installed fixture for damage. Document damage prior to work. Replaced damaged fixtures and components (that have not been documented) at no additional cost.

B. Give advance notice of dates and times for field tests.

C. Provide instruments to make and record test results.

D. Tests: Verify normal operation of each fixture after fixtures have been installed and circuits have been energized with normal power source. Interrupt electrical energy to demonstrate proper operation of emergency lighting installation. Include the following information in tests of emergency lighting equipment:

1. Normal transfer to battery source and retransfer to normal.

2. Low supply voltage transfer.

E. Replace or repair malfunctioning fixtures and components, then retest. Repeat procedure until all units operate properly.

F. Report results of tests.

G. Replace fixtures that show evidence of corrosion during Project warranty period.

3.04 ADJUSTING AND CLEANING

A. Clean fixtures after installation. Use methods and materials recommended by manufacturer.

B. Adjust amiable fixtures to provide required light intensities.

END OF SECTION

SECTION 283111 - ADDRESSABLE FIRE ALARM SYSTEMS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Agreement, including General Conditions and Division 1 Specification Sections, apply to this and other Sections of Division 26.

1.02 SUMMARY

A. This section includes temporary protection, relocation and the cleaning of components of the existing fire alarm system.

B. Related Sections: The following Sections contain requirements that relate to this Section:

1. Section “Wire and Conduit”.
2. Section “Acceptance Testing”.

1.03 DEFINITION

A. FACP: Fire Alarm Control Panel.
B. FAA: Fire Alarm Annunciator.
C. FAGA: Fire Alarm Graphic Annunciator.
D. ADA: Americans with disabilities Act of 1990 and 2008.
E. ICC/ANSI A117.1 2009

1.04 SYSTEM DESCRIPTION

A. General: Existing hardwired spot type fire detection/Alarm system.

B. Signal Transmission: Multiplex signal transmission dedicated to fire alarm service only.

C. Alarm Indication: By actuation of audiovisual indicating appliances using strobes and tone generating speaker-horns.

D. Visual Alarm Indication: By xenon-strobe-type units.

E. System connections for alarm-initiating and alarm-indicating circuits. Class A wiring.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced factory-authorized Installer to perform work of this Section.

B. Single-Source Responsibility: Obtain fire alarm components from a single source who assumes responsibility for compatibility of system components.

C. Compliance with Local Requirements: Comply with the applicable building code, local ordinances, and regulations, and the requirements of the authorities having jurisdiction.

E. Comply with NFPA 70.

F. Comply with NFPA 72.

G. Listing and Labeling: Provide fire alarm systems and components specified in this Section that are listed and labeled by UL and Factory Mutual.

1.06 SEQUENCING AND SCHEDULING

A. During times of work that create dust and disruptions, provide plastic covers to protect devices from construction dust, dirt and debris that could dirty the devices. Provide fire watch with adequate extinguishers during times that the system is compromised. Remove these covers at the completion of each task that required detector covers and when the detector is put into service.

B. Provide plastic covers to protect any fire alarm devices, (even if there is no other work being done to theses device under this contract) from construction dust, dirt and debris that could dirty the devices. Remove these covers and reinstall as required to accommodate testing, at the completion of each construction event, at the end of the work day, during unattended times, and at any time the detector is put into service.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Manufacturers: Devices are existing to be modified:

As indicated on the drawings

2.02 WIRE

A. Wire: Solid-copper conductors with 600-V rated, 75 degrees C, color-coded insulation.

1. Low-Voltage Circuits: No. 16 AWG, minimum.

1. Line-Voltage Circuits: No. 12 AWG, minimum.

PART 3 - EXECUTION

3.01 INSTALLATION, GENERAL

A. Install system according to NFPA standards referenced in Parts 1 and 2 of this Section.

B. Fire Alarm Power Supply Disconnect: Paint red and label "FIRE ALARM." Provide with lockable handle or cover.

3.02 EQUIPMENT INSTALLATION

A. Manual Pull Stations: Mount semi-flush in recessed back boxes with operating handles 48 inches above the finished floor or lower as indicated.

B. Smoke Detectors: Install ceiling-mounted detectors not less than 4 inches from a side wall to the near edge. Install detectors located on the wall at least 4 inches, but not more than 12 inches, below the ceiling. For exposed solid-joist construction, mount detectors on the bottom of the joists. On smooth ceilings, install detectors not over 30 feet apart in any direction. Install detectors no closer than 60 inches from air registers.

C. Audible Alarm-Indicating Devices: Install not less than 90 inches above the finished floor nor less than 6 inches below the ceiling. Install bells and horns on flush-mounted back boxes with the device-operating mechanism concealed behind a grille or as indicated. Combine audible and visual alarms at the same location into a single unit.

D. Visual Alarm-Indicating Devices: Install adjacent to each alarm bell or alarm horn and not more than 80 inches above the finished floor and at least 6 inches below the ceiling.

E. Device Location-Indicating Lights: Locate in public space near the device they monitor.

3.03 WIRING INSTALLATION

A. Wiring Method: Install wiring concealed. Provide in raceway where exposed in unfinished spaces and as indicated.

3.04 IDENTIFICATION

A. Label each detector and/or device with device loop and address. Device labels shall be legible from the floor level directly below the device. Devices that have the electronic address in a removable portion of the device shall be clearly labels on both the removable portion and the associated base of the device.

B. Identify system components, wiring, cabling and terminals according to Division 16 Section - basic electrical requirements

3.05 GROUNDING

A. Ground cable shields and equipment according to system manufacturer's instructions to eliminate shock hazard and to minimize, to the greatest extent

possible, ground loops, common mode returns, noise pickup, cross talk and other impairments.

B. Signal Ground Terminal: Locate at main equipment rack or cabinet. Isolate from power system and equipment grounding.

3.06 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Provide services of a factory-authorized service representative to supervise the field assembly and connection of components and the pre-testing, testing and adjustment of the system.

B. Pre-testing: After installation, align, adjust and balance the system and perform complete pre-testing. Determine, through pre-testing, the conformance of the system to the requirements of the Drawings and Specifications. Correct deficiencies observed in pre-testing. Replace malfunctioning or damaged items with new ones and retest until satisfactory performance and conditions are achieved. Prepare forms for systematic recording of acceptance test results.

C. Report of Pre-testing: After pre-testing is complete, provide a letter certifying the installation is complete and fully operable, including the names and titles of the witnesses to the preliminary tests.

3.07 CLEANING AND ADJUSTING

A. Cleaning: Remove paint splatters and other spots, dirt and debris. Touch up scratches and marred finish to match original finish. Clean unit internally using methods and materials recommended by manufacturer.

END OF SECTION

ATTACHMENT A

Forms

FORM #1
STATEMENT OF ACCEPTANCE

All terms, conditions and requirements as set forth in this Bidding Document are acceptable as specified therein. Yes___ No____

If **"NO"**, please provide a detailed description and/or explanation of any deviation in your proposal from the specification detailed in the Bidding Document with your proposal response.

By submission of this proposal, each bidder, and each person signing on behalf of any bidder, and in the case of a joint bid, each party thereto as to its own organization, under penalty of perjury, certifies that to the best of its knowledge and belief:

A. the prices in this proposal 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 any competitor; and

B. unless otherwise required by law, the prices which have been quoted in this proposal have not been knowingly disclosed by the bidder prior to the opening, directly or indirectly, to any other bidder or to any competitor; and

C. no attempt has been made or will be made by the bidder to induce any other person, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition.

The bidder certifies that this proposal is made without any connection with any other person making a proposal for the same purpose, and is in all respects fair and without collusion or fraud, and that no elected official or other officer or employee or person whose salary is payable in whole or in part from the Town of Beekman is directly or indirectly interested therein, or in any portion of the profits thereof.

As an authorized representative of the identified company, I accept all the terms and conditions identified in Bidding Documents for **Beekman Town Hall – Lower Floor HVAC Improvements** except as identified.

In preparing the attached response to proposal, I (we) understand that if awarded, I (we) will comply with all federal, state, and local wage and labor requirements, including Section 220 of the New York State Labor Law.

By signing in the space provided below, the undersigned certifies that the respondent (i) has read and understands and accepts the scope and requirements of this project and all of the attachments; (ii) has the capacity to execute this project; (iii) agrees to accept payment in accordance with the requirements of this Proposal and the standard construction services contract, and (iv) will, if its proposal is accepted, enter into a standard agreement with the Town of Beekman.

FORM #1, continued
STATEMENT OF ACCEPTANCE

The undersigned further stipulates that the information in this Bid is, to the best of knowledge and belief, true and accurate.

Company Name and Address _____

_____

_____

EIN _____

_____ _____
Signature of Partner or Corporate Officer Date

_____ _____
Print Name & Title Phone Number

_____ _____
Email Address Fax Number

FORM #2
CONTRACTOR RESPONSIBILITY QUESTIONNAIRE

Legal Business Name:
EIN:
Address of the Principal Place of Business/Executive Office:
Telephone/Fax:
Email:
Website:
Authorized Contact for this Questionnaire:
Name:
Telephone/Fax:
Title:
Email:

I. Integrity: Contract Award: Within the past five (5) years, has the business entity or affiliate:

a. Been suspended, cancelled or terminated for cause on any government contract? _____

b. Been subject to an administrative proceeding or civil action seeking specific performance or restitution in connection with any government contract? _____

*** For each "yes" answer, provide an explanation of the issue(s), the Business Entity involved, the relationship to the submitting Business Entity, the government entity involved, relevant dates and any remedial or corrective action(s) taken and the current status of the issue(s). Provide answer below or attach additional sheets with numbered responses.

_____
_____
_____

FORM #2, continued
CONTRACTOR RESPONSIBILITY QUESTIONNAIRE

II. Certifications/Licenses:

a. Within the past five (5) years, has the Business Entity or any Affiliate had a revocation, suspension or disbarment of any business or professional permit and/or license?
_____

*** If "yes," provide an explanation of the issue(s), the Business Entity involved, the relationship to the submitting Business Entity, the government entity involved, relevant dates and any remedial or corrective action(s) taken and the current status of the issue(s). Provide answer below or attach additional sheets with numbered responses.

_____
_____
_____

III. Legal Proceedings: Within the past five (5) years, has the business entity or affiliate:

a. Been the subject of a civil complaint?
_____

b. Been the subject of a judgment or conviction for conduct constituting a crime?
_____

c. Received any OSHA citation and Notification of penalty containing a violation classified as serious or willful?
_____

d. Had any New York State Labor Law violation deemed willful?
_____

IV. Similar Work Experience: List work experience that is similar in scope and scale to this project. References with contact information shall also be provided.

_____
_____
_____

_____
Company Name Date

_____
Name of Bidder Title

_____
Signature of Bidder

FORM #3
NON-COLLUSION CERTIFICATION

The undersigned represents that pursuant to Sections 103-a and 103-b of the General Municipal Law of the State of New York, no person referred to in the attached proposal who is the bidder or who is or was a member, partner, director or officer of the bidding firm or entity under this proposal has refused to sign a waiver of immunity or to answer any relevant questions relating to any transaction or contract with the State of New York, any political subdivision thereof, or any public authority, during the period of five years prior to the date hereof. The undersigned agrees that any contract awarded as a result of this bid may be canceled without penalty upon the grounds set forth in Sections 103-a and 103-b of the said General Municipal Law of the State of New York.

By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of 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; and

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 or not to submit a bid for the purpose of restricting competition.

A bid shall not be considered for award nor shall any award be made where 1, 2 and 3 above have not been complied with; provided however, that if in any case the bidder cannot make the foregoing certification, the bidder shall so state and shall furnish with the bid a signed statement which sets forth in detail the reasons therefore. Where 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 or restricting competition.

The fact that a 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 subparagraph one.

Any bid hereafter made to any political subdivision of the State or any public department, agency or official thereof by a corporate bidder for work or services performed or to be performed or goods sold or to be sold, where competitive bidding is required by statute, rule, regulation, or local law, and where such bid contains the certification referred to in subdivision one of this section, shall be deemed to have been authorized by the Board of Directors of the bidder, 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.

Subscribed to under penalty of perjury under the laws of the State of New York, this _____ day of _____, 20_____ as the act and deed of said corporation or partnership.

IF BIDDER(S) (ARE) A PARTNERSHIP, COMPLETE THE FOLLOWING:

NAMES OF PARTNERS OR PRINCIPALS	LEGAL RESIDENCE

IF BIDDER(S) (ARE) A CORPORATION, COMPLETE THE FOLLOWING:

NAME	LEGAL RESIDENCE
President:	
Secretary:	
Treasurer:	
President:	
Secretary:	
Treasurer:	

BY

Potential Contractor _____

Address _____

_____

Telephone _____ Title _____

If applicable, Responsible Corporate Officer

Name _____ Title _____

Signature **X** _____

Joint or combined bids by companies or firms must be certified on behalf of each participant.

Legal name of person, firm or corporation	Legal name of person, firm or corporation
By _____ Name	By _____ Name
_____ Title	_____ Title
Address	Address
_____ Street	_____ Street
_____ City _____ State _____ Zip Code	_____ City _____ State _____ Zip Code
Signature X _____	**Signature X** _____

FORM #4
BIDDERS CERTIFICATION OF COMPLIANCE WITH IRAN DIVESTMENT ACT

IRAN DIVESTMENT ACT COMPLIANCE RIDER FOR CONTRACTORS

The Iran Divestment Act of 2012, effective as of April 12, 2012, is codified at State Finance Law ("SFL") §165-a and General Municipal Law ("GML") §103-g. The Iran Divestment Act, with certain exceptions, prohibits municipalities, including the Town, 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:

1. 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

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

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

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

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

2. The Town makes a determination that the goods or services are necessary for the Town to perform its functions and that, absent such an exemption, the Town 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.

FORM #4, continued
BIDDERS CERTIFICATION OF COMPLIANCE WITH IRAN DIVESTMENT ACT

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

BIDDER'S CERTIFICATION
[Please Check One]

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

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

By: _____ _____

Signature of Partner or Corporate Officer — Date

_____ _____

Print Name — Title

Sworn to me before this

_____ day of _____, 2024

_____

Notary Public

FORM #5
PROPOSAL COST/UNIT PRICE SCHEDULE

Base Bid Work

The undersigned Bidder, having carefully examined the Procurement and Contracting Requirements, Conditions of the Contract, Drawings, Specifications, and all subsequent Addenda, having visited the site, and being familiar with all conditions and requirements of the Work, hereby agrees to furnish all material, labor, equipment and services, including all scheduled allowances, necessary to complete the construction of the above-named project, according to the requirements of the Procurement and Contracting Documents, for the following contract amount:

CONTRACT PRICE (BASE BID ONLY): **$** _____

CONTRACT PRICE (BASE BID ONLY) IN WORDS: _____

Alternate 1

The undersigned Bidder, having carefully examined the Procurement and Contracting Requirements, Conditions of the Contract, Drawings, Specifications, and all subsequent Addenda, having visited the site, and being familiar with all conditions and requirements of the Work, hereby agrees to furnish all material, labor, equipment and services, including all scheduled allowances, necessary to complete the Alternate 1 portion of the project, as shown on Sheet E-001 (refer to Part One-Line Diagram), according to the requirements of the Procurement and Contracting Documents, for the following additional compensation:

ADDITIONAL COST (ALTERNATE 1 ONLY): **$** _____

ADDITIONAL COST (ALTERNATE 1 ONLY) IN WORDS: _____

Base Bid Plus Alternate 1 Work

The total contract price for base bid and alternate 1 work, as described above:

TOTAL CONTRACT PRICE (BASE + ALT 1): **$** _____

TOTAL CONTRACT PRICE (BASE + ALT 1) IN WORDS: _____

ATTACHMENT B
Contract Documents

Insurance Requirements for Contractors working in The Town of Beekman

Governing Law:
This contract shall be governed by and construed according to the laws of the State of New York.

Indemnification:
The Contractor shall indemnify and hold harmless the Town and its representatives against any and all liabilities, claims, and costs of whatsoever kind and nature for injury or death of any persons and for loss or damage to property occurring in connection with the performance of this contract.

Permits and Licenses:
The contractor shall, at its own expense, procure and keep in effect, all necessary permits and licenses required for its performance under this contract.

Insurance Requirements:
The contractor shall procure, maintain and provide evidence of the following minimum insurance coverage during the life of this contract, in such form and with such carriers as approved by the Town, at the contractor's expense. In addition, it is the responsibility of the contractor to see that any subcontractors utilized carry similar coverage. Limits specified below do not limit the obligation of the contractor or their insurers.

Town of Beekman, its agents and affiliates, shall be named as additional insured's on a primary and non-contributory basis on both Premises and Products Completed Operations Liability by policy endorsement. A per job site aggregate endorsement and a waiver of subrogation endorsement shall also apply.

INSURANCE SPECIFICATIONS

1.0. **Required Insurance**. The following insurance coverages are required to maintained by the Contractor during the terms of the Contract, proof of which. shall provide to the Town of Beekman, 4 Main Street, Poughquag, NY 12570.

1.1. Worker's Compensation Statutory per New York State law without regard to jurisdiction, covering all operations and all locations. (See Section B.1, below)

1.2. Employer's Liability Statutory (See Section B.2, below)

1.3. Commercial General Liability CG 00 01 (ed. 10/02) or equivalent (See Section B.3, below) Combined Single Limit - Bodily Injury and Property Damage

- $1,000,000 per occurrence
- $1,000,000 Personal and Advertising Injury Limit
- $1,000,000 products/completed operations aggregate
- $2,000,000 general aggregate
- $25,000 maximum deductible

$5,000,000 Umbrella/Excess Liability with a limit of not less than $5,000,000 per occurrence/aggregate

1.4. Automobile Liability: CA 00 01 (ed. 6/92) or equivalent. (See Section B.4, below) Combined Single Limit - Bodily Injury and Property Damage

- $1,000,000 each occurrence

The following coverage must be provided:

(X) Comprehensive Form (X) Owned (X) Hired (X) Non-Owned

1.5. Professional liability insurance coverage with an annual aggregate of not less than $2,000,000 per occurrence. (See Section B.5, below)

2.0. <u>General Provisions Applicable to Insurance Coverages</u>:

2.1 All insurance coverage's must be from an A.M. Best rated "secured" (B+-A++), New York State admitted insurer

2.2 All certificates of insurance must provide that the policy or policies shall not be changed or canceled until at least thirty (30) days prior written notice has been given to the Town Clerk of the Town of Beekman.

2.3 All policies and certificates of insurance of the Vendor shall contain the following clauses:

2.3.1 The Town of Beekman is named as an additional insured and as Certificate Holder. Insurers shall have no right of recovery or subrogation against the Town of Beekman (including its agents and agencies), it being the intention of the parties that the insurance policies so affected shall protect both parties and be primary coverage for any and all losses covered by the above described insurance.

2.3.2 The Clause "other insurance provisions" in a policy in which the Town of Beekman is named as an additional insured, shall not apply to the Town of Beekman.

2.3.3 The insurance companies issuing the policy or policies shall have no recourse against the Town of Beekman (including its agents or agencies) for payment of any premiums or for assessments under any form of policy.

2.4 Any and all deductibles in the above described insurance policies shall be assumed by and be for the account of, and at the risk of the successful bidder.

2.5. These provisions are applicable to both the insurance coverages required to be maintained by Successful Bidder, and the insurance coverages required to be maintained by any consultant/contractor/subcontractor engaged or retained by the Successful Bidder. In each case, the reference to "Successful Bidder" shall mean the party to whom the Proposal was awarded and is required to maintain insurance coverage, and the reference to "Contract" shall mean either the Professional Services Contract or other Agreement of the contract pursuant to which the consultant, Successful Bidder or subcontractor is providing materials or services (in the case of a consultant, contractor or subcontractor) specified in the Proposal documents, or as may be amended by mutual agreement. As used herein, any reference to the "TOWN" shall mean the Town of Beekman, with its offices located at 4 Main St, Poughquag, NY 12570.

2.5.1. Worker's Compensation Insurance. Before performing any work on the Contract, the Successful Bidder shall procure Worker's Compensation Insurance in accord with the laws of the State of New York on behalf of all employees who are to provide labor or service under the contract. One certificate of such insurance or authority for self-insurance shall be furnished to the TOWN.

2.5.2. Employer's Liability Insurance. Before performing any work on the Contract, Successful Bidder shall procure Employer's Liability Insurance affording compensation for all employees providing labor or services for whom worker's compensation coverage is not a statutory requirement. Certificates confirming renewals of insurance shall be presented not less than thirty (30) days prior to the expiration date of coverage until all operations under the subject contract are deemed completed. One certificate of such insurance or authority for self-insurance shall be furnished to the TOWN.

2.5.3. Commercial General Liability. Before commencing work on the Contract, the Successful Bidder shall procure a commercial general liability insurance policy issued by a New York admitted carrier through a New York Licensed resident broker in the Successful Bidder's name and naming the TOWN as an additional insured (using ISO endorsement CG 20 10) and endorsed to cover liability assumed by the Successful Bidder

under the indemnity provisions of the Contract. This insurance policy must be maintained during the life of the contract and shall protect the TOWN, the Successful Bidder and his/her subcontractors performing work on the Contract from Claims for property damage and/or bodily injury which may arise from operations under the contract, whether such operations are performed by him/herself or anyone directly or indirectly employed by him/herself. One certificate of such insurance, together with copies of all endorsements as pertain to the requirements of the subject contract, shall be furnished to the TOWN of Beekman at the address shown above. The policy shall contain no exclusions or endorsements which are not acceptable to the TOWN and shall be of a form and by an insurance company acceptable to the TOWN.

2.5.3.1 Commercial General Liability - Endorsements and Exclusions. The following endorsements are required to be made on the policy:

(i) Notice: shall be addressed to the Town of Beekman, 4 Main St, Poughquag, N.Y. 12570.

(ii) Notice of Cancellation of Policy: The Policy shall not be canceled, terminated, modified or changed by the Company unless thirty (30) days' prior written notice is sent to Town of Beekman.

2.5.4. Automobile Liability. The Successful Bidder will provide the TOWN with evidence of insurance covering all owned, non-owned and hired vehicles to be used in connection with the contract. If on a "schedule autos" basis, Successful Bidder shall present the schedule of insured autos, including the vehicles to be used for operations under the Contracts.

2.5.5. Professional Liability Insurance. The Consultant shall, at its sole expense, acquire, continuously maintain during the period in which the Consultant is performing services, and provide the Town with acceptable proof of professional liability insurance coverage with an annual aggregate of not less than $2,000,000 per occurrence, covering acts, errors, or omissions of a professional nature committed or alleged to be committed by the Consultant or any of its subcontractors as a part of its performance of professional Legal services.

2.5.6 Insurance Agreement:

2.5.6.1 The Successful Bidder is required to obtain and to maintain insurance outlined herein.

2.5.6.2. The insurance required for the Contract must be on forms acceptable to the TOWN and offered by insurers acceptable to the TOWN. The insurance for all New York Contractors must be issued by New York authorized carriers except as approved by the Town Attorney for the Town of Beekman and in any event must comply with all requirements of New York State laws and regulations and meet the standards of the forms set forth in Section 3.0 above. Insurance for non-New York Contractors must be through insurers and sureties admitted and authorized in the state of headquarters of the Contractor, have an A.M. best rating of A or better and meet the standards for forms set forth in the above. Additionally, all requirements as to forms set forth in New York State law and regulations apply without regard to jurisdiction as standards of coverage.

2.5.6.3. Where circumstances warrant, the TOWN may, at its discretion subject to acceptance by the Town Attorney, accept letters of credit or custodial accounts in lieu of specific insurance requirements. The letter of credit must be on form prescribed by Town Attorney for the Town of Beekman and payable at an office of a bank approved by the TOWN.

2.5.6.4. The Successful Bidder agrees that all insurance contributing to satisfaction of the insurance requirements set out in this Exhibit shall not be modified, terminated, or canceled by the Successful Bidder without prior written approval of the TOWN.

2.5.6.5. The Successful Bidder shall be solely responsible for payment of all deductibles and premiums for insurance contributing to satisfaction of the requirements of this Exhibit and shall be solely responsible for the payment of all deductibles to which such policies are subject, whether or not the TOWN is an insured under the policy.

2.5.6.6. Claims made policies will be accepted only for professional liability and such other risks as are authorized by the New York State Insurance Department. All such policies contributing to satisfaction of the requirements of the Exhibit shall have an extended reporting period option or automatic coverage of not less than two years. If provided as an option, the Successful Bidder agrees to purchase the extended reporting period on

cancellation or termination unless a new policy is effected with a retroactive date, including at least the last policy year.

2.5.6.7. The Successful Bidder shall promptly notify the TOWN within 24 hours of any accidents arising in the course of operations under the contract causing bodily injury or property damage and shall cooperate fully with the TOWN in providing all such records and information as may be requested by the Attorney representing the Town of Beekman in anticipation of claims against the TOWN which may arise from the accident. A complete report of the accident shall be made within five (5) business days on such form as may be provided by the Attorney representing the Town of Beekman.

2.5.6.8. The Successful Bidder or his Attorney may apply to the TOWN for approval of higher deductible based on financial capacity and quality of the carrier affording coverage.

2.5.7. Forms of Insurance Certificates. Insurance certificates shall conform to the following:

2.5.7.1. Certificates must be issued by the insurance company using the "ACCORD" forms issued by its brokers, except for Worker's Compensation coverage where the Successful Bidders must provide Form C-105.2 issued by an insurance carrier or Form U-26.3 issued by the New York State Insurance Fund.

2.5.7.2. Certificates must unconditionally grant to the TOWN thirty (30) calendar days' notice of cancellation or non-renewal. "Endeavor" or other qualifying language is not acceptable.

2.5.7.3. All additional insureds required by this Insurance Specification shall be listed as such.

2.5.7.4. The authorized representative of the insurance company executing the certificate(s) must indicate his/her title.

2.5.7.5. Original executed certificates must be delivered to TOWN.

ATTACHMENT C

Prevailing Wage Schedule

Kathy Hochul, Governor

Roberta Reardon, Commissioner

Town of Beekman

Eric Rogge
174 Main Street
Beacon NY 12508

Schedule Year 2024 through 2025
Date Requested 11/22/2024
PRC# 2024014654

Location 4 Main Street
Project ID#
Project Type Beekman Town Hall Lower Floor HVAC 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

Town of Beekman

Eric Rogge
174 Main Street
Beacon NY 12508

Schedule Year 2024 through 2025
Date Requested 11/22/2024
PRC# 2024014654

Location 4 Main Street
Project ID#
Project Type Beekman Town Hall Lower Floor HVAC 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.

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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

Dutchess County General Construction

Boilermaker — 11/01/2024

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 — 11/01/2024

JOB DESCRIPTION Carpenter **DISTRICT** 8

ENTIRE COUNTIES
Dutchess, Orange

WAGES
Per hour: 07/01/2024

Building:
Millwright $ 46.35
+ 8.44*

*This portion of the benefit is NOT subject to the SAME PREMIUM as shown for overtime.

SUPPLEMENTAL BENEFITS
Per hour:

Journeyman $ 34.94

OVERTIME PAY
See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY
Paid: See (18, 19) on HOLIDAY PAGE
Paid: See (5,6,11,13,16,18,19,25) for 1st & 2nd yr. Apprentices
Overtime: See (5,6,11,13,16,18,19,25) on HOLIDAY PAGE.

REGISTERED APPRENTICES
Wages per hour:
One (1) year terms:

1st	2nd	3rd	4th
$ 28.18	$ 30.51	$ 34.84	$ 43.50
+ 4.40*	+ 5.19*	+ 5.94*	+ 7.44*

*This portion of the benefit is NOT subject to the SAME PREMIUM as shown for overtime.

Supplemental benefits per hour:

1st	2nd	3rd	4th
$ 23.00	$ 24.79	$ 26.90	$ 29.63

8-740.2

Carpenter **11/01/2024**

JOB DESCRIPTION Carpenter **DISTRICT** 8

ENTIRE COUNTIES
Dutchess

PARTIAL COUNTIES
Orange: : The territory west demarcated by a line drawn from the Bear Mountain Bridge continuing east to the Bear Mountain Circle. The territory south demarcated by a line continuing north on 9W to the town of Cornwall where County Road 107 (also known as Quaker Rd) crosses under 9W to the centerline of Route 32, The territories south and east heading north on Route 32 to Orrs Mills Rd, then west on Orrs Mills Rd to Route 94, continue west and south on Route 94 to the Town of Chester, to the intersection of Kings Highway, continue south on Kings Highway to Bellvale Rd, west on Bellvale Rd to Bellvale Lakes Rd, then south on Bellvale Lakes Rd to Kain Rd, southeast on Kain Rd to Route 17A, then north and southeast along Route 17A to Route 210, then follow Route 210 to NJ Border.

WAGES
Per hour: 07/01/2024

Carpet/Resilient
Floor Coverer $ 34.45
+ 3.25*

*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:
$ 28.33

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
$15.75	$18.87	$23.55	$28.23
+ 2.48*	+ 2.48*	+ 2.48*	+ 2.48*

*This portion of the benefit is NOT subject to the SAME PREMIUM as shown for overtime.

Supplemental Benefits per hour - All apprentice terms:

$ 20.87

8-2287D&O

Carpenter — 11/01/2024

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 - Building / Heavy&Highway — 11/01/2024

JOB DESCRIPTION Carpenter - Building / Heavy&Highway **DISTRICT** 11

ENTIRE COUNTIES
Columbia, Dutchess, Orange, Sullivan, Ulster

WAGES
WAGES (per hour)

Applies to Carpenter (Building/Heavy & Highway/Tunnel), Dockbuilder, Piledriver, Dive Tender, and Diver (Dry):

	07/01/2024	07/01/2025 Additional	07/01/2026 Additional
Base Wage	$ 37.19 + 6.31*	$ 2.23**	$ 2.30**

Applies to Diver (Wet):

Base Wage	$ 50.00 + 6.31*

*For all hours paid straight or premium.
**To be allocated at a later date.

SHIFT WORK
SHIFT DIFFERENTIAL: When mandated by a Government Agency irregular or off shift can be worked. The Carpenter shall receive an additional fifteen percent (15%) of the base wage.

SUPPLEMENTAL BENEFITS
Per hour:

Journeyworker	$ 30.65

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
$ 18.60 +3.09*	$ 22.31 +3.09*	$ 26.03 +3.09*	$ 29.75 +3.09*

*For all hours paid straight or premium

SUPPLEMENTAL BENEFITS per hour:

All Terms	$ 16.30

11-279.2B/H&H

Electrician — 11/01/2024

JOB DESCRIPTION Electrician **DISTRICT** 11

ENTIRE COUNTIES
Orange, Putnam, Rockland

PARTIAL COUNTIES
Dutchess: Towns of Fishkill, East Fishkill, and Beacon.

WAGES
Per hour:

	07/01/2024
Electrician Wireman/Technician	$ 50.50

+ 9.50*

*For all hours paid straight or premium, not to be included in 3% calculation for supplemental benefits.

NOTE ADDITIONAL AMOUNTS PAID FOR THE FOLLOWING WORK LISTED BELOW (subject to overtime premiums):
- On jobs where employees are required to work from boatswain chairs, swinging scaffolds, etc., forty (40) feet or more above the ground, or under compressed air, using Scottair packs, or gas masks, they shall receive an additional $2.00 per hour above the regular straight time rate.
- Journeyman Wireman working in Shafts, Tunnels or on Barges: $5.00 above the Journeyman Wireman rate of pay
- Journeyman Wireman when performing welding or cable splicing: $3.00 above the Journeyman Wireman rate of pay
- Journeyman Wireman required to have a NYS Asbestos Certificate: $3.00 above the Journeyman Wireman rate of pay
- Journeyman Wireman required to have a CDL: $3.00 above the Journeyman Wireman rate of pay.

SHIFT WORK

SHIFT DIFFERENTIAL: On Public Work in New York State when shift work is mandated either in the job specifications or by the contracting agency, the following rates apply when shift is worked:

Between 4:30pm & 12:30am	$ 59.30
	+ 9.50*
Between 12:30am & 8:30am	$66.35
	+ 9.50*

SUPPLEMENTAL BENEFITS

Per hour:	07/01/2024
Journeyman	$ 29.68 plus
	3% of straight
	or premium wage

OVERTIME PAY

See (B, E, Q) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 13, 15, 16, 25) on HOLIDAY PAGE

When the holiday falls on a Saturday it is observed the Friday before. When the holiday falls on a Sunday it is observed on the Monday after.

REGISTERED APPRENTICES

WAGES:
(1)year terms at the following rates

07/01/2024	1st	2nd	3rd	4th	5th	6th
1st Shift	$ 16.01	$ 19.40	$ 24.25	$ 29.10	$ 33.95	$ 36.38
	+1.00*	+1.00*	+1.50*	+2.00*	+2.50*	+2.50*
2nd Shift	18.78	22.76	28.45	34.13	39.82	42.67
	+1.00*	+1.00*	+1.50*	+2.00*	+2.50*	+2.50*
3rd Shift	21.04	25.49	31.86	38.24	44.61	47.80
	+1.00*	+1.00*	+1.50*	+2.00*	+2.50*	+2.50*

09/01/2024	1st	2nd	3rd	4th	5th	6th
1st Shift	$ 16.01	$ 19.40	$ 24.25	$ 29.10	$ 33.95	$ 36.38
	+1.00*	+1.00*	+1.00*	+2.00*	+2.50*	+2.50*
2nd Shift	18.78	22.76	28.45	34.13	39.82	42.67
	+1.00*	+1.00*	+1.00*	+2.00*	+2.50*	+2.50*
3rd Shift	21.04	25.49	31.86	38.24	44.61	47.80
	+1.00*	+1.00*	+1.00*	+2.00*	+2.50*	+2.50*

04/01/2025	1st	2nd	3rd	4th	5th	6th
1st Shift	$ 16.34	$ 19.80	$ 24.75	$ 29.70	$ 34.65	$ 37.13
	+1.00*	+1.00*	+1.00*	+2.00*	+2.50*	+2.50*
2nd Shift	19.17	23.23	29.03	34.84	40.64	43.55
	+1.00*	+1.00*	+1.00*	+2.00*	+2.50*	+2.50*
3rd Shift	21.47	26.02	32.52	39.03	45.53	48.79
	+1.00*	+1.00*	+1.00*	+2.00*	+2.50*	+2.50*

*For all hours paid straight or premium, not to be included in 3% calculation for supplemental benefits.

SUPPLEMENTAL BENEFITS per hour:

07/01/2024

1st term	$ 16.28 plus 3% of straight or premium wage
2nd term	$ 16.28 plus 3% of straight or premium wage

3rd term	$ 18.28 plus 3% of straight or premium wage
4th term	$ 18.78 plus 3% of straight or premium wage
5th term	$ 20.28 plus 3% of straight or premium wage
6th term	$ 20.28 plus 3% of straight or premium wage

09/01/2024

1st term	$ 16.28 plus 3% of straight or premium wage
2nd term	$ 17.78 plus 3% of straight or premium wage
3rd term	$ 18.78 plus 3% of straight or premium wage
4th term	$ 19.78 plus 3% of straight or premium wage
5th term	$ 21.28 plus 3% of straight or premium wage
6th term	$ 21.28 plus 3% of straight or premium wage

11-363/1

Electrician — 11/01/2024

JOB DESCRIPTION Electrician **DISTRICT** 11

ENTIRE COUNTIES
Sullivan, Ulster

PARTIAL COUNTIES
Delaware: Only in the Townships of Andes, Harpersfield, Kortwright,Stamford, Bovina, Roxbury, Middletown and those portions of Colchester and Hancock south of the East Branch of the Delaware River.
Dutchess: All of the county except for the towns of Fishkill,East Fishkill, and Beacon.
Greene: That portion of the county south of a line following the south limits of the city of Catskill in a Westerly direction from the Hudson River to Highway 23A along 23A to the road following the Little Westkill and continuing along this road to Delaware County.

WAGES

Per hour:	
Electrician Wireman/ Technician	07/01/2024
Electrical/Technician Projects	
under $ 250,000.00	$ 46.50 + 9.50*
over $ 250,000.00	$ 50.50 + 9.50*

*For all hours paid straight or premium, not to be included in 3% calculation for supplemental benefits.

NOTE ADDITIONAL AMOUNTS PAID FOR THE FOLLOWING WORK LISTED BELOW (subject to overtime premiums):
- On jobs where employees are required to work from boatswain chairs, swinging scaffolds, etc., forty (40) feet or more above the ground, or under compressed air, using Scottair packs, or gas masks, they shall receive an additional $2.00 per hour above the regular straight time rate.
- Journeyman Wireman working in Shafts, Tunnels or on Barges: $5.00 above the Journeyman Wireman rate of pay
- Journeyman Wireman when performing welding or cable splicing: $3.00 above the Journeyman Wireman rate of pay
- Journeyman Wireman required to have a NYS Asbestos Certificate: $3.00 above the Journeyman Wireman rate of pay
- Journeyman Wireman required to have a CDL: $3.00 above the Journeyman Wireman rate of pay.

SHIFT WORK
SHIFT DIFFERENTIAL: On Public Work in New York State when shift work is mandated either in the job specifications or by the contracting agency, the following rates apply:

Shift worked between 4:30pm & 12:30am	
Electrical/Technician Projects	
under $ 250,000.00	$ 54.56 + 9.50*
over $ 250,000.00	$ 59.30 + 9.50*

Shift worked between 12:30am & 8:30am	
Electrical/Technician Projects	
under $ 250,000.00	$ 61.12 + 9.50*
over $ 250,000.00	$ 66.35 + 9.50*

SUPPLEMENTAL BENEFITS

Per hour:	07/01/2024
Journeyman	$ 29.68 plus 3% of straight or premium wage

OVERTIME PAY
See (B, E, Q) on OVERTIME PAGE

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 13, 15, 16, 25) on HOLIDAY PAGE
When the holiday falls on a Saturday it is observed the Friday before. When the holiday falls on a Sunday it is observed on the Monday after.

REGISTERED APPRENTICES
WAGES:
(1)year terms at the following rates

07/01/2024	1st	2nd	3rd	4th	5th	6th
1st Shift	$ 16.01	$ 19.40	$ 24.25	$ 29.10	$ 33.95	$ 36.38
	+1.00*	+1.00*	+1.50*	+2.00*	+2.50*	+2.50*
2nd Shift	18.78	22.76	28.45	34.13	39.82	42.67
	+1.00*	+1.00*	+1.50*	+2.00*	+2.50*	+2.50*
3rd Shift	21.04	25.49	31.86	38.24	44.61	47.80
	+1.00*	+1.00*	+1.50*	+2.00*	+2.50*	+2.50*

09/01/2024	1st	2nd	3rd	4th	5th	6th
1st Shift	$ 16.01	$ 19.40	$ 24.25	$ 29.10	$ 33.95	$ 36.38
	+1.00*	+1.00*	+1.00*	+2.00*	+2.50*	+2.50*
2nd Shift	18.78	22.76	28.45	34.13	39.82	42.67
	+1.00*	+1.00*	+1.00*	+2.00*	+2.50*	+2.50*
3rd Shift	21.04	25.49	31.86	38.24	44.61	47.80
	+1.00*	+1.00*	+1.00*	+2.00*	+2.50*	+2.50*

04/01/2025	1st	2nd	3rd	4th	5th	6th
1st Shift	$ 16.34	$ 19.80	$ 24.75	$ 29.70	$ 34.65	$ 37.13
	+1.00*	+1.00*	+1.00*	+2.00*	+2.50*	+2.50*
2nd Shift	19.17	23.23	29.03	34.84	40.64	43.55
	+1.00*	+1.00*	+1.00*	+2.00*	+2.50*	+2.50*
3rd Shift	21.47	26.02	32.52	39.03	45.53	48.79
	+1.00*	+1.00*	+1.00*	+2.00*	+2.50*	+2.50*

*For all hours paid straight or premium, not to be included in 3% calculation for supplemental benefits.

SUPPLEMENTAL BENEFITS per hour:

07/01/2024

1st term	$ 16.28 plus 3% of straight or premium wage
2nd term	$ 16.28 plus 3% of straight or premium wage
3rd term	$ 18.28 plus 3% of straight or premium wage
4th term	$ 18.78 plus 3% of straight or premium wage
5th term	$ 20.28 plus 3% of straight or premium wage
6th term	$ 20.28 plus 3% of straight or premium wage

09/01/2024

1st term	$ 16.28 plus 3% of straight or premium wage
2nd term	$ 17.78 plus 3% of straight or premium wage
3rd term	$ 18.78 plus 3% of straight or premium wage
4th term	$ 19.78 plus 3% of straight or premium wage
5th term	$ 21.28 plus 3% of straight or premium wage
6th term	$ 21.28 plus 3% of straight or premium wage

11-363/2

Elevator Constructor — 11/01/2024

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 — 11/01/2024

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 — 11/01/2024

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 11/01/2024

JOB DESCRIPTION Ironworker **DISTRICT** 11

ENTIRE COUNTIES
Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster

WAGES
Per hour:

	07/01/2024	07/01/2025 Additional	07/01/2026 Additional
Structural	$ 51.38	$ 2.00*	$2.00*
Reinforcing	51.38	2.00*	2.00*
Ornamental	51.38	2.00*	2.00*
Chain Link Fence	51.38	2.00*	2.00*

* To be allocated at a later date.

NOTE: For Reinforcing classification ONLY, Ironworker 4-46Reinf rates apply in Rockland County's southern section (south of Convent Road and east of Blue Hills Road).

SHIFT WORK
On Government Mandated Irregular Workdays or Shift Work, the following wage will be paid:

1st Shift	$ 51.38
2nd Shift	66.39
3rd Shift	71.39

Note- Any shift that works past 12:00 midnight shall receive the 3rd shift differential.

SUPPLEMENTAL BENEFITS
Per hour:

Journeyman	$ 45.56

OVERTIME PAY
See (B1, Q, V) on OVERTIME PAGE

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 16) on HOLIDAY PAGE
If a holiday falls on Saturday, it will be observed Friday. If a holiday falls on Sunday, it will be observed Monday.

REGISTERED APPRENTICES
Wages:

(1) year terms at the following wage:

	1st yr	2nd yr	3rd yr	4th yr
1st Shift	$ 25.69	$ 30.83	$ 35.97	$ 41.10
2nd Shift	36.15	42.20	48.25	54.29

3rd Shift	39.64	45.99	52.35	58.69

Supplemental Benefits per hour:

	07/01/2024
1st year	$ 40.94
2nd year	41.86
3rd year	42.79
4th year	43.71

11-417

Laborer - Building — 11/01/2024

JOB DESCRIPTION Laborer - Building **DISTRICT** 11

ENTIRE COUNTIES
Dutchess

PARTIAL COUNTIES
Columbia: Only the Townships of Greenport, Claverack, Philmont,Clermont, Germantown, Livingston, Hillsdale, Gallatin, Copake, Ancram, Taghkanic and the City of Hudson.

WAGES
ALL WORK RELATED WITH TOXIC OR ANY ASBESTOS OR HAZARDOUS MATERIAL

WAGES: (per hour)

	07/01/2024	06/01/2025 Additional	06/01/2026 Additional
Class 4	$ 49.00	$ 2.90*	$ 3.00*

*To be allocated at a later date.

These rates will cover all work within five feet of the building foundation line.

SHIFT WORK
Shift Differential: On all Governmental mandated irregular or off shift work, an additional 25% of wage is required. The 25% shift differential will be paid on public works contract for shifts or irregular workdays outside the normal working hours for 2nd and 3rd shifts or irregular workday or when mandated or required by state, federal, county, local or other governmental agency contracts.

SUPPLEMENTAL BENEFITS
Per hour:

Journeyman	$ 33.50
Shift	$ 40.84

OVERTIME PAY
See (B, *E, E5, **Q) on OVERTIME PAGE
*For first 8 hours on Saturday
**When an employee is required to work on a holiday which falls on a Sunday the employee shall be paid three (3) times the hourly rate and one (1) hour benefits for every hour worked. When an employee is required to work on a holiday which falls on a Saturday the employee shall be paid two and a half (2.5) times the hourly rate and one hour benefits for every hour worked.

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 16, 25) on HOLIDAY PAGE
Holidays that fall on Saturday shall be observed on Friday, when holidays fall on Sunday they shall be observed on Monday.

REGISTERED APPRENTICES
(1000) hour terms at the following wages.

	07/01/2024
1st term	$ 28.05
2nd term	32.35
3rd term	36.70
4th term	41.00

Supplemental Benefits per hour:

All Terms Regular	$ 29.23
All Terms Shift Rate	35.39

11-17tox B

Laborer - Building — 11/01/2024

JOB DESCRIPTION Laborer - Building **DISTRICT** 8

ENTIRE COUNTIES
Dutchess

PARTIAL COUNTIES
Columbia: Only the Townships of Ancram, Claverack, Clermont, Copake, Gallatin, Germantown, Greenport, Hillsdale, Hudson, Livingston, Philmont and Taconic.

WAGES
GROUP # 1:
All Laborers except those listed in Group 2

GROUP # 2:
Blaster, Laser Beam Oper., Asphalt Rakers, & Drilling Equipment Only Where a Separate Air Compressor Unit Supplies Power

WAGES per hour:	07/01/2024	06/01/2025 Additional
GROUP # 1	$ 40.00*	$ 2.00**
GROUP # 2	42.35*	

*Subtract $ 4.50 to calculate overtime premium
** To be allocated at a later date

Note: Any job requiring Hazwopper Certification will pay $1.00 above job classification wage rate.

SUPPLEMENTAL BENEFITS
Per hour:

Journeyman	$ 30.60

OVERTIME PAY
See (B, F, R) on OVERTIME PAGE

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE
Note: Whenever a holidays falls on Sunday, it will be observed on the following Monday.

REGISTERED APPRENTICES
Wages per hour: 07/01/2024

1000 Hour terms

1st term	$ 28.08
2nd term	31.90
3rd term	35.72
4th term	39.54

Note: Any job requiring Hazwopper Certification will pay $1.00 above job classification wage rate.

Supplemental Benefits per hour:

All terms	$ 23.60

8-235

Laborer - Heavy&Highway **11/01/2024**

JOB DESCRIPTION Laborer - Heavy&Highway **DISTRICT** 8

ENTIRE COUNTIES
Dutchess

PARTIAL COUNTIES
Columbia: Only the Townships of Ancram, Claverack, Clermont, Copake,Gallatin, Germantown, Greenport, Hillsdale, Hudson, Livingston, Philmont and Taconic.

WAGES
GROUP I: Blaster, Asphalt Screedman, ACI Certified Flatwork Finisher, Pipe Jacking and Boring Operations, Operator Qualified Dead Condition Pipe Fuser (B Mechanic)

GROUP II: Burner, Drill Operator, Jumbo Driller, Wagon Driller, Air Track Driller, Hydraulic Driller, Self Contained Rotary Drill Operator, Pneumatic Dowel Driller, Concrete Form Aligner, Concrete Form and Curb Form Highway, Concrete Finisher, Asphalt Raker, Pipe Fusion, Wrecking "Bar Person", Operator Qualified Peer Checker.

GROUP III: Asphalt Curb Machine Operator, Jeepers Operator, Pavement Breaker Operator , Power Saw Operator, Jack Hammer Drill, all types Pneumatic Tool and Gasoline Drill, Concrete Saw, Gunning, Railroad, Spike Puller, Sandblasting, Shoring, Pipe Layer, Deck Winches on Scows, Power Buggy and Operator, Power Wheelbarrow Operator, Laser Bean and X-Ray Operator, Pipe Religner, Underpinning, Chain Saw, Tree Cutter, Jack Leg Driller, Hydraulic Rock Splitter, certified, Certified Scaffold Erector, Remote Controlled Demolition Robot, Wrecking "Bar Person" Helper, Utility Per Diem Laborer, Compressed air-lance, Water jet lance

Group IV: General Concrete Laborers - anything pertaining to concrete, aggregate or concrete material handling, Puddlers, Asphalt Worker, Crack Router Operator, Rock Scalers, Vibrator Operator, Bit Grinder, Concrete Grinder, Remote Walk Behind Roller (Wacker, Rammax, etc), Air Tampers and All Tampers not covered by any other classification, Form Pin Pullers, Pumps and their operation, Service of Air Power, Epoxy and Waterproofing Worker, Fine Grade person between forms, Barco Rammer, Guard Rail Installation and Demolition Link Fence, Steel Kings, Wire Mesh, Setting of all Paving Blocks, Brick Paver and Rubber Pavers, Rip Rap and Dry Stone Layer Wall, Stone Work and Pointing, Cement Spray Men, Gabion Basket Assembler, Installation of Noise Barrier, Jersey Barrier and Joints, Pre-Cast Manholes, and Pre -cast and Pre-cast Catch Basins, Crib Retaining Walls

Group V: All Driller Helpers(including Hydraulic Wagon Air Track). Common Laborers, Certified Fire Watch Laborers, All AFL/CIO Trades, Signal Person Truck Spotters, Power Person , Landscaping and Nursery Person, Artificial Turf, Placing Fabric on Landfill, Sign Installer, Temporary and Interim Pavement Line Striping, String Line Automation Grades, Lock Level, Certified Traffic Safety and Control (Pattern)

Group V (A): Flagperson

Group VI: Confined Space Laborer

WAGES per hour	07/01/2024
Group I:	$ 49.05
Group II:	47.70
Group III:	47.30
Group IV:	46.95
Group V:	46.60
Group V(A):	40.25
Group VI:	48.60

Note: All employees working on a project that requires Hazwopper Certification will receive $1.00 per hour over job classification rate of pay.

SHIFT WORK
Supplemental Benefits: $ 40.00*

*Applies for contracting agency mandated irregular shift work

All employees who work an irregular work day that starts after 9:00 AM on a governmental mandated schedule shall be paid an additional 15% per hour.

SUPPLEMENTAL BENEFITS

Per hour:	07/01/2024
Journeyman	$ 29.30

OVERTIME PAY
See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY

Paid:	See (5, 6) on HOLIDAY PAGE
Overtime:	See (5, 6) on HOLIDAY PAGE

Note: Whenever a holidays falls on Sunday, it will be observed on the following Monday.

REGISTERED APPRENTICES
Wages per hour
1000 hour year terms

1st Term	$ 28.08
2nd Term	31.90
3rd Term	35.72
4th Term	39.54

Note: All employees working on a project that requires Hazwopper Certification will receive $1.00 per hour over job classification rate of pay.

Supplemental Benefits per hour:

All Terms	$ 23.60

8-235h

JOB DESCRIPTION Laborer - Heavy&Highway **DISTRICT** 11

ENTIRE COUNTIES
Dutchess

PARTIAL COUNTIES
Columbia: Only the Townships of Claverack, Clermont, Greenport, Philmont, Germantown,Livingston, Hillsdale, Taghkanic, Gallatin, Copake, Ancram, City of Hudson.

WAGES
ALL WORK RELATED WITH TOXIC OR ANY ASBESTOS OR HAZARDOUS MATERIAL, BIOREMEDIATION AND PHYTO REMEDIATION(Five feet or more outside of building foundation line)

WAGES:(per hour)	07/01/2024
Class 3	$ 50.75

* To be allocated at a later date.

SHIFT WORK
SHIFT DIFFERENTIAL: Night work and irregular shift require 20% increase on wages for all Government mandated night and irregular shift work.

SUPPLEMENTAL BENEFITS
Per hour:

Journeyman	$ 33.38
Shift	39.18

OVERTIME PAY
See (B, E, P, *R, **S, ***T, X) on OVERTIME PAGE
*For Mon-Fri Holidays, Double Benefits to be paid for all hours worked.
**For Saturday Holidays, Two and one-half Benefits for all hours worked.
***For Sunday Holidays, Triple Benefits for all hours worked.

HOLIDAY
Paid: See (5, 6, 15, 25) on HOLIDAY PAGE
Overtime: See (5, 6, 15, 25) on HOLIDAY PAGE
To be eligible for a paid holiday, an employee must work at least two (2) days in the calendar week or payroll week in which the holiday falls.

REGISTERED APPRENTICES
(1000) hour terms at the following wages.

	07/01/2024
1st term	$ 28.05
2nd term	32.35
3rd term	36.70
4th term	41.00

Supplemental Benefits per hour:

All Terms Regular	$ 29.23
All Terms Shift Rate	34.18

11-17tox HH

Laborer - Tunnel 11/01/2024

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 — 11/01/2024

JOB DESCRIPTION Lineman Electrician **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, Wyoming, Yates

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 applicable on all overhead and underground distribution and maintenance work, and all overhead and underground transmission line work and the installation of fiber optic cable where no other construction trades are or have been involved. Includes access matting for line work.

Per hour:	07/01/2024
Group A:	
Lineman, Technician	$ 58.90
Crane, Crawler Backhoe	58.90
Welder, Cable Splicer	58.90
Group B:	
Digging Mach. Operator	53.01
Tractor Trailer Driver	50.07
Groundman, Truck Driver	47.12
Equipment Mechanic	47.12
Flagman	35.34

Additional $1.00 per hour for entire crew when a helicopter is used.

Below rates applicable on all electrical sub-stations, switching structures, fiber optic cable and all other work not defined as "Utility outside electrical work." Includes access matting for line work.

Group A:	
Lineman, Technician	$ 58.90
Crane, Crawler Backhoe	58.90
Cable Splicer	64.79
Certified Welder, Pipe Type Cable	61.85
Group B:	
Digging Mach. Operator	53.01
Tractor Trailer Driver	50.07
Groundman, Truck Driver	47.12
Equipment Mechanic	47.12
Flagman	35.34

Additional $1.00 per hour for entire crew when a helicopter is used.

Below rates applicable on all switching structures, maintenance projects, railroad catenary install/maintenance third rail installation, bonding of rails and pipe type cable and installation of fiber optic cable. Includes access matting for line work.

Group A:	
Lineman, Tech, Welder	$ 60.22
Crane, Crawler Backhoe	60.22
Cable Splicer	66.24
Certified Welder, Pipe Type Cable	63.23
Group B:	
Digging Mach. Operator	54.20
Tractor Trailer Driver	51.19
Groundman, Truck Driver	48.18
Equipment Mechanic	48.18
Flagman	36.13

Additional $1.00 per hour for entire crew when a helicopter is used.

Below rates applicable on all overhead and underground transmission line work & fiber optic cable where other construction trades are or have been involved. This applies to transmission line work only, not other construction. Includes access matting for line work.

Group A:	
Lineman, Tech, Welder	$ 61.41
Crane, Crawler Backhoe	61.41
Group B:	
Digging Mach. Operator	55.27
Tractor Trailer Driver	52.20
Groundman, Truck Driver	49.13
Equipment Mechanic	49.13

Flagman 36.85

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:

	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 all 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.

6-1249a

Lineman Electrician - Teledata — 11/01/2024

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 — 11/01/2024

JOB DESCRIPTION Lineman Electrician - Traffic Signal, Lighting **DISTRICT** 6

ENTIRE COUNTIES
Columbia, Dutchess, Orange, Putnam, Rockland, Ulster

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/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	$ 51.82
Crane, Crawler Backhoe	51.82
Certified Welder	54.41
Group B:	

Digging Machine	46.64
Tractor Trailer Driver	44.05
Groundman, Truck Driver	41.46
Equipment Mechanic	41.46
Flagman	31.09

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 all 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.

6-1249aReg8LT

Lineman Electrician - Tree Trimmer **11/01/2024**

JOB DESCRIPTION Lineman Electrician - Tree Trimmer **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, Wyoming, Yates

WAGES

Applies to line clearance, tree work and right-of-way preparation on all new or existing energized overhead or underground electrical, telephone and CATV lines. This also includes stump removal near underground energized electrical lines including telephone and CATV lines.

Per hour:	07/01/2024
Tree Trimmer	$ 31.44
Equipment Operator	27.80
Equipment Mechanic	27.80
Truck Driver	23.15
Groundman	19.07
Flag person	15.00*

*NOTE-Rate effective on 01/01/2025 - $15.50 due to minimum wage increase.

SUPPLEMENTAL BENEFITS

Per hour:

	07/01/2024
Journeyworker	$ 10.48 *plus 4.5% of the hourly wage paid

* The 4.5% is based on the hourly wage paid, straight time rate or premium rate.

OVERTIME PAY

See (B, E, Q, X) 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 (5, 6, 8, 15) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 15, 16, 25) on HOLIDAY PAGE

NOTE: All paid holidays falling on a Saturday shall be observed on the preceding Friday. All paid holidays falling on a Sunday shall be observed on the following Monday.

6-1249TT

Mason - Building — 11/01/2024

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 Additional
Marble Cutters & Setters	$ 63.92	$ 0.75*

*To be allocated at a later date.

SUPPLEMENTAL BENEFITS

Per Hour:

Journeyworker	$ 40.05

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:
07/01/2024

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+
$ 27.01	$ 40.52	$ 43.88	$ 47.26	$ 50.64	$ 54.32	$ 60.71	$ 63.92

Supplemental Benefits per hour:

07/01/2024

1st	2nd	3rd	4th	5th	6th	7th	8th
$ 26.42	$ 29.76	$ 30.61	$ 31.44	$ 32.28	$ 37.55	$ 39.23	$ 40.05

9-7/4

Mason - Building — 11/01/2024

JOB DESCRIPTION Mason - Building **DISTRICT** 11

ENTIRE COUNTIES
Dutchess, Sullivan, Ulster

PARTIAL COUNTIES
Orange: Entire county except the Township of Tuxedo.

WAGES
Per hour:

	07/01/2024
Bricklayer	$ 46.45
Cement Mason	46.45
Plasterer/Stone Mason	46.45
Pointer/Caulker	46.45

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	$ 38.00

OVERTIME PAY

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

11-5du-b

Mason - Building 11/01/2024

JOB DESCRIPTION Mason - Building **DISTRICT** 9

ENTIRE COUNTIES
Dutchess, Orange, Putnam, Sullivan, Ulster

WAGES

Per hour:	07/01/2024	12/02/2024
Building:		Additional
Tile, Marble,& Terrazzo Mechanic/Setter	$ 58.06	$ 0.63*

*To be allocated at a later date.

SUPPLEMENTAL BENEFITS

Per Hour:	
Journeyworker:	$ 25.11* + 6.14

* This portion of benefits subject to same premium rate as shown for overtime wages.

OVERTIME PAY
See (B, E, Q) on OVERTIME PAGE
Double time rate applies after 10 hours

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 11, 15, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wage per hour:
(Counties of Orange & Putnam)
750 hour terms at the following wage rate:

	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	6751-7500
07/01/2024	$22.19	$27.21	$34.45	$39.46	$43.07	$46.58	50.23	$55.24	$57.71	$62.00

Supplemental Benefits per hour:
(Counties of Orange & Putnam)

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
07/01/2024									
$12.55* + 0.76	$12.55* + 0.81	$15.36* + 0.91	$15.36* + 0.96	$16.36* + 1.43	$17.86* + 1.48	$18.86* + 1.91	$18.86* + 1.97	$18.86* + 4.57	$24.11* + 5.18

Wages per hour:
(Counties of Dutchess, Sullivan, Ulster)

750 hour terms at the following wage rate:

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	6751-7500

07/01/2024

$22.06	$26.44	$28.50	$32.88	$35.84	$39.71	$43.21	$46.59	$47.95	$51.44

Supplemental Benefits per hour:
(Counties of Dutchess, Sullivan, Ulster)

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
07/01/2024									
$12.55* + 0.76	$12.55* + 0.80	$14.86* + 0.85	$14.86* + 0.89	$15.86* + 1.35	$16.36* + 1.40	$16.86* + 1.82	$17.86* + 1.87	$17.86* + 4.93	$22.61* + 5.02

* This portion of benefits subject to same premium rate as shown for overtime wages.

9-7/52B

Mason - Building — 11/01/2024

JOB DESCRIPTION Mason - Building **DISTRICT** 9

ENTIRE COUNTIES
Dutchess, Orange, Putnam, Sullivan, Ulster

WAGES

Per hour: Building	07/01/2024	12/02/2024 Additional
Tile, Marble, & Terrazzo Finisher	$ 47.74	$ 0.54*

*To be allocated at a later date.

SUPPLEMENTAL BENEFITS
Journeyworker:

Per Hour	$ 22.11*
	+ 6.01

*This portion of benefits subject to same premium rate as shown for overtime wages

OVERTIME PAY
See (A, *E, Q) on OVERTIME PAGE
Double time rate applies after 10 hours on Saturdays.

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 11, 15, 16, 25) on HOLIDAY PAGE

9-7/88B-tf

Mason - Heavy&Highway — 11/01/2024

JOB DESCRIPTION Mason - Heavy&Highway **DISTRICT** 11

ENTIRE COUNTIES
Dutchess, Sullivan, Ulster

PARTIAL COUNTIES
Orange: Entire county except the Township of Tuxedo.

WAGES
Per hour:

	07/01/2024
Bricklayer	$ 46.95
Cement Mason	46.95
Marble/Stone Mason	46.95
Plasterer	46.95
Pointer/Caulker	46.95

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 $ 38.00

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

11-5du-H/H

Operating Engineer - Building — 11/01/2024

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 — 11/01/2024

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 - Building — 11/01/2024

JOB DESCRIPTION Operating Engineer - Building **DISTRICT** 1

ENTIRE COUNTIES
Albany, Clinton, Columbia, Essex, Franklin, Fulton, Greene, Hamilton, Herkimer, Montgomery, Otsego, Rensselaer, Saratoga, Schenectady, Schoharie, Warren, Washington

PARTIAL COUNTIES
Dutchess: Defined as north of the northern boundary line of City of Poughkeepsie then due east to Route 115 to Bedell Road then east along Bedell Road to VanWagner Road then north along VanWagner Road to Bower Road then east along Bower Road to Rte. 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 Connecticut.

WAGES

NOTE:
-- In the event that equipment listed below is operated by robotic control, the classification covering the operation will be the same as if manually operated.
-- If a second employee is required by the employer for operation of any covered machine, they shall be an Engineer Class C

CLASS A1*: All cranes that require A NYS crane license, tower cranes**(including self erecting), hydraulic cranes, locomotive crane, piledriver, cableway, derricks, whirlies, dragline, boom trucks, cherry pickers, overhead cranes (gantry or saddle type), truck cranes

CLASS A:
Shovel, Excavators 18,001 lbs. and above(including rubber tire full swing), Gradalls, power road grader, all CMI equipment, front-end rubber tire loader, tractor-mounted drill (quarry master), mucking machine, concrete central mix plant, concrete pump, belcrete system, automated asphalt concrete plant, and tractor road paver, boom trucks 5 tons and under, maintenance engineer, self-contained crawler drill-hydraulic rock drill, Profiler/Milling machine.

CLASS B:
Excavators 18,000 lbs. and under, Backhoes (rubber tired backhoe/loader combination), bulldozer, pushcat, tractor, traxcavator, scraper, LeTourneau grader, form fine grader, self-propelled soil compactor (fill roller), asphalt roller, blacktop spreader, power brooms, sweepers, trenching machine, Barber Green loader, side booms, hydro hammer, concrete spreader, concrete finishing machine, one drum hoist, power hoisting (single drum), hoist two drum or more, three drum engine, power hoisting (two drum and over), two drum and swinging engine, three drum swinging engine, hod hoist, A-L frame winches, core and well drillers (one drum), post hole digger, model CHB Vibro-Tamp or similar machine, batch bin and plant operator, dinky locomotive, skid steer loader, track excavator 5/8 cubic yard or smaller, front end rubber tired loader under four cubic yards, vacum machine (mounted or towed).

CLASS C:
Fork lift, high lift, all terrain fork lift: or similar, oiler, fireman and heavy-duty greaser, boilers and steam generators, pump, vibrator, motor mixer, air compressor, dust collector, welding machine, well point, mechanical heater, generators, temporary light plants, electric submersible pumps 4" and over, murphy type diesel generator, conveyor, elevators, concrete mixer, beltcrete power pack (belcrete system), seeding, and mulching machines, pumps, rotating telehandler (that does not require NYS crane license).

WAGES per hour

	07/01/2024	07/01/2025
Class A1*	$ 53.11	$ 55.42
Class A	52.62	54.93
Class B	51.60	53.91
Class C	48.70	51.01

(*) TONNAGE RATING PREMIUMS:
Note: Additional value subject to same premiums as shown for OT
All cranes 1000 tons and over, A1 rate plus $7.00
All cranes 800-999 tons, A1 rate plus $6.00
All cranes 600-799 tons, A1 rate plus $5.00
All cranes 400-599 tons, A1 rate plus $4.00
All cranes 200-399 tons, A1 rate plus $3.00
All cranes 111-199 tons, A1 rate plus $2.25
All cranes 110 tons and under, A1 rate only

(**)Additional $0.50 per hr on A1 rate for Tower Cranes (no tonnage premiums apply)
Additional $2.50 per hr over B rate for Nuclear Leader work.
Additional $2.50 per hour if work requires Personal Protective Equipment for hazardous waste site activities with a level C or over rating.

SUPPLEMENTAL BENEFITS
Per hour

	07/01/2024	07/01/2025
Journeyworker	$ 32.40	$ 33.50

OVERTIME PAY
See (B, E, Q) on OVERTIME PAGE

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE
NOTE: All hours worked on designated holidays shall be paid a double the hourly rate of pay plus 8 hours of straight time.
NOTE: If a holiday falls on Sunday, it will be celebrated on Monday. If the holiday falls on Saturday, it will be celebrated on Friday.

REGISTERED APPRENTICES
Wages per hour

1000 hours terms at the following percentage of Journeyworker's wage Class B

1st	2nd	3rd	4th
60%	70%	80%	90%

Supplemental Benefits per hour worked

	07/01/2024	07/01/2025
All terms	$ 27.70	$ 28.80

1-158 Alb

Operating Engineer - Building — 11/01/2024

JOB DESCRIPTION Operating Engineer - Building **DISTRICT** 1

ENTIRE COUNTIES
Broome, Chenango, Tioga

PARTIAL COUNTIES
Dutchess: Defined as north of the northern boundary line of City of Poughkeepsie then due east to Route 115 to Bedell Road then east along Bedell Road to VanWagner Road then north along VanWagner Road to Bower Road then east along Bower Road to Rte. 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 Connecticut.

WAGES
NOTE:
--In the event that equipment listed below is operated by robotic control, the classification covering the operation will be the same as if manually operated.
--If a second employee is required by the employer for operation of any covered machine, they shall be an Engineer Class C

CLASS A1*: All cranes that require NYS crane license, tower cranes**(including self erecting), hydraulic cranes, locomotive crane, piledriver, cableway, derricks, whirlies, dragline, boom trucks, cherry pickers, overhead cranes (gantry or saddle type), truck cranes

CLASS A:
Shovel, Excavators 18,001 lbs. and above(including rubber tire full swing), Gradalls, power road grader, all CMI equipment, front-end rubber tire loader, tractor-mounted drill (quarry master), mucking machine, concrete central mix plant, concrete pump, belcrete system, automated asphalt concrete plant, and tractor road paver, boom trucks 5 tons and under, maintenance engineer, self-contained crawler drill-hydraulic rock drill, Profiler/Milling machine.

CLASS B:
Excavators 18,000 lbs. and under, Backhoes (rubber tired backhoe/loader combination), bulldozer, pushcat, tractor, traxcavator, scraper, LeTourneau grader, form fine grader, self-propelled soil compactor (fill roller), asphalt roller, blacktop spreader, power brooms, sweepers, trenching machine, Barber Green loader, side booms, hydro hammer, concrete spreader, concrete finishing machine, one drum hoist, power hoisting (single drum), hoist two drum or more, three drum engine, power hoisting (two drum and over), two drum and swinging engine, three drum swinging engine, hod hoist, A-L frame winches, core and well drillers (one drum), post hole digger, model CHB Vibro-Tamp or similar machine, batch bin and plant operator, dinky locomotive, skid steer loader, track excavator 5/8 cubic yard or smaller, front end rubber tired loader under four cubic yards, vacum machine (mounted or towed).

CLASS C:
Fork lift, high lift, all terrain fork lift: or similar, oiler, fireman and heavy-duty greaser, boilers and steam generators, pump, vibrator, motor mixer, air compressor, dust collector, welding machine, well point, mechanical heater, generators, temporary light plants, electric submersible pumps 4" and over, murphy type diesel generator, conveyor, elevators, concrete mixer, beltcrete power pack (belcrete system), seeding, and mulching machines, pumps, rotating telehandler (that does not require NYS crane license).

WAGES per hour

	07/01/2024	07/01/2025
Class A1*	$ 49.65	$ 51.71
Class A	47.25	49.31
Class B	46.79	48.85
Class C	44.48	46.54

(*) TONNAGE RATING PREMIUMS:
Note: Additional value subject to same premiums as shown for OT
All cranes 1000 tons and over, A1 rate plus $7.00
All cranes 800-999 tons, A1 rate plus $6.00
All cranes 600-799 tons, A1 rate plus $5.00
All cranes 400-599 tons, A1 rate plus $4.00
All cranes 200-399 tons, A1 rate plus $3.00
All cranes 111-199 tons, A1 rate plus $2.25

All cranes 110 tons and under, A1 rate only

(**)Additional $0.50 per hr over A1 rate for Tower Cranes (no tonnage premium applies)
Additional $2.50 per hr over B rate for Nuclear Leader work.
Additional $2.50 per hour if work requires Personal Protective Equipment for hazardous waste site activities with a level C or over rating.

SUPPLEMENTAL BENEFITS
Per hour

	07/01/2024	07/01/2025
Journeyworker	$ 31.85	$ 32.95

OVERTIME PAY
See (B, E, Q) on OVERTIME PAGE

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE
NOTE: All hours worked on designated holidays shall be paid a double the hourly rate of pay plus 8 hours of straight time.
NOTE: If a holiday falls on Sunday, it will be celebrated on Monday. If the holiday falls on Saturday, it will be celebrated on Friday.

REGISTERED APPRENTICES
Wages per hour

1000 hours terms at the following percentage of Journeyworker's wage Class B:

1st	2nd	3rd	4th
60%	70%	80%	90%

Supplemental Benefits per hour worked

	07/01/2024	07/01/2025
All terms	$ 27.25	$ 28.35

1-158 BCT

Operating Engineer - Heavy&Highway — 11/01/2024

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 **11/01/2024**

JOB DESCRIPTION Operating Engineer - Heavy&Highway **DISTRICT** 1

ENTIRE COUNTIES
Albany, Broome, Chenango, Clinton, Columbia, Essex, Franklin, Fulton, Greene, Hamilton, Herkimer, Montgomery, Otsego, Rensselaer, Saratoga, Schenectady, Schoharie, Tioga, Warren, Washington

PARTIAL COUNTIES
Dutchess: Defined as north of the northern boundary line of City of Poughkeepsie then due east to Route 115 to Bedell Road then east along Bedell Road to VanWagner Road then north along VanWagner Road to Bower Road then east along Bower Road to Rte. 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 Connecticut.

WAGES
NOTE:
--- In the event that equipment listed below is operated by robotic control, the classification covering the operation will be the same as if manually operated.
--- If a second employee is required by the employer for operation of any covered machine, they shall be an Engineer Class C

CLASSIFICATION A1*: All Cranes that require a NYS Crane License; tower cranes(including self erecting)**, hydraulic cranes, locomotive crane, piledriver, cableway, derricks, whirlies, dragline, boom trucks, cherry pickers, overhead cranes (gantry or saddle type), truck cranes

CLASSIFICATION A:
Asphalt Curb Machine (Self Propelled, Slipform), Asphalt Paver, Automated Concrete Spreader (CMI Type), Automatic Fine Grader, Backhoe (Except Tractor Mounted, Rubber Tired), Backhoe Excavator Full Swing (CAT 212 or similar type), Back Filling Machine, Belt Placer (CMI Type), Blacktop Plant (Automated), Blacktop Roller, Boom truck, GPS operated Bull Dozer, Cableway, Caisson Auger, Central Mix Concrete Plant (Automated), Concrete Curb Machine (Self Propelled, Slipform), Concrete Pump, Crane, Cherry Picker, Derricks (steel erection), Dragline, Overhead Crane (Gantry or Straddle type), Pile Driver, Truck Crane, Directional Drilling Machine, Dredge, Dual Drum Paver, Excavator (All Purpose Hydraulically Operated) (Gradall or Similar), Front End Loader (4 cu. yd. and Over), Head Tower (Sauerman or Equal), Hoist (Two or Three Drum), Holland Loader, Maintenance Engineer, Mine Hoist, Mucking Machine or Mole, PB-4 and similar type, Power Grader, Profiler/Milling Machine (over 105 H.P.), Quad 9, Quarry Master (or equivalent), Rotating Telehandler, Scraper (Including Challenger Type), Shovel, Side Boom, Slip Form Paver (If a second man is needed, he shall be an Oiler), Tractor Drawn BeltType Loader, Truck or Trailer Mounted Log Chipper (Self Feeder), Tug Operator (Manned Rented Equipment Excluded), Tunnel Shovel

CLASSIFICATION B:
Backhoe (Tractor Mounted, Rubber Tired), Bituminous Recycler Machine, Bituminous Spreader and Mixer, Blacktop Plant (Non-Automated), Blast or Rotary Drill (Truck or Tractor Mounted), Brokk, Boring Machine, Cage Hoist, Central Mix Plant [(Non-Automated) and All Concrete Batching Plants], Concrete Paver (Over 16S), Crawler Drill (Self-contained), Crusher, Diesel Power Unit, Drill Rigs, Tractor Mounted, Front End Loader (Under 4 cu. yd.), Greaseman/Lubrication Engineer, Hi Pressure Boiler (15 lbs. and over), Hoist (One Drum), Hydro-Axe, Kolman Plant Loader and Similar Type Loaders (If Employer requires another man to clean the screen or to maintain the equipment, he shall be an Oiler), L.C.M. Work Boat Operator, Locomotive, Material handling knuckle boom, Mini Excavator (under 18,000 lbs.), Mixer (for stabilized base self-propelled), Monorail Machine, Plant Engineer, Prentice Loader, Profiler/Milling Machine (105 H.P. and under), Pug Mill, Pump Crete, Ready Mix Concrete Plant, Refrigeration Equipment (for soil stabilization), Road Widener, Roller (all above subgrade), Sea Mule, Self-contained Ride-on Rock Drill(Excluding Air-Track Type Drill), Skidder, Tractor with Dozer and/or Pusher, Trencher, Tugger Hoist, Vacum machine (mounted or towed), Vermeer saw (ride on, any size or type), Welder, Winch, Winch Cat

CLASSIFICATION C:
A Frame Winch Hoist on Truck, Articulated Heavy Hauler, Aggregate Plant, Asphalt or Concrete Grooving Machine (ride on), Ballast Regulator(Ride-on), Boiler (used in conjunction with production), Bituminous Heater (self-propelled), Boat (powered), Cement and Bin Operator, Concrete Pavement Spreader and Finisher Concrete Paver or Mixer (16' and under), Concrete Saw (self-propelled), Conveyor, Deck Hand, Directional Drill Machine Locator, Drill (Core and Well), Farm Tractor with accessories, Fine Grade Machine, Fireman, Fork Lift, Form Tamper, Grout Pump, Gunite Machine, Hammers (Hydraulic self-propelled), Hydra-Spiker (ride-on), Hydraulic Pump (jacking system), Hydro-Blaster (Water), Mulching Machine, Oiler, Parapet Concrete or Pavement Grinder, Post Hole Digger and Post Driver, Power Broom (towed), Power Heaterman, Power Sweeper, Revinius Widener, Roller (Grade and Fill), Scarifier (ride-on), Shell Winder, Skid steer loader (Bobcat or similar; including all attachments), Span-Saw (ride-on), Steam Cleaner, Tamper (ride-on), Tie Extractor (ride-on), Tie Handler (ride-on), Tie Inserter (ride-on), Tie Spacer (ride-on), Tire Repair, Track Liner (ride-on), Tractor, Tractor (with towed accessories), Vibratory Compactor, Vibro Tamp, Well Point, and the following hands-off equipment: Compressors, Dust Collectors, Generators, Pumps, Welding Machines, Light Plants and Heaters

WAGES per hour

	07/01/2024	07/01/2025
Class A1*	$ 57.90	$ 60.30
Class A	54.90	57.30
Class B	53.99	56.39
Class C	51.42	53.82

(*) TONNAGE RATING PREMIUMS:
Cranes over 1000 tons, A1 rate plus $7.00
Cranes from 800-999 tons, A1 rate plus $6.00
Cranes from 600-799 tons, A1 rate plus $5.00
Cranes from 400-599 tons, A1 rate plus $4.00
Cranes from 200-399 tons, A1 rate plus $3.00
Cranes from 111-199 tons, A1 rate plus $2.00
Cranes from 65-110 tons, A1 rate plus $1.50
Cranes from 0-64 Tons, A1 rate only
NOTE: Additional value subject to same premiums as shown for OT

(**) Tower Cranes, A1 rate plus $3.00 (no tonnage premiums apply)
-- Cranes in Luffer Configuration, A1 rate plus $5.00
-- Cranes with external ballast (tray or wagon), A1 rate plus $5.00
NOTE: Additional value subject to same premiums as shown for OT

Additional $2.50 per hr. for hazardous waste removal work on State and/or Federally designated waste site which require employees to wear Level C or above forms of personal protection.

SHIFT WORK
Additional $2.50 per hour for All Employees who work a single irregular work shift, of at least 5 consecutive days, starting from 5:00 PM to 1:00 AM that is mandated by the Contracting Agency.

SUPPLEMENTAL BENEFITS
Per hour

	07/01/2024	07/01/2025
Journeyworker	$ 32.60	$ 33.70

OVERTIME PAY
See (B, E, Q) on OVERTIME PAGE

HOLIDAY
Paid: See (5, 6) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE
Note: If the holiday falls on Sunday, it will be observed on Monday. If the observed Monday Holiday is worked, pay shall be double time plus Holiday pay for time worked. If the Holiday falls on a Saturday and is worked pay shall be double time plus Holiday pay for time worked. If the Holiday falls on a Saturday employer can choose to observe the paid holiday Saturday or give Friday off with holiday pay.

REGISTERED APPRENTICES
Wages per hour

1000 hours terms at the following percentage of Journeyworker's wage Class B

1st	2nd	3rd	4th
60%	70%	80%	90%

Supplemental Benefits per hour worked

	07/01/2024	07/01/2025
All Terms	$ 27.45	$ 28.30

1-158H/H Alb

Operating Engineer - Heavy&Highway — 11/01/2024

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 11/01/2024

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 — 11/01/2024

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 **11/01/2024**

JOB DESCRIPTION Operating Engineer - Survey Crew **DISTRICT** 12

ENTIRE COUNTIES

Albany, Allegany, Broome, Cayuga, Chemung, Chenango, Clinton, Columbia, Cortland, Essex, Franklin, Fulton, Greene, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Oneida, Onondaga, Ontario, Oswego, Otsego, Rensselaer, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Tioga, Tompkins, Warren, Washington, Wayne, Yates

PARTIAL COUNTIES
Dutchess: The northern portion of the county from the northern boundary line of the City of Poughkeepsie, north.
Genesee: Only the portion of the county that lies east of a line down the center of Route 98 to include all area that lies within the City of Batavia.

WAGES
These rates apply to Building, Tunnel and Heavy Highway.

Per hour:
SURVEY CLASSIFICATIONS:

Party Chief - One who directs a survey party.
Instrument Person - One who operates the surveying instruments.
Rod Person - One who holds the rods and assists the Instrument Person.

	07/01/2024
Party Chief	$ 50,65
Instrument Person	46.54
Rod Person	34.55
Additional $3.00/hr. for Tunnel Work	
Additional $2.50/hr. for Hazardous Work Site	

SUPPLEMENTAL BENEFITS
Per hour worked:

Journeyman	$ 29.75

OVERTIME PAY
See (B, E, P, *X) on OVERTIME PAGE
*Note: $25.10/Hr. Only for "ALL" premium hours paid when worked.

HOLIDAY
Paid: See (5, 6) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES
WAGES: 1000 hour terms based on the Percentage of Rod Persons Wage:

	07/01/2024
0-1000	60%
1001-2000	70%
2001-3000	80%

SUPPLEMENTAL BENEFIT per hour worked:

0-1000	$ 21.53 / PHP $18.45
1001-2000	24.55 / " 20.45
2001-3000	27.58/ " 22.93

NOTE: PHP is premium hours paid when worked.

12-158-545 D.H.H.

Operating Engineer - Survey Crew - Consulting Engineer — 11/01/2024

JOB DESCRIPTION Operating Engineer - Survey Crew - Consulting Engineer **DISTRICT** 12

ENTIRE COUNTIES
Albany, Allegany, Broome, Cayuga, Chemung, Chenango, Clinton, Columbia, Cortland, Essex, Franklin, Fulton, Greene, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Oneida, Onondaga, Ontario, Oswego, Otsego, Rensselaer, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Tioga, Tompkins, Warren, Washington, Wayne, Yates

PARTIAL COUNTIES
Dutchess: The northern portion of the county from the northern boundary line of the City of Poughkeepsie, north.
Genesee: Only the portion of the county that lies east of a line down the center of Route 98 to include all area that lies within the City of Batavia.

WAGES
These rates apply to feasibility and preliminary design surveying, line and grade surveying for inspection or supervision of construction when performed under a Consulting Engineer Agreement.

Per hour:
SURVEY CLASSIFICATIONS:

Party Chief - One who directs a survey party.
Instrument Person - One who operates the surveying instruments.
Rod Person - One who holds the rods and assists the Instrument Person.

	07/01/2024
Party Chief	$ 50.65
Instrument Person	46.54
Rod Person	34.55

Additional $3.00/hr. for Tunnel Work.
Additional $2.50/hr. for EPA or DEC certified toxic or hazardous waste work.

SUPPLEMENTAL BENEFITS
Per hour worked:

Journeyman	$ 29.75

OVERTIME PAY
See (B, E, Q, *X) on OVERTIME PAGE
*Note: $25.10/Hr. Only for "ALL" premium hours paid when worked.

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES
WAGES: 1000 hour terms based on percentage of Rod Persons Wage:

	07/01/2024
0-1000	60%
1001-2000	70%
2001-3000	80%

SUPPLEMENTAL BENEFIT per hour worked:

0-1000	$ 21.53 / PHP $18.45
1001-2000	$ 24.55 / " 20.45
2001-3000	$ 26.98 / " 22.93

NOTE: PHP is premium hours paid when worked.

12-158-545 DCE

Operating Engineer - Survey Crew - Consulting Engineer — 11/01/2024

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: Survey Classifications	07/01/2024
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

Operating Engineer - Tunnel — 11/01/2024

JOB DESCRIPTION Operating Engineer - Tunnel **DISTRICT** 7

ENTIRE COUNTIES
Albany, Allegany, Broome, Cayuga, Chemung, Chenango, Clinton, Columbia, Cortland, Essex, Franklin, Fulton, Greene, Hamilton, Herkimer, Jefferson, Lewis, Livingston, Madison, Monroe, Montgomery, Oneida, Onondaga, Ontario, Oswego, Otsego, Rensselaer, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Tioga, Tompkins, Warren, Washington, Wayne, Yates

PARTIAL COUNTIES
Dutchess: Northern part of Dutchess, to the northern boundary line of the City of Poughkeepie, then due east to Route 115 to Bedell Road, then east along Bedell Road to VanWagner Road, then north along VanWagner Road to Bower Road, then east along Bower Road to Rte. 44 east to Rte. 343, then along Rte. 343 east to the northern boundary of the Town of Dover Plains and east along the northern boundary of the Town of Dover Plains, to the borderline of the State of Connecticut.
Genesee: Only that portion of the county that lies east of a line drawn down the center of Route 98 and the entirety of the City of Batavia.

WAGES
CLASS A: Automatic Concrete Spreader (CMI Type); Automatic Fine Grader; Backhoe (except tractor mounted, rubber tired); Belt Placer (CMI Type); Blacktop Plant (automated); Cableway; Caisson Auger; Central Mix Concrete Plant (automated); Concrete Curb Machine (self-propelled slipform); Concrete Pump (8" or over); Dredge; Dual Drum Paver; Excavator; Front End Loader (4 cu. yd & over); Gradall; Head Tower (Sauerman or Equal); Hoist (shaft); Hoist (two or three Drum); Log Chipper/Loader (self-feeder); Maintenance Engineer (shaft and tunnel); any Mechanical Shaft Drill; Mine Hoist; Mining Machine(Mole and similar types); Mucking Machine or Mole; Overhead Crane (Gantry or Straddle Type); Pile Driver; Power Grader; Remote Controlled Mole or Tunnel Machine; Scraper; Shovel; Side Boom; Slip Form Paver (If a second man is needed, they shall be an Oiler); Tripper/Maintenance Engineer (shaft & tunnel); Tractor Drawn Belt-Type Loader; Tug Operator (manned rented equipment excluded); Tunnel Shovel.

CLASS B: Automated Central Mix Concrete Plant; Backhoe (topside); Backhoe (track mounted, rubber tired); Backhoe (topside); Bituminous Spreader and Mixer, Blacktop Plant (non-automated); Blast or Rotary Drill (truck or tractor mounted); Boring Machine; Cage Hoist; Central Mix Plant(non-automated); all Concrete Batching Plants; Compressors (4 or less exceeding 2,000 c.f.m. combined capacity); Concrete Pump; Crusher; Diesel Power Unit; Drill Rigs (tractor mounted); Front End Loader (under 4 cu. yd.); Grayco Epoxy Machine; Hoist (One Drum); Hoist (2 or 3 drum topside); Knuckle Boom material handler; Kolman Plant Loader & similar type Loaders (if employer requires another person to clean the screen or to maintain the equipment, they shall be an Oiler); L.C.M. Work Boat Operator; Locomotive; Maintenance Engineer (topside); Maintenance Grease Man; Mixer (for stabilized base-self-propelled); Monorail Machine; Plant Engineer; Personnel Hoist; Pump Crete; Ready Mix Concrete Plant; Refrigeration Equipment (for soil stabilization); Road Widener; Roller (all above sub-grade); Sea Mule; Shotcrete Machine; Shovel (topside); Tractor with Dozer and/or Pusher; Trencher; Tugger Hoist; Tunnel Locomotive; Vacuum Machine (mounted or towed); Welder; Winch; Winch Cat.

CLASS C: A Frame Truck; All Terrain Telescoping Material Handler; Ballast Regulator (ride-on); Compressors (4 not to exceed 2,000 c.f.m. combined capacity; or 3 or less with more than 1200 c.f.m. but not to exceed 2,000 c.f.m.); Compressors ((any size, but subject to other provisions for compressors), Dust Collectors, Generators, Pumps, Welding Machines, Light Plants (4 or any type combination)); Concrete Pavement Spreaders and Finishers; Conveyor; Drill (core); Drill (well); Electric Pump used in conjunction with Well Point System; Farm Tractor with Accessories; Fine Grade Machine; Fork Lift; Grout Pump (over 5 cu. ft.); Gunite Machine; Hammers (hydraulic-self-propelled); Hydra-Spiker (ride-on); Hydra-Blaster (water); Hydro-Blaster; Motorized Form Carrier; Post Hole Digger and Post Driver; Power Sweeper; Roller grade & fill); Scarifer (ride-on); Span-Saw (ride-on); Submersible Electric Pump (when used in lieu of well points); Tamper (ride-on); Tie-Extractor (ride-on), Tie Handler (ride-on), Tie Inserter (ride-on), Tie Spacer (ride-on); Track Liner (ride-on); Tractor with towed accessories; Vibratory Compactor; Vibro Tamp, Well Point.

CLASS D: Aggregate Plant; Cement & Bin Operator; Compressors (3 or less not to exceed 1,200 c.f.m. combined capacity); Compressors ((any size, but subject to other provisions for compressors), Dust Collectors, Generators, Pumps, Welding Machines, Light Plants (3 or less or any type or combination)); Concrete Saw (self-propelled); Form Tamper; Greaseman; Hydraulic Pump (jacking system); Junior Engineer; Light Plants; Mulching Machine; Oiler; Parapet Concrete or Pavement Grinder; Power Broom (towed); Power Heaterman (when used for production); Revinius Widener; Shell Winder; Steam Cleaner; Tractor.

Per hour:	07/01/2024	07/01/2025
CLASS A	$ 55.91	$ 58.44
CLASS B	54.69	57.22
CLASS C	51.90	54.43
CLASS D	48.89	51.42

Additional $5.00 per hour for Hazardous Waste Work on a state or federally designated hazardous waste site where the Operating Engineer is in direct contact with hazardous material and when personal protective equipment is required for respiratory, skin and eye protection.

CRANES:
Crane 1: All cranes, including self-erecting.
Crane 2: All Lattice Boom Cranes and all cranes with a manufacturer's rating of fifty (50) ton and over.

Crane 3: All hydraulic cranes and derricks with a manufacturer's rating of forty nine (49) ton and below, including boom trucks.

Crane 1	$ 59.91	$ 62.44
Crane 2	58.91	61.44
Crane 3	57.91	60.44

SUPPLEMENTAL BENEFITS
Per hour:

$ 25.05	$ 25.90
+ 9.85*	+ 10.10*

* This portion of benefits subject to same premium rate as shown for overtime wages.

OVERTIME PAY
See (B, B2, E, Q, X) on OVERTIME PAGE

HOLIDAY
Paid: See (5, 6) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE
NOTE: If a holiday falls on Sunday, it shall be observed on Monday.

REGISTERED APPRENTICES
WAGES:(1000) hours terms at the following percentage of Journeyworker's Class B wage.

1st term	60%
2nd term	65%
3rd term	70%
4th term	75%

SUPPLEMENTAL BENEFITS per hour: Same as Journeyworker

7-158-832TL.

Painter — 11/01/2024

JOB DESCRIPTION Painter **DISTRICT** 1

ENTIRE COUNTIES
Columbia, Dutchess, Greene, Orange, Sullivan, Ulster

WAGES
Per hour

	07/01/2024	05/01/2025 Additional
Brush/Paper Hanger	$ 38.81	$ 1.99*
Dry Wall Finisher	38.81	1.99*
Lead Abatement	38.81	1.99*
Sandblaster-Painter	38.81	1.99*
Spray Rate	39.81	1.99*

(*) To be allocated at later date.

See Bridge Painting rates for the following work:
Structural Steel, all work performed on tanks, ALL BRIDGES, towers, smoke stacks, flag poles. Rate shall apply to all of said areas from the ground up.

SUPPLEMENTAL BENEFITS
Per hour

Journeyworker	$ 27.37

OVERTIME PAY
See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wages per hour

Six (6) month terms at the following percentage of Journeyperson's wage

1st	2nd	3rd	4th	5th	6th
50%	55%	65%	75%	85%	95%

Supplemental Benefits per hour worked

1st term	$ 11.39
All others	27.37

1-155

Painter - Bridge & Structural Steel **11/01/2024**

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 — 11/01/2024

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:

1st Term:	$ 16.00	$ 16.00	$ 16.00
2nd Term:	20.47	21.29	22.16
3rd Term:	27.30	28.39	29.54

Supplemental Benefits per hour:

All terms:	$ 23.65	$ 24.30	$ 24.95

8-1456-LS

Painter - Metal Polisher — 11/01/2024

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 — 11/01/2024

JOB DESCRIPTION Plumber **DISTRICT** 8

ENTIRE COUNTIES
Dutchess

PARTIAL COUNTIES
Delaware: Only the Townships of Middletown and Roxbury.
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
Plumber & Steamfitter	$ 59.35

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

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 rates:

	07/01/2024
1st year	$ 22.71
2nd year	31.32
3rd year	36.34
4th year	43.55
5th year	50.12

Supplemental Benefits per hour:

1st year	$ 18.45
2nd year	23.62
3rd year	27.42
4th year	31.72
5th year	35.00

8-21.2-SF

Plumber - HVAC / Service — 11/01/2024

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 — 11/01/2024

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 — 11/01/2024

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 — 11/01/2024

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

8-38

Sprinkler Fitter — 11/01/2024

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 — 11/01/2024

JOB DESCRIPTION Teamster - Building / Heavy&Highway **DISTRICT** 11

ENTIRE COUNTIES
Dutchess, Orange, Rockland, Sullivan, Ulster

WAGES
GROUP 1: LeTourneau Tractors, Double Barrel Euclids, Athney Wagons and similar equipment (except when hooked to scrapers), I-Beam and Pole Trailers, Tire Trucks, Tractor and Trailers with 5 axles and over, Articulated Back Dumps and Road Oil Distributors, Articulated Water Trucks and Fuel Trucks/Trailers, positions requiring a HAZMAT CDL endorsement.

GROUP 1A: Drivers on detachable Gooseneck Low Bed Trailers rated over 35 tons.

GROUP 2: All equipment 25 yards and up to and including 30-yard bodies and cable Dump Trailers and Powder and Dynamite Trucks.

GROUP 3: All Equipment up to and including 24-yard bodies, Mixer Trucks, Dump Crete Trucks and similar types of equipment, Fuel Trucks, Batch Trucks and all other Tractor Trailers, Hi-Rail Truck.

GROUP 4: Tri-Axles, Ten Wheelers, Grease Trucks, Tillerman, Pattern Trucks, Attenuator Trucks, Water Trucks, Bus.

GROUP 5: Straight Trucks.

GROUP 6: Pick-up Trucks for hauling materials and parts, and Escort Man over-the-road.

WAGES: (per hour)	07/01/2024
GROUP 1	$ 34.58
GROUP 1A	35.72
GROUP 2	34.02
GROUP 3	33.80
GROUP 4	33.69
GROUP 5	33.57
GROUP 6	33.57

NOTE ADDITIONAL PREMIUMS:

- Employees engaged in hazardous/toxic waste removal, on a State or Federally designated hazardous/toxic waste site, where the employee comes in contact with hazardous/toxic waste material and when personal protective equipment is required for respiratory, skin, or eye protection, the employee shall receive an additional 20% premium above the hourly wage.

SHIFT WORK

- On projects requiring an irregular shift a premium of 10% will be paid on wages. The premium will be paid for off-shift or irregular shift work when mandated by Governmental Agency.

SUPPLEMENTAL BENEFITS

Per hour:	
First 40 hours	$ 44.59
Over 40 hours	36.99

OVERTIME PAY

See (*B, E, **E2, ***P, X) on OVERTIME PAGE
*Holidays worked Monday through Friday receive Double Time (2x) after 8 hours.
**Makeup day limited to the employees who were working on the site that week.
***Sunday Holidays are paid at a rate of double time and one half (2.5x) for all hours worked.

HOLIDAY

Paid: See (5, 6, 15, 25) on HOLIDAY PAGE
Overtime: See (*1) on HOLIDAY PAGE
- Any employee working two (2) days in any calendar week during which a holiday occurs shall receive a days pay for each holiday occurring during said week. This provision shall also apply if a holiday falls on a Saturday or Sunday.
*See OVERTIME PAY section for when additional premium is applicable on Holiday hours worked.

11-445B/HH

Teamster - Delivery - Building / Heavy&Highway — 11/01/2024

JOB DESCRIPTION Teamster - Delivery - Building / Heavy&Highway **DISTRICT** 11

ENTIRE COUNTIES

Dutchess, Orange, Rockland, Sullivan, Ulster

WAGES

Group 1 Tractor Trailer Drivers
Group 2 Tri- Axle

Wages:	07/01/2024
Group 1	$ 33.70
Group 2	29.70

Hazardous/Toxic Waste Removal additional 20% when personal protective equipment is required.

SUPPLEMENTAL BENEFITS

Per hour paid:	
First 40 hours	$ 32.30
Over 40 hours	0.00

OVERTIME PAY

See (B, E, Q, X) on OVERTIME PAGE

HOLIDAY

Paid: See (5, 13, 15, 16, 20, 22, 25, 26) on HOLIDAY PAGE
Overtime: See (5, 13, 15, 16, 20, 22, 25, 26) on HOLIDAY PAGE

- Employee must work either the scheduled day of work before or the scheduled day of work after the holiday in the workweek.
- Any employee working one (1) day in the calendar week during which a holiday occurs shall receive a day's pay for each holiday occurring during said week. This provision shall also apply if a holiday falls on a Saturday.
- When any of the recognized holidays occur on Sunday and are celebrated any day before or after the holiday Sunday, such days shall be considered as the holiday and paid for as such.

11-445 B/HH Delivery

Welder 11/01/2024

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
(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 11/18/2024

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	DOL		ARNOLD A. PAOLINI		1250 BROADWAY ST BUFFALO NY 14212	02/03/2020	02/03/2025
DOL	NYC		ARSHAD MEHMOOD		168-42 88TH AVENUE JAMAICA NY 11432	11/20/2019	11/20/2024
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	DOL		BERNARD BEGLEY		38 LONG RIDGE ROAD BEDFORD NY 10506	12/18/2019	12/18/2024
DOL	NYC	*****2113	BHW CONTRACTING, INC.		401 HANOVER AVENUE STATEN ISLAND NY 10304	01/11/2021	01/11/2026
DOL	DOL	*****3627	BJB CONSTRUCTION CORP.		38 LONG RIDGE ROAD BEDFORD NY 10506	12/18/2019	12/18/2024
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	*****4083	C.P.D. ENTERPRISES, INC		P.O BOX 281 WALDEN NY 12586	03/03/2020	03/03/2025
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	NYC		CHARLES ZAHRADKA		863 WASHINGTON STREET FRANKLIN SQUARE NY 11010	03/10/2020	03/10/2025

NYSDOL Bureau of Public Work Debarment List 11/18/2024

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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	DOL	*****5175	EAGLE MECHANICAL AND GENERAL CONSTRUCTION LLC		11371 RIDGE RD WOLCOTT NY 14590	02/03/2020	02/03/2025
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	NYC	*****6616	G & G MECHANICAL ENTERPRISES, LLC.		1936 HEMPSTEAD TURNPIKE EAST MEDOW NY 11554	11/29/2019	11/29/2024
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		HANS RATH		24 ELDOR AVENUE NEW CITY NY 10956	02/03/2020	02/03/2025
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	NYC		JENNIFER GUERRERO		1936 HEMPSTEAD TURNPIKE EAST MEADOW NY 11554	11/29/2019	11/29/2024
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
DOL	DOL		KIMBERLY F. BAKER		7901 GEE ROAD CANASTOTA NY 13032	08/17/2021	08/17/2026
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	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	NYC		LUBOMIR PETER SVOBODA		27 HOUSMAN AVE STATEN ISLAND NY 10303	12/26/2019	12/26/2024
DOL	NYC		M & L STEEL & ORNAMENTAL IRON CORP.		27 HOUSMAN AVE STATEN ISLAND NY 10303	12/26/2019	12/26/2024
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	NYC		MARIA NUBILE		84-22 GRAND AVENUE ELMHURST NY 11373	03/10/2020	03/10/2025
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	NYC		NAMOW, INC.		84-22 GRAND AVENUE ELMHURST NY 11373	03/10/2020	03/10/2025
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	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
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	DOL	*****0466	PRECISION BUILT FENCES, INC.		1617 MAIN ST PEEKSKILL NY 10566	03/03/2020	03/03/2025
DOL	NYC		RASHEL CONSTRUCTION CORP		524 MCDONALD AVENUE BROOKLYN NY 11218	09/17/2020	09/17/2025
DOL	DOL	*****1068	RATH MECHANICAL CONTRACTORS, INC.		24 ELDOR AVENUE NEW CITY NY 10956	02/03/2020	02/03/2025
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		RICHARD REGGIO		1617 MAIN ST PEEKSKILL NY 10566	03/03/2020	03/03/2025
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	NYC	*****0349	SAM WATERPROOFING INC		168-42 88TH AVENUE APT.1 AJAMAICA NY 11432	11/20/2019	11/20/2024
DOL	DA	*****0476	SAMCO ELECTRIC CORP.		3735 9TH ST LONG ISLAND CITY NY 11101	01/05/2023	01/05/2028
DOL	NYC	*****1130	SCANA CONSTRUCTION CORP.		863 WASHINGTON STREET FRANKLIN SQUARE NY 11010	03/10/2020	03/10/2025
DOL	DOL	*****2045	SCOTT DUFFIE	DUFFIE'S ELECTRIC, INC.	P.O BOX 111 CORNWALL NY 12518	03/03/2020	03/03/2025
DOL	DOL		SCOTT DUFFIE		P.O BOX 111 CORNWALL NY 12518	03/03/2020	03/03/2025

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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	DOL	*****2221	SOUTH BUFFALO ELECTRIC, INC.		1250 BROADWAY ST BUFFALO NY 14212	02/03/2020	02/03/2025
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		TERRY THOMPSON		11371 RIDGE RD WOLCOTT NY 14590	02/03/2020	02/03/2025
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
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		VIKTORIA RATH		24 ELDOR AVENUE NEW CITY NY 10956	02/03/2020	02/03/2025
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

NYSDOL Bureau of Public Work Debarment List 11/18/2024

Article 8

DOL	DOL		XENOFON EFTHIMIADIS		29-10 38TH AVENUE LONG ISLAND CITY NY 11101	10/11/2023	10/11/2028

"General Decision Number: NY20240007 11/08/2024

Superseded General Decision Number: NY20230007

State: New York

Construction Types: Building, Heavy and Highway

Counties: Dutchess, Orange, Sullivan and Ulster Counties in New York.

BUILDING CONSTRUCTION PROJECTS FOR ALL COUNTIES EXCEPT SULLIVAN (does not include single family homes and apartment up to and including 4 stories), HEAVY AND HIGHWAY CONSTRUCTION PROJECTS

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(1).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	. Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least $17.20 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2024.
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	. Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least $12.90 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2024.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker

protections under the Executive Orders is available at
http://www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/05/2024
1	02/09/2024
2	03/08/2024
3	04/05/2024
4	05/31/2024
5	07/05/2024
6	08/23/2024
7	08/30/2024
8	09/06/2024
9	09/27/2024
10	11/01/2024
11	11/08/2024

ASBE0040-003 05/01/2024

SULLIVAN AND ULSTER COUNTIES

	Rates	Fringes
HAZARDOUS MATERIAL HANDLER Duties limited to preparation wetting; stripping; removal; scrapping; vacuuming; bagging; and disposing of all insulation materials whether they contain asbestos or not from mechanical systems	$ 38.40	24.42
Insulator/asbestos worker (includes application of all insulating materials, protective coverings, coatings and finishes to all types of mechanical systems)	$ 40.46	26.86

ASBE0091-002 05/29/2023

DUTCHESS AND ORANGE COUNTIES

	Rates	Fringes
HAZARDOUS MATERIAL HANDLER Duties limited to preparation, wetting, stripping, removal scrapping, vacuuming, bagging and disposing of all insulation materials; whether they contain asbestos or not from mechancial systems	$ 44.97	47.35
Insulator/asbestos worker (Includes application of all insulating materials, protective coverings,		

coatings, and finishes to all types of mechanical systems).....$ 44.97 47.35

BOIL0005-001 01/01/2024

	Rates	Fringes
BOILERMAKER	$ 67.38	49.33+a

FOOTNOTE:

a. PAID HOLIDAYS: New Year's Day, Thanksgiving Day, Memorial Day, Independence Day, Labor Day and Good Friday, Friday after Thanksgiving, Christmas Eve Day and New Year's Eve

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BRNY0005-001 06/01/2023

	Rates	Fringes
BRICKLAYER (BUILDING CONSTRUCTION)		
DUTCHESS, ORANGE (Excluding the town of Tuxedo) and ULSTER COUNTIES		
Bricklayers, Cement Masons, Plasterers, Stone Masons	$ 45.00	36.89
ORANGE COUNTY (Town of Tuxedo)		
Bricklayers, Cement Masons, Plasterers, Stone Masons	$ 45.89	37.45
BRICKLAYER (HEAVY CONSTRUCTION)		
DUTCHESS, ORANGE (Excluding the town of Tuxedo) and ULSTER COUNTIES		
Bricklayers, Cement Masons, Plasterers, Stone Masons	$ 45.50	36.89
ORANGE COUNTY (Town of Tuxedo)		
Bricklayers, Cement Masons, Plasterers, Stone Masons	$ 46.39	37.45
BRICKLAYER (HIGHWAY CONSTRUCTION)		
DUTCHESS, ORANGE (Excluding the town of Tuxedo), SULLIVAN and ULSTER COUNTIES		
Bricklayers, Cement Masons, Plasterers, Stone Masons	$ 45.50	36.89

CARP0279-005 07/01/2024

	Rates	Fringes
Carpenters:		

BUILDING CONSTRUCTION		
Carpenters, Millwrights, Pile Drivers	$ 43.50	30.22
HEAVY & HIGHWAY CONSTRUCTION		
Carpenters, Millwrights, Pile Drivers	$ 43.50	30.22

CARP0740-002 07/01/2023

DUTCHESS AND ORANGE COUNTIES

	Rates	Fringes
MILLWRIGHT	$ 46.00	42.66

CARP1556-005 07/01/2023

DUTCHESS AND ORANGE COUNTIES

	Rates	Fringes
Diver Tender	$ 53.57	55.31
Diver	$ 74.03	55.31
Dock Builder & Piledrivermen	$ 59.16	55.31

ELEC0363-001 04/01/2023

	Rates	Fringes
ELECTRICIAN		
DUTCHESS (Remaining Townships), ULSTER AND SULLIVAN COUNTIES	$ 45.50	3%+37.67+a
ORANGE and DUTCHESS (Townships of Fishkill, East Fishkill and Beacon) COUNTIES	$ 49.50	3%+37.67+a

FOOTNOTE:
a. Paid Holidays: New Year's Day, President's Day, Memorial Day, Fourth of July, Labor Day, Presidential Election Day, Veteran's Day, Thanksgiving Day, Day after Thanksgiving, Christmas Day

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ELEC1249-002 05/01/2023

	Rates	Fringes
ELECTRICIAN (LINE CONSTRUCTION-LIGHTING AND TRAFFIC SIGNAL INCLUDING ANY AND ALL FIBER OPTIC CABLE NECESSARY FOR THE TRAFFIC SIGNAL SYSTEMS, AND TRAFFIC MONITORING SYSTEMS, ROAD WEATHER INFORMATION SYSTEMS)		
Flagman	$ 30.36	7%+35.40
Groundman (Digging Machine Operator)	$ 45.54	7%+35.40
Groundman (Truck Driver)	$ 40.48	7%+35.40

Groundman Truck Driver
(Tractor Trailer Unit)......$ 43.01 7%+35.40
Lineman and Technician......$ 50.60 7%+38.40
Mechanic.....$ 40.48 7%+35.40

PAID HOLIDAYS:

a. Memorial Day, New Year's Day, President's Day, Good Friday, Decoration Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Day, and Election Day for the President of the United States and Election Day for the Governor of New York State, provided the employee works two days before or two days after the holiday.

ELEC1249-004 05/01/2023

	Rates	Fringes
ELECTRICIAN (Line Construction)		
Overhead and underground distribution and maintenance work and all overhead and underground transmission line work including any and all fiber optic ground wire, fiber optic shield wire or any other like product by any other name manufactured for the dual purpose of ground fault protection and fiber optic capabilities :		
Flagman	$ 34.44	7%+35.40
Groundman digging machine operator	$ 51.66	7%+35.40
Groundman truck driver (tractor trailer unit)	$ 48.79	7%+35.40
Groundman Truck driver	$ 45.92	7%+35.40
Lineman and Technician	$ 57.40	7%+38.40
Mechanic	$ 45.92	7%+35.40
Substation:		
Cable Splicer	$ 63.14	7%+38.40
Flagman	$ 34.44	7%+35.40
Ground man truck driver	$ 45.92	7%+35.40
Groundman digging machine operator	$ 51.66	7%+35.40
Groundman truck driver (tractor trailer unit)	$ 48.79	7%+35.40
Lineman & Technician	$ 57.40	7%+38.40
Mechanic	$ 45.92	7%+35.40
Switching structures; railroad catenary installation and maintenance, third rail type underground fluid or gas filled transmission conduit and cable installations (including any and all fiber optic		

ground product by any
other name manufactured
for the dual purpose of
ground fault protection
and fiber optic
capabilities), pipetype
cable installation and
maintenance jobs or
projects, and maintenance
bonding of rails; Pipetype
cable installation

Cable Splicer	$ 64.59	7%+38.40
Flagman	$ 35.23	7%+35.40
Groundman Digging Machine Operator	$ 52.85	7%+35.40
Groundman Truck Driver (tractor-trailer unit)	$ 49.91	7%+35.40
Groundman Truck Driver	$ 46.98	7%+35.40
Lineman & Technician	$ 58.72	7%+38.40
Mechanic	$ 46.98	7%+35.40

FOOTNOTE:

a. PAID HOLIDAYS: New Year's Day, Presidents' Day, Memorial Day, Good Friday, Independence Day, Labor Day, Thanksgiving Day, Christmas Day, and Election Day for the President of the United States and Election Day for the Governor of New York State, provided the employee works two days before or two days after the holiday.

ELEC1249-005 05/01/2023

SULLIVAN COUNTY

	Rates	Fringes
ELECTRICIAN (LIGHTING AND TRAFFIC SIGNAL LINEMAN INCLUDING ANY AND ALL FIBER OPTIC CABLE NECESSARY FOR THE TRAFFIC SIGNAL SYSTEM, TRAFFIC MONITORING SYSTEMS AND ROAD WEATHER INFORMATION SYSTEMS.)		
Flagman	$ 29.59	7%+35.40
Groundman (Digging Machine Operator)	$ 44.39	7%+35.40
Groundman (Truck Driver)	$ 39.46	7%+35.40
Groundman Truck Driver (tractor trailer unit)	$ 41.92	7%+35.40
Lineman & Technician	$ 49.32	7%+38.40
Mechanic	$ 39.46	7%+35.40

FOOTNOTE:

a. New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Day, plus President's Day, Good Friday, Decoration Day, Election Day for the President of the United States and Election Day for the Governor of the State of New York, provided the employee works the day before or the day after the holiday.

ELEC1249-008 01/01/2024

	Rates	Fringes
ELECTRICIAN (Line Construction)		
TELEPHONE, CATV FIBEROPTICS CABLE AND EQUIPMENT		
Cable splicer	$ 39.24	3%+5.70
Groundman	$ 19.74	3%+5.70
Installer Repairman-Teledata		
Lineman/Technician-Equipment Operator	$ 37.24	3%+5.70
Tree Trimmer	$ 31.45	3%+10.48

a. New Year's Day, President's Day, Good Friday, Decoration Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day, Day after Thanksgiving, Christmas Day.

ELEV0138-001 01/01/2024

	Rates	Fringes
ELEVATOR MECHANIC	$ 70.15	37.885+a+b

FOOTNOTE:
a.Vacation: 6%/under 5 years based on regular hourly rate for all hours worked. 8%/over 5 years based on regular hourly rate for all hours worked.
b. PAID HOLIDAYS: New Year's Day; Memorial Day; Independence Day; Labor Day; Veterans' Day; Thanksgiving Day; the Friday after Thanksgiving Day; and Christmas Day.

ENGI0137-001 03/06/2017

DUTCHESS COUNTY (POUGHKEEPSIE AND SOUTH THEREOF)

BUILDING CONSTRUCTION

	Rates	Fringes
Power Equipment Operator		
GROUP 1A	$ 53.95	28.52+a
GROUP 1B	$ 49.68	28.52+a
GROUP 2A	$ 52.03	28.52+a
GROUP 3A	$ 50.11	28.52+a
GROUP 3B	$ 47.67	28.52+a
GROUP 4A	$ 49.60	28.52+a
GROUP 4B	$ 41.85	28.52+a
GROUP 5	$ 45.17	28.52+a
GROUP 5A	$ 56.63	28.52+a
GROUP 5B	$ 42.83	28.52+a
GROUP 6	$ 44.92	28.52+a

NOTES: Hazmat: 20% above regular rate

Pumping operation Premium .50

Crane Operators (100-149 ft) 2.00

Crane Operators (149 ft +) 3.00

Loader Operators (over 5 cu y) .50
Shovel Operators (over 4 cu yd)1.00

FOOTNOTE:
a. New Years Day, Memorial Day, Independence Day, Labor Day Thanksgiving Day, Christmas Day, plus Lincoln's Birthday, Washington's Birthday, Good Friday, Columbus Day, November Election Day, Veteran's Day.

POWER EQUIPMENT OPERATORS CLASSIFICATION

GROUP 1-A: Carrier- trailer horse; concret-portable hoist; crane & hoist engineer-steel (concrete, material, super structure sub- structure); derrick (stone-steel); elevator & cage; hoist- single/double or triple drum; hoist-portable mobile unit; hoist engineer-concert (crane-derrick-mine hoist); hoist engineer- material; overhead crane; power house plant; telephies (cableway); whirly; maintenance engineer; Lull hilift or similar; hydraulic crane 25 ton and over; cherry picker 25 tons and over; backhoe Oliver 88; fordson; dynahoe; dual purpose and similar machines; Barber Green Loader-euclid loader or similar type; conway or similar mucking macking machines; dragline; gradall; shovel; backhoe etc. (crawler or truck); front end loaders; hydraulic boom; jersey spreader; lift slab console; letournequ or tounapull (scrapers over 20 yds struck); mucking machines; pavement breaker (air ram); paver (concrete); road boring machine; road mix machines; ross carrier and similar machines; post hole digger; shovel (tunnels); side boom; spreader (asphalt); scoopmobile-tractor-shovel over 1 1/2 yds. trenching machines vermeer concrete saw trencher and similar; tractor type demolition equipment; winch truck (a frame); hydraulic crane over 10 ton up to 25 ton); cherry picker over 10 ton up to 25 ton)

GROUP 1-B: Compressor (steel erection); pulse meter and push button buzz box; elevator; mechanic (outside) all types; welder; scrapers 20 yds struck and under; machine pulling sheep's foot roller; vibratory rollers; roller 4 tons and over.

GROUP 2-A: Compactor self-propelled; grader; bulldoze D7 and similar tractors with a draw bar horsepower of 100 or over; bulldozer D6 and under; welder; scraper 20 yds struck and under; machine pulling sheep's foot roller; vibratory rollers.

GROUP 3-A: Asphalt plant; boiler (high pressure); concrete mixing plants; concrete pump; firemen; forklift; forklift (electric); joy drill or similar tractor drilling machine; loader - 1 1/2 yards and under; locomotive (all sizes); mixer concrete - 21E and over; portable asphalt plant; portable batch plant; portable crusher; quarry master; stone crusher; well drilling machine and well point system; cherry picker under 10 tons; hydraulic crane under 10 tons;

concert buffy; one yard an up ride on dumper (benford or similar).

GROUP 3-B: Compressor over 125 cu. feet; conveyor belt machine regardless of size; lighting unit (portable & generator); welding machine (steel erection and excavation); and compressor plant; stud machine; ladder hoist.

GROUP 4-A: Air tractor drill; batch plant; bending machine; concrete breaker; concrete spreader; curb cutter machine; farm tractor (all types); finishing machine-concrete; hepavac clean air machine (all similar types: removal of asbestos etc.); material hopper-sand-stone-cement; mixer-concrete-under 21E; mulching grass spreader; pump-gypsum, etc., pump-plaster-grout -fireproofing; shop mechanic (not employed on job site); roller under 4 ton; spreading and fine grading machine; steel cutting machine; syphon pump-air-steam; tar joint machine; turbo jet burner or similar equipment; vibrator (1 to 5); fine grading machine; roof hoist (tugger hoist); television cameras-water- sewer-gas-etc.

GROUP 4-B: Compressor to 125 feet; dust; dust collector; heater all types; pump; pump station (water and sewer); steam jenny; sweeper; chipper; mulcher.

GROUP 5: Motorized roller (walk behind)

GROUP 5-A: Master Mechanic

GROUP 5-B: Utility Man

GROUP 6: Warehouse Man

ENGI0137-007 03/06/2017

Poughkeepsie and South thereof

	Rates	Fringes
Power Equipment Operator (HEAVY & HIGHWAY)		
GROUP 1	$ 58.54	28.15+a
GROUP 1-A	$ 51.68	28.15+a
GROUP 1-B	$ 54.42	28.15+a
GROUP 2-A	$ 49.52	28.15+a
GROUP 2-B	$ 51.05	28.15+a
GROUP 3	$ 48.67	28.15+a
GROUP 4-A	$ 44.29	28.15+a
GROUP 4-B	$ 38.13	28.15+a
GROUP 5	$ 54.69	28.15+a
GROUP 5-A-1	$ 54.69	28.15+a
GROUP 5-A-2	$ 66.22	28.15+a
GROUP 5-A-3	$ 63.97	28.15+a
GROUP 5-A-4	$ 60.03	28.15+a
GROUP 5-A-5	$ 50.65	28.15+a

POWER EQUIPMENT OPERATORS CLASSIFICATIONS (HEAVY & HIGHWAY)

GROUP 1: Boom Truck; Cherry Picker; Clamshell; Crane,

(Crawler, Truck); Dragline; Rough Terrain Crane

GROUP 1-A: Auger; Auto Grader; Dynahoe and Dual purpose and similar machines; Boat Captain; Boring Machine (all types); Bull Dozer-all sizes; Central Mix Plant Operator; Chipper-all types; Close circuit t.v.; Compactor with Blade; Concrete Portable Hoist; C.M.I. or similar; Conway or similar mucking machines; Gradall, Shovel Backhoe, etc. Grader; Derrick, (Stone- Steel; Elevator & cage, materials or passengers; Front end loaders over 1 1/2 yds.; Hoist Single, Double, Triple Drum, Hoist Portable Mobile Unit; Hoist Engineer-Concrete (Crane-Derrick-Mine Hoist); Hoist Engineer-Material, Hydraulic Boom; Letourneau or Tournapull (Scrapers over 20 yds. struck); Log Skidder; Movable Concrete Barrier Transfer & Transport Vehicle; mucking machines; overhead crane; paver (conccrete); pulsemeter; push button (buzz box) elevator; road mix machines; Robot Hammer (brock or similar), Ross carrier and similar machines; shovels (tunnels); side boom; Slip Form Machine; spreader (asphalt); scoopmobile-tractor-shovel over 1 1/2 yards; trenching machines; telephies- vermeer concrete saw trencher and/or similar; tractor-type demolition equipment, Whirly

GROUP 1-B: Road Paver, Asphalt

GROUP 2-A: Ballast Regulators; Compactor self-propelled; Cow Tracks; Fusion Machine; Rail Anchor Machines; Roller 4 ton and over; Scrapers - 20 yards struck; Switch Tampers; Vibratory roller, etc.

GROUP 2-B: Mechanic (outside) all types

GROUP 3-A: Air tractor drill; asphalt plant; batch plant; boiler (high pressure; concrete breaker; concrete pump concrete spreader; curb cutter machine; farm tractor (all types); finishing machine (concrete); fine grading machine; fireman; forklift; forklift (electric); joy drill or similar tractor drilling machine; loader - 1 1/2 yards and under; locomotive (all sizes), maintenance engineer; machine pulling sheeps foot roller; material hopper; mixer concrete - 21-E and over; mulching grass spreader; portable asphalt plant, portable batch plant, portable crusher; powerhouse plant; quarry master; roller under 4 ton; spreading and fine grading machine; steel cutting machine; stone crusher; sweeper; turbojet burner or similar; well drilling machine ; winch truck ""A"" frame. John Henry Drill or similar.

GROUP 4-A: Service men (fuel or grease truck).

GROUP 4-B: Oiler; Compressor - compressor plant; paint compressor-steel erection; conveyor belt machine; lighting unit (portable & generator); oiler; pumps - pump station-water-sewer- gypsum- plaster, etc.; roller-motorized (walk-behind); welding machine (steel erection excavation); well point system; bending machine; dust collector; mixer - concrete under 21-E; heater all types; steam jenny; syphon pump-air-steam; tar joint machine; vibrator (1 to 5); Compressor Truck Mounted (2-6)

GROUP 5: Oiler

GROUP 5-A-1: Master Mechanic

GROUP 5-A-2: Engineer - 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 (except for pile rigs).

GROUP 5-A-3: Engineer-- Pile Driver

GROUP 5-A-4: Hoist Engineer- Steel -Sub Structure

GROUP 5-A-5: Jersey-spreader, pavement breaker (air ram); Post Hole Digger

NOTES:

Loader Operator (over 5 cu yds)	.50
Shoval Operators (over 4 cu yd)	1.00
Hazmat premium over regular rate	20%

CRANES:

100 ft- 149 ft: receive $2.00 more than Group 1 rate
149 ft and over receive $3.00 more than Group 1 rate

FOOTNOTE:
a. PAID HOLIDAYS: New Year's Day; Lincoln's Birthday; Good Friday; Memorial Day; Independence Day; Labor Day; Veterans Day; Columbus Day; November Election Day; Thanksgiving Day; and Christmas Day

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ENGI0158-006 07/01/2024

NORTHERN PART OF DUTCHESS (TO THE NORTHEN BOUNDARY LINE OF THE CITY OF POUGHKEEPSIE) BUILDING CONSTRUCTION

	Rates	Fringes
Power equipment operators:		
GROUP A(1)	$ 53.11	32.58
1	$ 49.06	30.74
2	$ 50.06	30.74
GROUP A	$ 52.62	32.58
GROUP B	$ 51.60	32.58
GROUP C	$ 48.70	32.58

Hazardous work - Anytime Operating Engineers are involved with level C or above, $2.50 per hour over regular rate.

FOOTNOTE:
a. Paid Holiday: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Day

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP A(1): Crane, hydraulic cranes, tower crane, locomotive crane, piledriver, cableway, derricks, whirlies, dragline, boom truck (over 5 tons)

GROUP A(1): Crane Premiums

1 over 150' :add $1.00
2 over 200': add $2.00

GROUP A: Shovel, All excavator (except tractor mounted rubber tired John Deere 510 or smaller), gradalls, power road grader, all CMI equipment, front-end rubber tire loader, tractor-mounted drill (quarry master), mucking machine, concrete central mix plant, concrete pump, Belcrete system, automated asphalt concrete plant and tractor road paver, boom truck (5 tons and under).

GROUP B: Backhoe, (tractor mounted rubber tired equivalent to John Deere 510 or less), bulldozer, pushcat, tractor, traxcavator, scraper, LeTourneau grader, form fine grader, road roller, blacktop roller, blacktop spreader, power brooms, sweepers, trenching machine, Barber Green loader, side booms, hydrohammer, concrete spreader, concrete finishing machine, one drum hoist, power hosting (single drum), hoist - two drum or more, three drum engine, power hoisting (two drum and over), two drum and swinging engine, three drum swinging engine, hod hoist, A-L frame winches, cord and well drillers (one drum), post hole digger, model CHB Vibro-Tamp or similar machine, batch bin and plant operator, dinkey locomotive, skid steer loader, track excavator 5/8 cu. yd. or smaller.

GROUP C: Fork lift, high lift, lull, Oiler, fireman and heavy- duty greaser, boilers, and steam generators, pump, vibrator, motor mixer, air compressor, dust collector, welding machine, well point, mechanical heater, generators, temporary light plants, concrete pumps, electric submersible pump 4"" and over, murphy type diesel generator, conveyor, elevators, concrete mixer and belcrete power pack (belcrete system), seeding, and mulching machines, pumps.

ENGI0158-018 07/01/2024

NORTHERN PART OF DUTCHESS (To The Northern Boundary line of the City of Poughkeepsie)

	Rates	Fringes
Power Equipment Operator		
HEAVY & HIGHWAY		
GROUP 1	$ 54.90	32.45
GROUP 2	$ 53.99	32.45
GROUP 3	$ 51.42	32.45
GROUP 4	$ 60.90	32.45
GROUP 5	$ 59.40	32.45
GROUP 6	$ 57.90	32.45
GROUP 7	$ 57.01	32.45

POWER EQUIPMENT OPERATORS HEAVY & HIGHWAY CLASSIFICATIONS

GROUP 1: Asphalt Curb Machine, Self Propelled, Slipform, Automated Concrete Spreader (CMI Type), Automatic Fine Grader, Backhoe (Except Tractor Mounted, Rubber Tired), Backhoe Excavator Full Swing (CAT 212 or similar type), Back Filling Machine, Belt Placer (CMI Type), Blacktop Plant (Automated), Boom truck , Cableway, Caisson Auger,

Central Mix Concrete Plant (Automated), Concrete Curb Machine, Self Propelled, Slipform, Concrete Pump, Crane, Cherry Picker, Derricks (steel erection), Dragline, Overhead Crane (Gantry or Straddle type), Pile Driver, Truck Crane, Directional Drilling Machine, Dredge, Dual Drum Paver, Excavator (All Purpose Hydraulically Operated) (Gradall or Similar), Front End Loader (4 cu. yd. and Over), Head Tower (Sauerman or Equal), Hoist (Two or Three Drum), Holland Loader, Maintenance Engineer, Mine Hoist, Mucking Machine or Mole Pavement Breaker(SP) Wertgen; PB-4 and similar type, Power Grader, Profiler (over 105 H.P.) Quad 9, Quarry Master (or equivalent), Scraper, Fireman, Form Tamper, Grout Pump, Gunite Machine, Hammers (Hydraulic self-propelled), Hydra-Spiker, ride-on, Hydraulic Pump (jacking system), Hydro-Blaster (Water), Mulching Machine, Oiler, Parapet Concrete or Pavement, Shovel, Side Boom, Slip Form Paver, Tractor Drawn, BeltType Loader, Truck or Trailer Mounted Log , Chipper (Self Feeder), Tug Operator (Manned Rented Equipment Excluded), Tunnel Shovel

GROUP 2: Asphalt Paver, Backhoe (Tractor Mounted, Rubber Tired), Bituminous Recycler Machine, Bituminous Spreader and Mixer, Blacktop Plant (NonAutomated), Blast or Rotary Drill (Truck or Tractor Mounted), Boring Machine, Cage Hoist, Central Mix Plant (NonAutomated) and All Concrete Batching Plants, Cherry Picker (5 tons capacity and under), Concrete Paver (Over 16S), Crawler Drill, Self-contained, Crusher, Diesel Power Unit, Drill Rigs, Tractor Mounted, Front End Loader (Under 4 cu. yd.), Greaseman/Lubrication Engineer, HiPressure Boiler (15 lbs. and over), Hoist (One Drum), Hydro-Axe, Kolman Plant Loader and Similar Type Loaders, L.C.M. Work Boat Operator, Locomotive Mixer (for stabilized base selfpropelled), Monorail Machine, Plant Engineer, Profiler (105 H.P. and under), Grinder, Post Hole Digger and Post Driver, Power Broom (towed), Power Heaterman, Power Sweeper, Revinius Widener, Roller (Grade and Fill), Scarifier, ride-on, Shell Winder, Skid steer loader (Bobcat or similar), Span-Saw, ride-on, Steam Cleaner, Pug Mill, Pump Crete Ready Mix Concrete Plant Refrigeration Equipment (for soil stabilization)Road Widener, Roller (all above subgrade), Sea Mule, Self-contained Ride-on Rock Drill, Excluding Air-Track Type Drill, Skidder, Tractor with Dozer and/or Pusher, Trencher. Tugger Hoist, Vermeer saw (ride on, any size or type), Winch, Winch Cat

GROUP 3: A Frame Winch Hoist on Truck , Articulated Heavy Hauler, Aggregate Plant, Asphalt or Concrete Grooving, Machine (ride on), Ballast Regulator, Ride-on Boiler (used in conjunction with production), Bituminous Heater, self-propelled, Boat (powered), Cement and Bin Operator, Compressors, Dust Collectors, Fork Lift, Generators, Pumps, Welding Machines, Light Plants, Heaters (hands-off equipment), Concrete Pavement Spreader and Finisher, Concrete Paver or Mixer (16S and under), Concrete Saw (self-propelled), Conveyor, Deck Hand, Directional Drill Machine Locator, Drill, (Core), Drill, (Well,) Farm Tractor with accessories, Fine Grade Machine, Tamper, ride-on, Tie Extractor, ride-on, Tie Handler, ride-on, Tie Inserter, ride-on, Tie Spacer, ride-on, Tire Repair, Track Liner, ride-on, Tractor, Tractor (with towed accessories), Vibratory Compactor, Vibro Tamp, Well Point

GROUP 4: Tower Cranes

GROUP 5: Cranes 50 tons and over

GROUP 6: Cranes 49 tons and below

GROUP 7: Master Mechanic

FOOTNOTES:

a. PAID HOLIDAYS: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day

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ENGI0825-007 01/01/2018

ORANGE, ULSTER AND SULLIVAN COUNTIES

	Rates	Fringes
Power Equipment Operator		
BUILDING, HEAVY & HIGHWAY		
GROUP 1	$ 50.57	30.30
GROUP 2	$ 48.98	30.30
GROUP 3	$ 47.07	30.30
GROUP 4	$ 45.44	30.30
GROUP 5	$ 43.73	30.30
GROUP 6	$ 52.39	30.30

NOTES:

Hazmat Premium	20%
Hydrographic Premium	.50

POWER EQUIPMENT OPERATORS CLASSIFICATIONS (BLDG, HEAVY & HWY)

GROUP 1: Autograde-Pavement-Profiler (CMI and Similar Type); utograde-Pavement-Profiler (CMI and Similar Types);Autograde Slipform Paver (CMI and Similar Types); Backhoe; Central Power Plants (all types); Concrete Paving Machine (s-240 and Similar Types); Cranes (All Types, Including Overhead and Straddle Traveling Type); Cranes, Gantry; Derricks (Land, Floating or Chicago Boom Type); Drillmaster/Quartmaster (Down the Hole Drill) Rotary Drill; Self-Propelled, Hydraulic Drill, Self-Powered Drill Draglines, Elevator Graders, Front End Loaders (5 yds. and over), Gradalls, Grader: Rago, Helicopters (Copilot), Helicopters, (Communication Engineer), Locomotive (large), Mucking Machines, Pavement and Concrete Breaker (Superhammer, Hoe Ram, Brokk 250 and Similar Types), Pile Driver (length of boom including length of leads shall determine premium rate applicable), Roadway Surface Grinder Scooper (loader and shovel), Shovels, Tree Chooper with Boom, Trench Machines, Tunnel Boring Machines.

GROUP 2: ""A"" Frame; Backhoe (Combination); Boom Attachment on Loaders (Rate based on size of bucket) not applicable to Pipehook) Boring and Drilling Machines, Brush Chopper, Shredder and Tree Shredder Tree Shearer, Cableways, Carry-alls, Concrete Pump, Concrete Pumping System, Pumpcrete and Similar Types, Conveyors, 125 ft and over;

Drill Doctor (duties include dust collector, maintenance), Front End Loader (22 yds. but less than 2 yds.), Graders (Finish); Groove Cutting Machine (ride on type), Heater Planer; Hoists: (all type hoists, Shall Also Include Steam, Gas, Diesel, Electric, Air Hydraulic, Single and Double Drum, Concrete, Brick Shaft, Caisson, Snorkel Roof, and or any other similar type Hoisting Machines, Portable or Stationary, Except Chicago Boom Type). Long Boom Rate to Be Applied if Hoist is ""outside material lower hoist""; Hydraulic Cranes-10tons and Under; Hydro-Axe; Hydro-Blaster; Jacket (Screw Air Hydraulic Power Operated Unit or Console Type: Not Hand Jack or Pile Load Test Type), Log Skidder; Pans, Pavers (all) Concrete; Plate and Frame Filter Press; Pumpcrete Machines; Squeeze Crete and Concrete Pumping (regardless of size); Scrapers; Sidebooms; Straddle Carrier, Ross and Similar Types; Vacuum Truck; Whip Hammer; Winch Trucks (Hoisting).

GROUP 3: Asphalt Curbing Machine, Asphalt Plant Engineer, Asphalt Spreader; Autograde Tube Finisher & Texturing Machine (CMI and Similar types) Autograde Curecrete Machine (CMI and Similar Types); Bar Bending Machines (power), Batchers, Batching Plant and Crusher on-site; Belt Conveyor Systems; Boom Type Skimmer Machines; Bridge Deck Finisher; Bulldozers (all); Car Dumpers (A:road); Chief of Party; Compressor and Blower Type Units (used) Independenty or Mounted On Dual Purpose Trucks, On Job Site or In Conduction with Job Site, In Loading and Unloading of Concrete, Cement, Fly Ash, Instantcrete, or Similar Type Materials); Compressor 92 or 3 in Battery); Concrete Finishing Machines; Concrete Saws and Cutters (ride on type); Concrete Spreaders, Hetzel, Rexomatic and Similar types; Concrete Vibrators; Conveyors, Under 125 ft), Crushing Machines, Ditching Machine, Small (ditchwitch, Vermeer or Similar type); Dope Dots (mechanical with or without pump), dumpsters; Elevator; Fireman; Forklifts (economobile, lull, and similar types of equipment); Front End Loaders (1 yd. and over but less than 2 yds.); Generators (2 or 3 in Battery/ within 100 ft); Giraffe Grinders, Graders and Motor Patrols; Grout Pump; Gunnite Machines (excluding nozzle); Hammer Vibratory (in conduction with generators); Hoists (Roof, Tuggeraerial Platfrom Hoist and House Cars), Hoppers, Hoppers Doors (power operated); Hydro-Blaster (where required); Ladders (Motorized); Laddervator; Locomotive, Dinky type; Maintenance, Utility Man; Mechanics; Mixers (Excepting Paving Mixers); Motor Patrols and Graders; Pavement Breakers, Small, Self-Propelled ride on type (also maintains compressor or hydraulic unit); Pavement Breaker, Truck Mounted; Pipe Bending Machine (power); Pitch Pump; Plaster Pump (regardless of size); Post Hole Digger (post pounder and auger); Rod Bending Machines (power); Roller, Black Top; Scales, (power); Seaman Pulverizing Mixer; Shoulder Widener; Silos; Skimmer Machines (Boom Type); Steel Cutting Machine, Services and Maintains; Tamrock Drill; Tractors; Tug Captain; Vibrating Plants (used in conduction with unloading); welder and Repair Machines. Concrete cleaning/decontamination machine operator; Directional boring machine; Heavy equipment robotics operator; Master environmental maintenance operator; Ultra high pressure waterjet cutting tool system operator; maintenance operator; Vacuum blasting machine operator

GROUP 4: Brooms and Sweepers; Chippers; Compressors (single); Concrete Spreaders (small type); Conveyor Loaders (not including Elevator Graders); Engines, Large Diesel (1620 h.p.) and Staging Pump; Farm Tractors; Fertilizing Equipment (Operator and Maintenance of); Fine Grade Machine (small type); Form Line Graders (small type); Front End Loader (under 1 yd); Generator (single); Grease, Gas, Fuel and Oil Supply Trucks; Heaters (Nelson or Other Type Including Propane, Natural Gas or Flowtype Units); Lights, Portable Generating Light Plants; Mixers, Concrete Small; Mulching Equipment (Operation and Maintenance of); Pumps (2 of Less Than 4 Inch Suction); Pumps 94 Inch Suction and Over Including Submersible Pumps); Pumps (Diesel Engine and Hydraulic); Immaterial of Power; Road Finishing Machines (Small Type); Rollers, Grade, Full Or Stone Base; Seeding Equipment (Operation and maintence of); Sprinkler and Water Pump Trucks (Used on job Site or in conduction with Job Site); Steam Jennies and Boilers, Irrespective of Use; Stone Spreader; Tamping Machines, Vibrating Ride On; Temporary Heating Plant (nelson or Other Type, Including Propane, Natural Gas or Flow Type Units); Water and Sprinkler Trucks (Used On Job Site In Conduction with Job Site); Welding Machines-Within 100 ft (Gas, and /or Electric Converters of any type, single, tow or three in a battery). welding system, multiple (rectifier transformer type) well point systems (including installation by bull gang and maintenance of); Off Road back dumps.

GROUP 5: Oiler

GROUP 6: Helicopter Pilot

a. PAID HOLIDAYS: New Years Day, Washington's Birthday Memorial Day, July 4th, Labor Day, Veteran's Day, Election Day, Thanksgiving Day, and Christmas Day, provided the employee works one day during the calendar week in which the holiday occurs.

ENGI0825-008 01/01/2018

ORANGE, ULSTER AND SULLIVAN COUNTIES

	Rates	Fringes
Power equipment operators:		
BUILDING CONSTRUCTION		
STEEL ERECTION		
GROUP 1	$ 59.09	30.30
GROUP 2	$ 57.43	30.30
GROUP 3	$ 50.14	30.30
GROUP 4	$ 47.48	30.30
GROUP 5	$ 45.95	30.30
GROUP 6	$ 44.19	30.30
GROUP 7	$ 53.70	30.30
BUILDING CONSTRUCTION TANK ERECTION		
GROUP 1	$ 58.81	30.30
GROUP 2	$ 57.22	30.30
GROUP 3	$ 53.70	30.30

GROUP 4	$ 50.13	30.30
GROUP 5	$ 44.92	30.30
OILOSTATIC MAINLINES AND TRANSPORTATION PIPE LINES		
GROUP 1	$ 51.20	30.30
GROUP 2	$ 49.55	30.30
GROUP 3	$ 47.41	30.30
GROUP 4	$ 45.91	30.30
GROUP 5	$ 44.19	30.30
GROUP 6	$ 53.13	30.30

NOTES:

Hydrographic Premium	50
Hazmat Premium	20%
Tunnel Premium	.75

STEEL ERECTION CLASSIFICATIONS

GROUP 1: Cranes (All Cranes, Land or Floating with Booms Including Jib 140 ft and over, Above Ground); Derricks, Land, Floating or Chicago Boom Type with Booms including Jib 140 ft and over above ground).

GROUP 2: Cranes (All Cranes, Land or Floating with Booms Including Jib Less Than 140 ft Above Ground); Derricks, Land, Floating or Chicago Boom Type with Booms Including Jib Less Than 140 ft above Ground).

GROUP 3: ""A"" Frame, Cherry Pickers 10 tons and under, Hoists Shall Also Include Steam, Gas, Desel, Electric, Air Hydraulic, Single and Double Drum Concrete, Brick Shaft Caisson, or Any Other Similar Type Hoisting Machines, Portable or Stationary, Except Chicago Boom Type; Jacks: Screw Air Hydraulic Power Operated unit or Console Type (not hand Jack or Pile Load Test Type); Side Booms.

GROUP 4: Aerial Platform used as Hoist; Compressor: 2 or 3 in Battery; Elevators or House Cars; Conveyors and Tugger Hosits; Chief of Party; Firemanp; Forklift; Generators (2 or 3); Maintenance (Utility Man); Rod Bending Machine (power); Welding Machines (Gas or Electric, 2 or 3 in Battery, Including Diesels); Captain: Power Boats: Tug Master: Power Boats.

GROUP 5: Compressor, Single; Welding Machine, Single, Gas, Diesel, and Electric Converters of any Type: Welding System Multple (Rectifier Transformer Type); Generator, Single.

GROUP 6: Oiler

GROUP 7: Helicopter Pilot .

FOOTNOTE: a. PAID HOLIDAYS: New Years Day, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Veteran's Day, Election Day, Thanksgiving Day, and Christmas Day, provided the employee works one day in the calendar week during which the holiday occurs.

For BUILDING CONSTRUCTION TANK ERECTION CLASSIFICATIONS

NOTES: Tunnel Premium .75
Hazmat Premium 20%
Hydrographic Premium .50

TANK ERECTION CLASSIFICATIONS

GROUP 1: Operating Engineers on all Cranes, Derricks, ets with Booms Including Jib 140 ft or More Above Ground.

GROUP 2: Operating Engineer on all Equipment, Including Cranes, Derricks, ets with Booms Including Jib, Less Than 140 ft above the ground.

GROUP 3: Helicopter Pilot Engineer.

GROUP 4: Air Compressors, Welding Machines and Generators are Covered and are Defined as Cover: Gas, Diesel, or Electric Driven Equipment and Sources of Power from a Permanent Plant: ie: Staem, Comgressed Air, Hydraulic or Other Power, For The Operating of any Machine or Automatic Tools, Used In The Erection, Alteration, Repair and Dismantling of Tanks and Any and All ""Dual Purpose"" Trucks Used On The Construction Job Site, or in the Loading and Unloading of Materials, at the Construction Job Sited or in Conjuction with the Job Site.

GROUP 5: Oiler

FOOTNOTE:

a. PAID HOLIDAYS: New Years Day, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Veteran's Day, Election Day, Thanksgiving Day, and Christmas Day provided the Employee works one day in the calendar week during which the holiday occurs

For OILOSTATIC MAINLINES AND TRANSPORTATION PIPE LINE CLASSIFICATIONS

N0TES:
Hydrographic Premium .50
Hazmat Premium 20%
Tunnel Premium .75

OILSTATIC MAINLINES AND TRANSPORTATION PIPE LINES CLASSIFICATIONS

GROUP 1: Backhoe; Cranes (all types); Draglines, Front End Loaders (5yds. and over), Gradalls, Helicopters (co-pilot), Helicopters (Communication Engineer); Scooper (Loader and Shovel) Koehring; Trench Machines.

GROUP 2: ""A"" Frame; Backhoe (Combination Hoe Loader); Boring and Drilling Machines; Ditching Machines, Small, Ditchwitch, Vermeer or Similar type; Forklifts; Front End Loaders 92 yds. and over but less than 5 yds.); Graders, Finish (fine); Hydraulic Cranes 10 tons and under (over 10 tons) Cranes Rate Applies); Side Booms: Winch Trucks (Hoisting).

GROUP 3: Backfiller; Brooms and Sweepers; Bulldozers; Compressor (2 or 3 in battery); Chief of Party; Front End Loaders (under 2 yds); Generators; Giraffe Grinders; Graders and Motor Patrols; Machnic; Pipe Bending Machine (power);Tractors; Water and Sprinkler Trucks used on Job Site or in Conduction with Job Site); Welder and Repair Mechanic; Captain (power boats); Tug Master (power boats).

GROUP 4: Compressor (single); Dope Pots (Mechanical with or without Pump); Dust Collectors; Pumps (4 inch suction and over); Pumps (2 of less than 4 inche suction); Pumps, Diesel Engine and Hydraulic (immaterial of power); Welding Machines, Gas or Electric Converters of any type- 2 or 3 in Battery Multple Welders; Well Point Systems (including installation and Maintenance); Fram Tractors.

GROUP 5: Oiler, grease, gas, fuel and oil supply trucks; Tire repair and maintenance

GROUP 6: Helicopter Pilot

FOOTNOTE:

a. Paid Holidays: New Years Day, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Veteran's Day, Election Day, Thanksgiving Day and Christmas Day provided the Employee works one day in calendar week during which the holidays occurs.

IRON0417-001 07/01/2024

	Rates	Fringes
IRONWORKER	$ 42.38	47.70+a

a) Paid Holidays: New Year's Day, Memorial Day, Fourth of July, Labor Day, Thanksgiving Day, Day after Thanksgiving (unpaid), Christmas Day.

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* LABO0017-002 06/01/2023

	Rates	Fringes
LABORER		
DUTCHESS COUNTY (Asbestos, lead, toxic and hazardous waste abatement and any other environmental related work): (BUILDING CONSTRUCTION)		
GROUP 1	$ 35.95	27.15
GROUP 2	$ 37.75	27.15
DUTCHESS COUNTY (Asbestos, lead, toxic and hazardous waste abatement and any other environmental related work): (HEAVY & HIGHWAY:)		
GROUP 2	$ 44.80	32.45+a
GROUP 3	$ 49.40	32.45+a

ORANGE AND ULSTER COUNTIES (BUILDING CONSTRUCTION:)		
GROUP 1	$ 35.95	27.15
GROUP 2	$ 37.75	27.15
GROUP 3	$ 40.50	27.15
ORANGE, ULSTER, AND SULLIVAN COUNTIES (HEAVY & HIGHWAY)		
GROUP 1	$ 40.80	32.45+a
GROUP 2	$ 44.80	32.45+a
GROUP 3	$ 49.40	32.45+a
GROUP 4	$ 54.70	32.45+a
TUNNEL, SHAFT & CAISSON WORK		
GROUP 1	$ 48.05	29.50+a

LABORERS BUILDING CLASSIFICATIONS

GROUP 1: Custodial work, flag person, portable generator tender, portable pump tender, pitman and dumpman, firewatch, temporary heat tender, temporary light tender, traffic control, tool room tender; Artificial turf, air chipping hammer acoustic pump and mixer, carpenter tender, concrete, concrete curb and sidewalk form setter, concrete form stripping, concrete sealing, concrete curing, concrete finisher, concrete vibrator, compressor, clean up after trades, dismantling demolition, excavation, fireproofing, foundation and building piping, pump and mixer, gunite, general clean up, grade checker, grading and backfilling, hoists, hod carrier, landscaping, mason tender, multi building trades tender, jackhammer, pavement breaker, poured gypsum roof work, power tampers, power walk behind roller, pressure blasting, power mixer, scaffolding, snow removal, signal person, sandblasting, styrofoam and similar installation, radio control equipment including but not limited to radio control tampers and rollers, radio control excavator, all erecting and dismantling of scaffold for masonry regardless of height, walking and riding power buggies, temporary weather protection, wrecking, waterproofing, stone and tile tenders, radio controlled hammers and breakers, unloading of trucks, air track, assembling and placing gabion baskets, asphalt, blaster, bob cat type machine for demo and clean up, chain link fence, chain saw, chipping hammer, concrete conveyor belt, saw, core drill, corrugated pipe, construction specialist, cleaning machine, concrete form setter, conduit layer, cutting torch, discharge pipe, drill chuck tender, duct bank layer, explosive handler, hydraulic splitter, granite or stone curbing, handler, joy and jib drill, Ingersoll Rand heavy duty crawler master type HCMZ drill machines or equivalent, laser level, nonmetallic pipe layer, metallic pipe layer, LeRoi hydraulic drill or similar, mega mixer, power fork lift, prestressed and precast concrete, power brush cutter, pump crete machine, retaining walls, rip rap, retention and toxic and hazardous waste liners, setting of block, setting of block, setting of brick, setting of stone, sound barriers, transit under laborers jurisdiction, tow behind concrete or grout pump, traffic and pedestrian stripping, surface planner, manufactured curb, walk behind durface planner, wagon drill, welding; * asbestos abatement work, lead abatement work, toxic and hazardous waste related work; when protective equipment and clothing are

not required.

GROUP 2: Forklift for masonry purposes

GROUP 3: Asbestos Abatement work, toxic and hazardous abatement, lead abatement work, environmental work.

BUILDING CLASSIFICATIONS

GROUP 1: Asbestos abatement work, lead abatement work, toxic and hazardous waste related work; when protective equipment and clothing are not required.

GROUP 2: Asbestos abatement work, toxic and hazardous abatement, lead abatement work, environmental work.

LABORERS HEAVY AND HIGHWAY CLASSIFICATIONS

GROUP 1: Flagperson, gateperson

GROUP 2: General laborers, chuck tender, handling and distributing drinking water, distributing all tools and supplies of laborers, nipper, powder carrier, magazine tender, warehouse laborers, concrete man, vibrator man, mason tender, mortar man, spraying, brushing and covering of concrete for curing and preservative purposes, traffic striper, scaffold builder, concrete crub and sidewalk from setter; permanent traffic striping and reflective devices, placing and maintenance of all flares, cones, lights, signs, barricades, traffic patterns, and all temporary reflective type materials for traffic control, custodial work, traffic directors, temporary heat or light tenders, tool room, dewatering pump men, pitman, dumpmen, snow removal and firewatch, asphalt man, joint setter, signal person, pipelayer, pipelining and relining, wellpoints, conduit and duct layer, wire puller rip rap and dry stone layer, steel rod carrier, core drill, rock splitter, Hilti gun air or electric, jackhammer, bush hammer, pavement breaker, chipping hammer, wagon drill, air track, jib rig, joy drill, gunite and sand blasting, coal passer and other machine operators, power tool operator, sprayer and nozzle man on mulching and seeding machine, all guard rail and fence, all seeding and sod laying, all landscape work, grade checker, all bridge work, walk behind self-propelled power saw, grinder, groover or similar type machine, walk behind tamper and roller of all types, salvage, stripping, wrecking and dismantling laborer (including barman, cutting torch and burner man), sheeting and shoring coming under laborers
jurisdicition, bit grinder, operator of form pin puller and drivers, sandblasting, joint and jet sealer, filling and wiring baskets for gabion walls, permanent sign man, median barrier,
sta-wall or similar type product, chain saw operator, railroad track laborer, waterproofer, pre-stressed and pre-cast concrete brick, block and stone pavers, power tools used to perform work usually done by laborers, power buggy and pumpcrete operator, fireproof, plaster and acoustic pump, asbestos, toxic, bio-remediation, phyto-remediation, lead or hazardous materials abatement when protective clothing and equipment is not required, power brush cutter, retention liners, artificial turf,

retaining walls, walk behind surface planer, welding related to laborers work, remote controlled equipment normally operated by laborers, all technician work including but not limited to stitching, seaming, heat welding, fireproof sprayer, mortar mixer, concrete finisher, form setter for concrete curbs and flatwork. Gunite nozzle man, stone cutters, granite stone layer, manhole, catch basin or inlet installing, lase men. Ground man on milling machine.

GROUP 3: Ingersoll Rand eavy duty crawler master type HCMZ any drill using 4"" or larger bit, asbestos, toxic, bio-remediation, phyto-remediation, lead or hazardous material abatement when protective clothing and equipment is required, all working foremen including grade, pipe, concrete, clearing, blacktop, drill, paving and blaster etc., Hydraulic drill or similar, forklift for masonry only, Blaster and asphalt screedman.

GROUP 4: Asbestos, toxic, lead or hazardous material abatement foreman.

HEAVY & HIGHWAY CLASSIFICATIONS

GROUP 1: Asbestos, toxic, bio-remediation, phyto-remediation, lead or hazardous material abatement; when protective equipment and clothing are not required.

GROUP 2: Asbestos toxic, bio-remediation, phyto-remediation, lead or hazardous material abatement when protective clothing and equipment is required.

FOOTNOTE:

PAID HOLIDAYS: New Years Day, Presidents's Day, Memorial Day, Independence Day, Labor Day, Election Day, Veterans Day, Thanksgiving Day, Christmas Day

TUNNEL, SHAFT & CASSION CLASSIFICATIONS

GROUP 1: Laborer, Pit and Dumpman, Chuck Tender, Brakeman and Powder; Miner and all mavhine men, Safety Miner, all shaft work, casson work, drilling, blow pipe, all air tools, tugger scaling, nipper gunniting srom pot to nozzle, bit grinder, singal man (top and bottom), shift steward, concrete man, shield driven tunnel, mixed face and soft ground liner plate tunnel in free air.

LABO0235-003 05/01/2016

DUTCHESS COUNTY

	Rates	Fringes
Laborers:		
BUILDING CONSTRUCTION		
GROUP 1	$ 33.30	26.25
GROUP 2	$ 33.30	26.25
GROUP 3	$ 33.30	26.25

LABORERS CLASSIFICATIONS (BUILDING)

GROUP 1: Mason tenders, carpenter tenders, laborer stripping and cleaning forms, laborer grading and digging ditches, sweepers, cleaners.

GROUP 2: Hod carriers, plasterers' tenders, scaffold builders (padlock and self-supporting scaffold 14 ft. or under all runways, mortar mixers) machine and hand, concrete mixers by machine under 21e, vibrators, form setters, asphalt rakers, handling reinforcement rods, drillers, jackhammer, operator, signalman, gunniting, motorbugs, water pump 2"" or under barco machine, wreckers, paving breakers, power saw operators, other machine operators.

GROUP 3: Blasters, Laser beam operator.

LABO0235-005 05/01/2023

DUTCHESS COUNTY

	Rates	Fringes
Laborers:		
HEAVY & HIGHWAY		
GROUP 1	$ 36.45	27.80+a
GROUP 2	$ 42.80	27.80+a
GROUP 3	$ 43.90	27.80+a

LABORERS CLASSIFICATIONS (HEAVY & HIGHWAY)

GROUP 1: Flagperson, placing and maintenance of all flares, cones, light, signs, barricades, traffic control, custodial work, traffic directors, temporary heat or light tenders, tool rooms.

GROUP 2: General Laborers, Dumpman, Pitman, Concrete Man, Signal Man, Pipelayer, Rip Rap, Dry Stone Layer, Jackhammer, Powderman, Highscalers, Power Buggy Operator, Steel Rod Carrier, Vibratory Operator, Other Machine Operator, Wrecking, Vibrator Operator-Compactor, Gunite and Sand Blasting, Water Pump 2"" or under, Nipper, Chucker, Asphalt Workers.

GROUP 3: Asphalt Raker, Asphlat Screeman, Drillers (all), Laser Beam Operator, Form Setter/Aligners, Blasters.

FOOTNOTE:

a. PAID HOLIDAYS: New Year's Day, Lincoln's Birthday, Good Friday, Washington's Birthday, November Election Day, Memorial Day, Independence Day, Labor Day, Columbus Day, Thanksgiving Day and Christmas Day and Veteran's Day.

PAIN0009-004 05/01/2024

DUTCHESS, ORANGE, SULLIVAN and ULSTER COUNTIES

	Rates	Fringes
GLAZIER	$ 49.00	55.75

PAIN0155-003 05/01/2021

	Rates	Fringes
Painters:		
Drywall Finishers	$ 35.94	24.66
Lead Abatement Work	$ 35.94	24.66
Painter/Paperhanger	$ 35.94	24.66
Spray Rate	$ 36.94	24.66

PAIN0806-008 10/01/2023

DUTCHESS, ORANGE, SULLIVAN AND ULSTER COUNTIES

	Rates	Fringes
PAINTER		
Structural steel and Bridge	$ 56.00	54.33

PLUM0021-005 05/01/2024

ZONE 2

DUTCHESS COUNTY AND THE REMAINDER OF ULSTER COUNTY

	Rates	Fringes
PLUMBER/PIPEFITTER	$ 59.35	43.61

PLUM0373-002 05/01/2024

ORANGE COUNTY Towns of Lakeville, Four Corners, Sterling Forest, Tuxedo Park, Southfields, Arden, Newburgh Junction, Greenwood Lake, Monroe, Harriman, Woodbury Falls, Woodbury, Woodbury Station, Central Valley, and the Palisades Interstate Park and Bear Mountain Park

	Rates	Fringes
Plumber; Steamfitter	$ 51.20	45.57
REFRIGERATION MECHANIC	$ 40.09	36.42

PLUM0373-003 05/01/2024

SULLIVAN COUNTY (Townships of Lumberland, Forestburgh, Highland, Tusten, Mamakating, Fallsburgh, Thompson, Bethel, Cochecton, Delaware, Freemont, Callicoon, Liberty, Monticello, Neversink and Rockland); ORANGE COUNTY (Remaining Townships) and ULSTER COUNTY (Towns of Shawangurk, Wawarsing, Plattekill, Marlboro and Ellenville up to Napanoch Prison)

	Rates	Fringes
Plumber; Steamfitter	$ 51.20	45.57

ROOF0008-002 05/01/2024

	Rates	Fringes

ROOFER.....$ 48.50 38.87

SFNY0669-002 04/01/2024

	Rates	Fringes
SPRINKLER FITTER	$ 53.34	30.77

SHEE0038-001 07/01/2024

	Rates	Fringes
Sheet metal worker	$ 53.22	46.20

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* TEAM0445-001 05/01/2024

	Rates	Fringes
Truck drivers:		
GROUP 1	$ 36.32	45.14+a
GROUP 1A	$ 37.44	45.14+a
GROUP 2	$ 37.44	45.14+a
GROUP 3	$ 35.54	45.14+a
GROUP 4	$ 35.43	45.14+a
GROUP 5	$ 35.31	45.14+a

FOOTNOTE:

a. PAID HOLIDAYS: New Year's Day, Labor Day, President's Day, Presidential Election Day, Veterans Day, Decoration Day, Independence Day, Thanksgiving Day and Christmas Day provided the employee works two days in any calendar week during which the holidays occurs.

TRUCK DRIVER CLASSIFICATIONS

GROUP 1: Drivers on Letourneau tractors, double barrel euclids, Athey wagons and similar equipment (except when hooked to scrapers), I-beam and pole trailers, drivers of road oil distributors, tire trucks and tractors and trailers with 5 axles and over, Articulated Back Dumps and Articulated Water Trucks.

GROUP 1A: Drivers on detachable Gooseneck Low bed Trailers rated over 35 tons.

GROUP 2: Drivers on all equipment 25 yards and over, up to and including 30 yard bodies and cable dump trailers and powder and dynamite trucks.

GROUP 3: Drivers on all equipment up to and including 24 yard bodies, mixer trucks, dump crete trucks and similar types of equipment, fuel trucks, batch trucks and all other tractor trailers.

GROUP 4: Drivers on tri axles, ten-wheelers, grease trucks and tillermen.

GROUP 5: Drivers on pick-up trucks used for materials & parts, drivers on escort man over-the-road and drivers on straight trucks.

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at https://www.dol.gov/agencies/whd/government-contracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (iii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing

this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

State Adopted Rate Identifiers

Classifications listed under the ""SA"" identifier indicate that the prevailing wage rate set by a state (or local) government was adopted under 29 C.F.R ⁄1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 01/03/2024 reflects the date on which the classifications and rates under the ?SA? identifier took effect under state law in the state from which the rates were adopted.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination

* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

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END OF GENERAL DECISION"

ATTACHMENT D

Beekman Town Hall HVAC Drawings

CBK Engineering

MECHANICAL SYMBOLS

PIPING ELEMENTS/VALVING

- GATE VALVE
- GLOBE VALVE
- PLUG VALVE
- BUTTERFLY VALVE
- BALL VALVE
- SWING CHECK VALVE
- LIFT CHECK VALVE
- GATE VALVE, ANGLE
- GLOBE VALVE, ANGLE
- DIAPHRAGM VALVE
- BALANCING VALVE
- CBV — CIRCUIT SETTING BALANCING VALVE
- THREE WAY CONTROL VALVE
- TWO WAY CONTROL VALVE
- S — SOLENOID VALVE
- PRESSURE REDUCING VALVE (PRV)
- TPV — TEMPERATURE/PRESSURE RELIEF VALVE
- RELIEF/SAFETY VALVE
- GAS COCK
- FUSIBLE LINK VALVE-QUICK CLOSING
- FUSIBLE LINK VALVE-QUICK OPENING
- AUTOMATIC FILL VALVE
- MV — MANUAL AIR VENT
- AV — AUTOMATIC AIR VENT (EXTEND DISCHARGE TO DRAIN)
- VB — VACUUM BREAKER
- FLOW METER-VENTURI
- HP — HIGH PRESSURE REFRIGERANT
- LP — LOW PRESSURE REFRIGERANT
- DIRECTION OF FLOW
- R / D — DIRECTION OF PITCH-RISE OR DROP
- STRAINER
- STRAINER WITH BLOW OFF VALVE
- PIPE RISING UP
- PIPE DROPPING DOWN
- TEE OUTLET UP
- TEE OUTLET DOWN
- CONCENTRIC REDUCER
- ECCENTRIC REDUCER
- UNION - SCREWED OR FLANGED
- A — ANCHOR
- G — GUIDE
- EJ — EXPANSION JOINT
- FS — FLOW SWITCH
- TT — TEMPERATURE TRANSMITTER
- PT/PS — PRESSURE TRANSMITTER OR PRESSURE SWITCH
- TH — THERMOMETER
- GAUGE WITH GAUGE COCK & SYPHON (STEAM)
- AQUASTAT
- GAS PRESSURE REGULATOR
- FLOAT OPERATED CONTROL VALVE
- BASKET STRAINER
- ELECTRICALLY TRACED PIPING
- FLEXIBLE CONNECTION
- FLOW METER-ORIFICE
- RS — REFRIGERANT SUCTION
- RL — REFRIGERANT LIQUID
- HWS — HOT WATER SUPPLY
- HWR — HOT WATER RETURN

EQUIPMENT ABBREVIATIONS

AB	AIR BLENDER
ACU	AIR CONDITIONING UNIT
ACCU	AIR COOLED CONDENSING UNIT
AHU	AIR HANDLING UNIT
AS	AIR SEPARATOR
B	BOILER
CH	CHILLER
COND	CONDENSING UNIT
CUH	CABINET UNIT HEATER
CV	AUTOMATIC CONTROL VALVE
D	AUTOMATIC DAMPER
EAV	EXHAUST AIR VALVE
EF	EXHAUST FAN
ET	EXPANSION TANK
EUH	ELECTRIC UNIT HEATER
FC	FAN COIL UNIT
FHEF	FUME HOOD EXHAUST FAN
GF	GLYCOL FEEDER
GFF	GAS FIRED FURNACE
HC	HEATING COIL
MB	MIXING BOX
P	PUMP
PS	PRESSURE SWITCH
RH	REHEAT COIL
RV	RELIEF VALVE
RTU	ROOFTOP UNIT
SAV	SUPPLY AIR VALVE
SF	SUPPLY FAN
ST	STORAGE TANK
STP	SOUND TRAP
TG	TRANSFER GRILLE
UH	UNIT HEATER
VAV	VAV BOX

REFERENCE SYMBOLS

- CONNECTION OF NEW TO EXISTING
- EXTENT OF DEMOLITION WORK

LINE DESIGNATIONS

- EXISTING DUCTWORK TO BE REMOVED
- D — DRAIN
- E — EXPANSION
- EXH — EXHAUST

REGISTERS, GRILLES ABBREVIATIONS

SWS - SIDE WALL SUPPLY GRILLES
SWR - SIDE WALL RETURN GRILLES
SWE - SIDE WALL EXHAUST GRILLES
TG - TRANSFER GRILLES

DUCTWORK

DOUBLE LINE		SINGLE LINE
	DUCTWORK	
VD	MANUAL VOLUME DAMPER (VD)	VD
AD	ACCESS DOOR	AD
	RADIUS ELBOW(R=1.5)	
	VANED ELBOW	
	BRANCH DUCT TAKE-OFF	
D R	RISE OR DROP DIRECTION OF AIR FLOW	D R
	FLEXIBLE CONNECTION	
	DIFFUSER	
	CEILING RETURN/EXHAUST REGISTER OR GRILLE	
	SUPPLY AIR GRILLE (G) OR SUPPLY AIR REGISTER (R)	
	RETURN AND/OR EXHAUST AIR GRILLE (G) OR REGISTER (R)	
	FLEXIBLE DUCTWORK	

- FD/AD — FIRE DAMPER & ACCESS DOOR
- T — THERMOSTAT, SENSOR
- H — HUMIDISTAT, SENSOR
- S — SMOKE DETECTOR
- Λ — FLAME DETECTOR
- CO — CO SENSOR
- CONTROL DAMPER-OPPOSED BLADE
- CONTROL DAMPER-PARALLEL BLADE
- BACKDRAFT DAMPER
- M / MD — MOTORIZED DAMPER
- SUPPLY AIR
- RETURN OR EXHAUST AIR
- OUTSIDE AIR
- HUMIDIFIER
- COIL (TYPE AS INDICATED ON DRAWINGS)
- FAN
- MD — MOTORIZED DAMPER

GENERAL NOTES

1. GENERAL NOTES, SYMBOL LIST AND DETAILS ARE APPLICABLE TO ALL HVAC/MECHANICAL DRAWINGS.
2. DRAWINGS ARE DIAGRAMMATIC. DETERMINE LOCATIONS OF SYSTEMS AND COMPONENTS IN FIELD.
3. COORDINATE THIS WORK WITH THAT OF OTHER TRADES.
4. DIMENSIONS SHOWN ON PLAN ARE HORIZONTAL. DIMENSIONS SHOWN IN ELEVATION ARE VERTICAL EXCEPT IN WAY OF STRUCTURAL STEEL, DIMENSIONS ARE MEASURED PERPENDICULAR TO FLANGE.
5. PRODUCT INSTALLATION SHALL ADHERE TO MANUFACTURER'S RECOMMENDATIONS.
6. PROVIDE ACCESS PANELS FOR EQUIPMENT THAT REQUIRES PERIODIC SERVICE.
7. PROVIDE HANGERS, INSERTS, ANCHORS, SUPPLEMENTAL STEEL & SUPPORTS AS REQUIRED TO SUPPORT DUCTWORK, PIPING AND EQUIPMENT FROM STRUCTURE.
8. SCHEDULE WORK OF THIS SECTION TO AVOID INTERFERING WITH EXISTING OPERATIONS IN THE FACILITY.
9. RUN DUCTS AND PIPING CONCEALED, UNLESS OTHERWISE SPECIFIED AND CLEAR OF CEILING INSERTS.
10. INSTALL THERMOSTATS 4'-6" ABOVE FINISHED FLOOR OR AS DIRECTED OTHERWISE BY ARCHITECT.

AIR SYSTEMS

1. INTERNAL AIRFLOW DIMENSIONS ARE SHOWN FOR DUCTS. INCREASE DUCT SIZE AS NECESSARY TO MAINTAIN FREE FLOW AREA INDICATED. PROVIDE ACOUSTIC LINED DUCTWORK 20 FOOT MINIMUM FROM ALL AIR CONDITIONING EQUIPMENT ON BOTH SUPPLY AND RETURN.
2. USE FLAT TRANSVERSE SEAM FOR DUCTWORK WHERE SPACE AVAILABLE DICTATES.
3. REGISTERS AND GRILLE SIZES ARE NOMINAL.
4. PROVIDE VOLUME DAMPERS OR OTHER APPROVED BALANCING DEVICES AT DUCT BRANCHES AND RUN OUTS, AND AT REGISTERS AND GRILLES AND IN RETURN AND EXHAUST DUCTWORK WHETHER SHOWN OR NOT.
5. PROVIDE 36" CLEARANCE IN FRONT OF ALL ELECTRIC CONTROL PANELS PER N.E.C. AND MFG. REQUIREMENTS.
6. PROVIDE FLEXIBLE CONNECTION ON EACH SIDE OF ALL FANS AND HVAC UNITS.

ABBREVIATIONS

AAV	AUTOMATIC AIR VENT
AFF	ABOVE FINISHED FLOOR
AD	ACCESS DOOR
ATC	AUTOMATIC TEMPERATURE CONTROL
BDD	BACK DRAFT DAMPER
BFF	BELOW FINISHED FLOOR
BFP	BACK FLOW PREVENTOR
BLDG	BUILDING
BOD	BOTTOM OF DUCT
BSMT	BASEMENT
BTU	BRITISH THERMAL UNIT
CAP	CAPACITY
CBV	CIRCUIT BALANCING VALVE
CFM	CUBIC FEET PER MINUTE
CLG	CEILING
CONN	CONNECTION
CV	CONTROL VALVE
DAMP	DAMPER
DB	DRY BULB
DIA	DIAMETER
DISCH	DISCHARGE
DIV	DIVISION
DN	DOWN
DWG	DRAWING
DX	DIRECT EXPANSION
EA	EACH
EAT	ENTERING AIR TEMPERATURE
EFF	EFFICIENCY
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRIC
ENT	ENTERING
EQ	EQUAL
EQUIP	EQUIPMENT
ES	END SWITCH
ESP	EXTERNAL STATIC PRESSURE
EWT	ENTERING WATER TEMPERATURE
EXH	EXHAUST
EXPAN	EXPANSION
EXT	EXTERNAL
°F	DEGREES FAHRENHEIT
FCV	FLOW CONTROL VALVE
FD	FLOOR DRAIN
FD/AD	FIRE DAMPER WITH ACCESS DOOR
FIN	FINISHED
FLA	FULL LOAD AMPS
FPH	FEET PER HOUR
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FS	FLOW SWITCH
FD/SD/AD	COMBINATION FIRE AND SMOKE DAMPER WITH ACCESS DOOR
FD/AD	FIRE DAMPER WITH ACCESS DOOR
FT	FEET
FTR	FINNED TUBE RADIATION
FV	FACE VELOCITY
FXC	FLEXIBLE CONNECTION
FOS	FUEL OIL SUCTION
FOR	FUEL OIL RETURN
GA	GAUGE
GAL	GALLON
GFF	GAS FIRED FURNACE
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
HT	HEIGHT
H_2O	WATER
HP	HORSEPOWER
HR	HOUR
HTR	HEATER
HZ	HERTZ
ID	INTERNAL DIAMETER
IN	INCHES
KW	KILOWATT
L	LENGTH
LAT	LEAVING AIR TEMPERATURE
LB	POUND
LBS/HR	POUNDS PER HOUR (#/HR)
LD	LINEAR DIFFUSER
LIN	LINEAR
LVG	LEAVING
LVR	LOUVER
LWT	LEAVING WATER TEMPERATURE
MBH	THOUSANDS OF BTU PER HOUR
MED	MEDIUM
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
NC	NORMALLY CLOSED
No	NUMBER
NO	NORMALLY OPEN
NTS	NOT TO SCALE
PD	PRESSURE DROP (SEE SCHEDULE)
PH	PHASE
PRESS	PRESSURE
PS	PRESSURE SWITCH
PSI	POUNDS PER SQUARE INCH
PSIG	POUNDS PER SQUARE INCH GAUGE
PT	PRESSURE TRANSMITTER
PV	PLUG VALVE
R	REGISTER
RA	RETURN AIR
RE	ROUNDED ENTRANCE/EXIT
REL	RELIEF
RET	RETURN
RH	RELATIVE HUMIDITY
RLA	RATED LOAD AMPS
RM	ROOM
RPM	REVOLUTIONS PER MINUTE
RSL	REFRIGERANT SUCTION LINE
RLL	REFRIGERANT LIQUID LINE
SA	SUPPLY AIR
SH	SENSIBLE HEAT
SP	STATIC PRESSURE
SPEC	SPECIFICATION
SQ	SQUARE
STD	STANDARD
SUCT	SUCTION
SUP	SUPPLY
SYS	SYSTEM
TAD	TRANSFER AIR DUCT
TEMP	TEMPERATURE
TP	TOTAL PRESSURE
TSP	TOTAL STATIC PRESSURE
TT	TEMPERATURE TRANSMITTER
TYP	TYPICAL
	VOLTS
VD	VOLUME DAMPER
VEL	VELOCITY
VOLT	VOLTAGE
W	WIDTH
WB	WET BULB
WC	WATER COLUMN
WG	WATER GAUGE
WT	WEIGHT

NO.	DATE	ISSUE
1	11/21/2024	ISSUE FOR BID

NO.	DATE	REVISION

PROJECT TITLE:

BEEKMAN TOWN HALL HVAC
4 MAIN ST POUGHQUAG, NEW YORK 12570

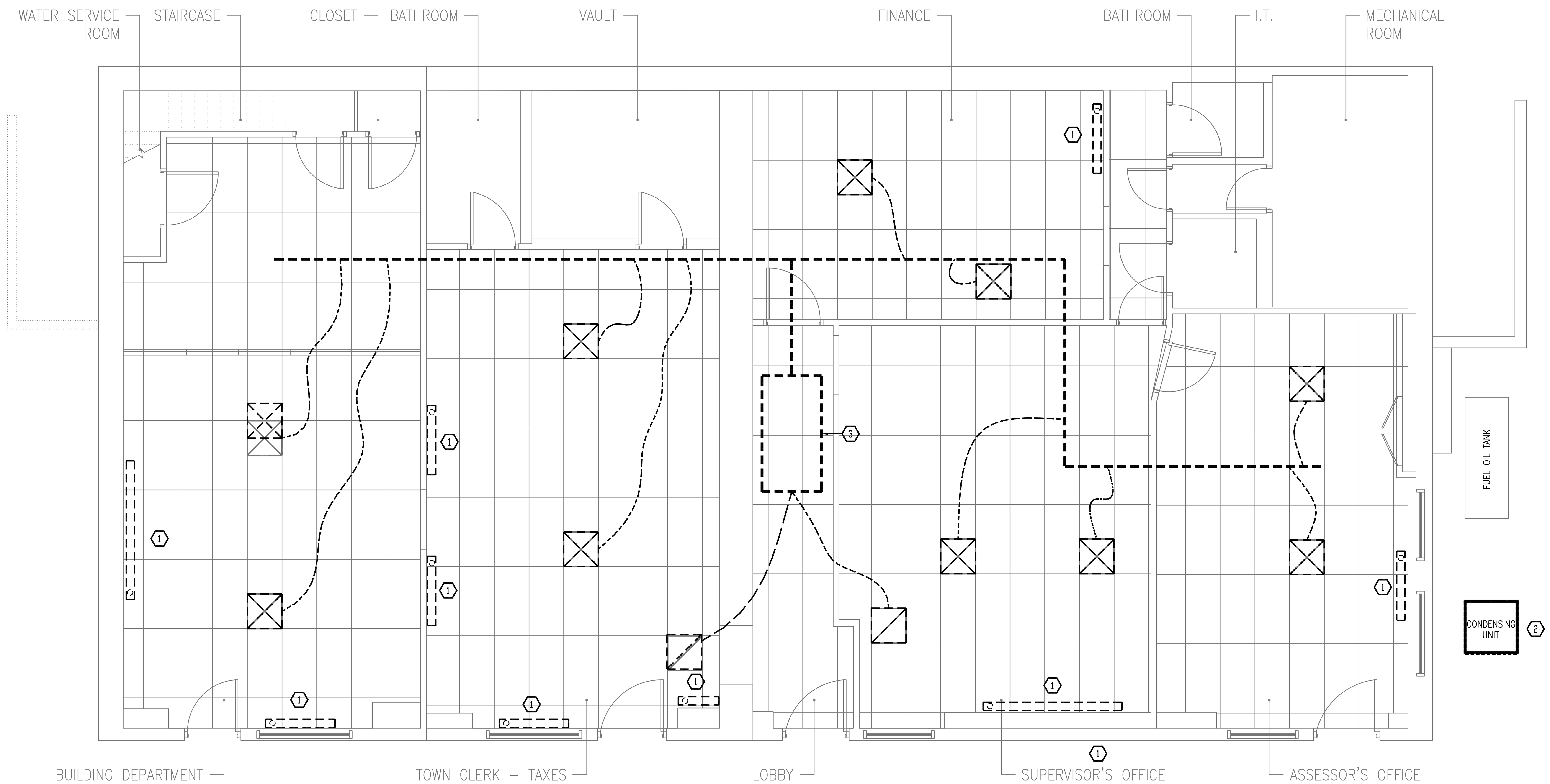
DRAWING TITLE:

SYMBOL LIST, ABBREVIATIONS AND NOTES

THESE DRAWINGS ARE NOT VALID FOR BUILDING PERMIT UNLESS ORIGINALLY SIGNED & SEALED BY CHARLES M. VELZY P.E.

CBK Engineering
44-46 Foster Road
Suite 7
Hopewell Junction, N.Y. 12533
T (914) 509-8161 F (914) 509-8162

SCALE: AS NOTED	DRAWING NO.
DATE: 11/20/2024	M-001
DRN. BY:	
CBK JOB NO.: 24102	SHEET COUNT
CBK FILE NO.:	1 OF 8



1 LOWER LEVEL DEMOLITION PLAN

SCALE: 1/4"=1'-0"

KEYED NOTES

1. REMOVE THE EXISTING ELECTRICAL FINTUBE RADIATION AND ASSOCIATED WIRING BACK TO ELECTRICAL PANEL.
2. REMOVE THE EXISTING CONDENSING UNIT AND ASSOCIATED PIPING.
3. REMOVE THE EXISTING AIR CONDITIONING UNIT AND ASSOCIATED DUCTWORK. REMOVE THE EXISTING CEILING GRID AND CEILING TILES. RE-INSTALL CEILING GRID AND INSTALL NEW CEILING TILES UPON COMPLETION OF WORK.

NO.	DATE	ISSUE
1	11/21/2024	ISSUE FOR BID

NO.	DATE	REVISION

PROJECT TITLE:

BEEKMAN TOWN HALL
HVAC
4 MAIN ST POUGHQUAG, NEW YORK 12570

DRAWING TITLE:

LOWER LEVEL DEMOLITION PLAN AND NOTES

THESE DRAWINGS ARE NOT VALID FOR BUILDING PERMIT UNLESS

STATE OF NEW YORK · CHARLES MARK VELZY · NO. 064374 · LICENSED PROFESSIONAL ENGINEER

ORIGINALLY SIGNED & SEALED BY CHARLES M. VELZY P.E.

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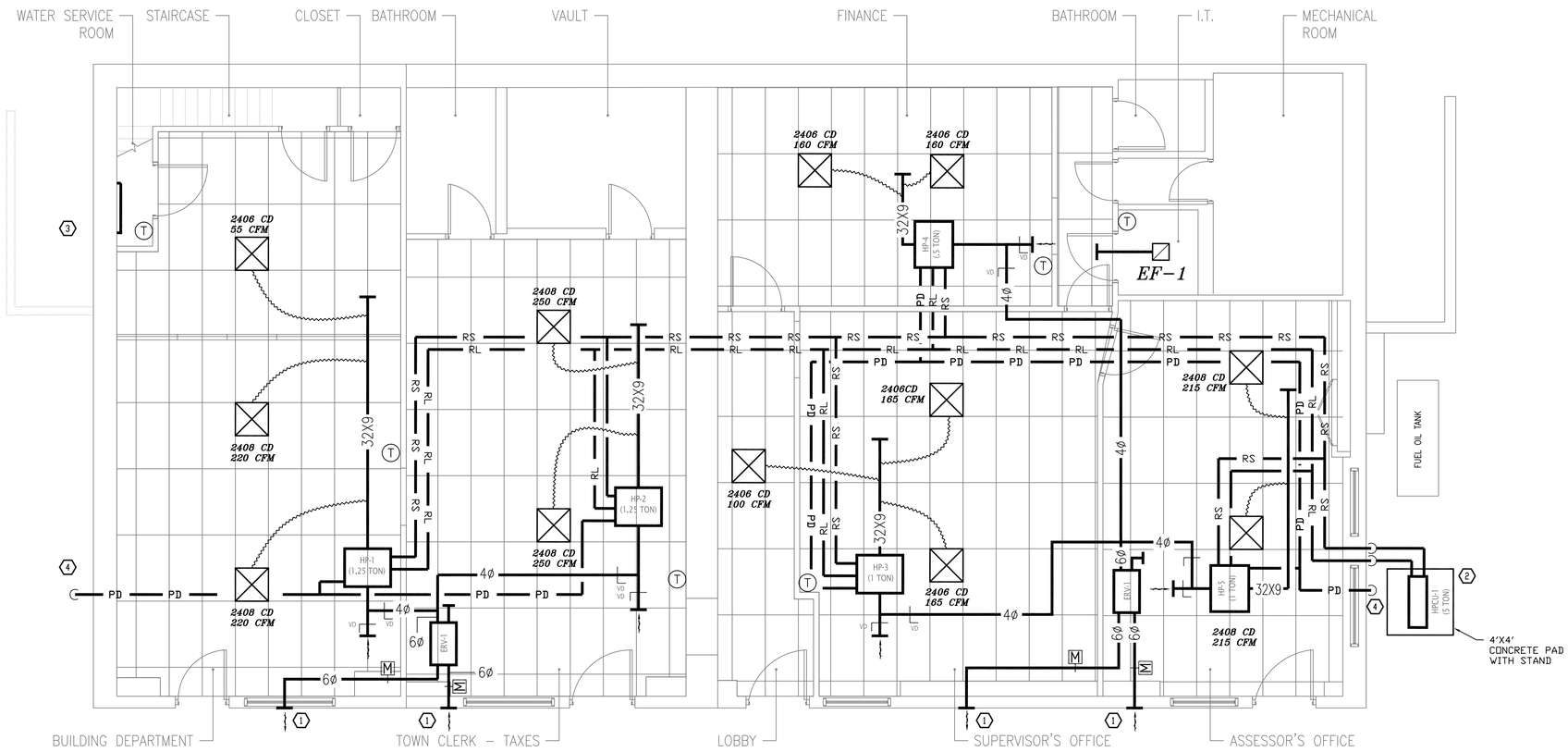
SCALE: AS NOTED	DRAWING NO.
DATE: 11/20/2024	M-101
DRN. BY:	
CBK JOB NO.: 24102	SHEET COUNT
CBK FILE NO.:	2 OF 8



1 LOWER LEVEL CONSTRUCTION PLAN

SCALE: 1/4"=1'-0"

KEYED NOTES

1. 8" DIAMETER SCREENED CAP.
2. PROVIDE 4'X4' CONCRETE PAD FOR HPCU-1. PROVIDE BIG FOOT ADJUSTABLE MOUNTING SYSTEM. PROVIDE CLAMPS AS NEEDED FOR MOUNTING.
3. PROVIDE ELECTRIC FINTUBE IN WATER SERVICE ROOM. FINTUBE SHALL BE MARLEY BKOC2513W, 750 WATTS, 120V, 1 PHASE WITH WALL MOUNTED THERMOSTAT.
4. 1" PUMPED DISCHARGE TO 12" ABOVE GRADE.

NO.	DATE	ISSUE
1	11/21/2024	ISSUE FOR BID

NO.	DATE	REVISION

PROJECT TITLE:

BEEKMAN TOWN HALL HVAC 4 MAIN ST POUGHQUAG, NEW YORK 12570

DRAWING TITLE:

LOWER LEVEL CONSTRUCTION PLAN AND NOTES

THESE DRAWINGS ARE NOT VALID FOR BUILDING PERMIT UNLESS

STATE OF NEW YORK · CHARLES MARK VELZY · LICENSED PROFESSIONAL ENGINEER · No. 064317

ORIGINALLY SIGNED & SEALED BY CHARLES M. VELZY P.E.

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SCALE: AS NOTED	DRAWING NO.
DATE: 11/20/2024	M-201
DRN. BY:	
CBK JOB NO.: 24102	SHEET COUNT
CBK FILE NO.:	3 OF 8

SPECIFICATIONS

SECTION 2200000 – HEATING, VENTILATION & AIR CONDITIONING

PART 1 – GENERAL

1.01 DESCRIPTION OF THE WORK:

A. HEATING, VENTILATING, AND AIR CONDITIONING WORK INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING AREAS:
1. SPLIT SYSTEM UNITS
2. DUCTWORK AND INSULATION
3. DIFFUSER AND REGISTERS
4. EXHAUST FANS
5. DAMPERS, VENTS
6. THERMOSTATS
7. TESTING AND BALANCING
8. FILTERS

B. COORDINATE WITH THE ELECTRICAL CONTRACTOR, (EC) THE WIRING, POWER, CONTROL, PROTECTION, AND CIRCUITING OF ALL MECHANICAL EQUIPMENT , INCLUDING BUT NOT LIMITED TO, VALVES, MOTORS, SENSORS, TEMPERATURE CONTROLLERS, AIR HANDLERS, AIR CONDITIONING CONDENSERS, EXHAUST FANS, RESISTANCE HEATING EQUIPMENT, OUTSIDE AIR DAMPERS, SIGNALING AND CONTROL EQUIPMENT, AND OTHER MECHANICAL EQUIPMENT, WHETHER LOW-VOLTAGE OR HIGH-VOLTAGE FOR A COMPLETE HVAC AND PLUMBING SYSTEM, SHOWN ANYWHERE IN THESE DRAWINGS OR DESCRIBED ANYWHERE IN THESE SPECIFICATIONS. SIZE WIRING AND CIRCUITS IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.

C. SEE BOOK SPECIFICATIONS FOR ADDITIONAL INFORMATION.

1.02 QUALITY ASSURANCE:

A. COMPLY WITH PROVISIONS OF THE FOLLOWING CODES, SPECIFICATIONS, AND STANDARDS, EXCEPT WHERE MORE STRINGENT REQUIREMENTS ARE SHOWN OR SPECIFIED. 1. CODES AND STANDARDS: COMPLY WITH THE NEW YORK STATE AND LOCAL CODES; NFPA #90A AND #90B, AND THE RULES AND REGULATIONS OF THE APPLICABLE UTILITY COMPANIES.

B. COORDINATE LOCATION OF DUCTWORK TO AVOID INTERFERENCE WITH LOCATION OF DESIGNATED LIGHTING FIXTURE LOCATIONS. NOTIFY ARCHITECT PRIOR TO CONSTRUCTION OF CONFLICTS WHICH CANNOT BE RESOLVED.

1.03 STANDARDS AND COMPLIANCE:

A. INSTALLATION, DESIGN, CLEARANCES AND PROTECTION OF ALL SUPPLY AND EXHAUST OPENINGS SHALL COMPLY WITH THE NEW YORK STATE AND LOCAL CODES AND ALL MANUFACTURERS' RECOMMENDATIONS.

1.04 COORDINATION WITH DRAWINGS:

A. DRAWINGS REPRESENT A SCHEMATIC LAYOUT OF DUCTS AND DIFFUSERS TO ACHIEVE AN APPROXIMATION OF THE PERFORMANCE INTENDED FOR THE GEOGRAPHIC AREA. SOME ADJUSTMENT IN DUCT DISTRIBUTION, DIFFUSER LOCATION, PLENUM SIZE CHANGES AND OTHER MODIFICATIONS ARE ACCEPTABLE WHEN SUPPORTED WITH SUBMITTALS SHOWING DESIGN DATA, CFM RATINGS, AND OTHER INFORMATION SUPPORTING THE DESIGN INTENTS..

1.05 SUBMITTALS:

A. SUBMIT FOR APPROVAL SHOP DRAWINGS, PRODUCT DATA, FIXTURE AND EQUIPMENT CATALOG CUTS.

1.06 ENERGY CONSERVATION REQUIREMENTS:

A. GENERAL: ALL EQUIPMENT SHALL CONFORM TO THE REQUIREMENTS OF ITHE NEW YORK STATE AND LOCAL CODE

B. CONTROLS: EACH THERMOSTAT SHALL BE CAPABLE OF BEING SET AS FOLLOWS: 1 EACH THERMOSTAT SHALL BE CAPABLE OF BEING SET FROM 55 DEGREES F TO 85 DEGREES F AND SHALL BE CAPABLE OF OPERATING THE SYSTEM HEATING AND COOLING IN SEQUENCE. IT SHALL BE ADJUSTABLE TO PROVIDE A MINIMUM TEMPERATURE RANGE OF 10 DEGREES F BETWEEN FULL HEATING AND FULL COOLING.

1.08 ACCESSIBILITY:

A. ALL INDIVIDUAL ITEMS OF EQUIPMENT AND COMPONENTS THEREOF SHALL BE COMPLETELY ACCESSIBLE FOR REPAIR, REMOVAL OR REPLACEMENT WITHOUT FUNCTIONAL IMPAIRMENT OR DISMANTLING OF ANY ADJOINING SURFACES OR ASSEMBLIES, AND IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

PART – 2 PRODUCTS

2.01 DUCT WORK, DAMPERS, DIFFUSERS VENTS & THERMOSTATS:

A. ALL DUCT WORK ABOVE SLAB: GALVANIZED STEEL FOR ROUND AND RECTANGULAR SUPPLY AND RETURN DUCTS WHICH SHALL COMPLY WITH SMACNA DUCT MANUAL AND SHEET METAL CONSTRUCTION

B. FOR THE FIRST 20 FEET OF SUPPLY AND RETURN DUCTWORK 1" INTERIOR LINING SHALL BE PROVIDED. ALL DUCTS SHALL BE INSULATED WITH A 1 1/2" FLEXIBLE FIBERGLASS INSULATION FOR THE REMAINDER OF THE INTERIOR SUPPLY AND RETURN DUCTWORK.

C. DIFFUSERS, GRILLES: ALL DIFFUSERS, AND GRILLES, SHALL BE UNITS WITH APPROVED FACE AND FRAME DESIGN, GASKETS, AND BAKED ENAMEL FINISH BY TITUS OR APPROVED EQUAL. 1. RETURN AIR GRILLES SHALL BE TITUS TMSA OR EQUAL 2. SUPPLY DIFFUSERS SHALL BE TITUS OMNI OR EQUAL.

D. FLEXIBLE CONNECTIONS: FLEXIBLE CONNECTIONS SHALL BE INSTALLED AT ALL LOCATIONS WHERE DUCT WORK CONNECT TO AIR HANDLING UNITS. CONNECTIONS SHALL BE MANUFACTURED PRODUCTS DESIGNED FOR THIS APPLICATION, AND SHALL BE AT LEAST 3 INCHES IN LENGTH, AND FIRE RESISTANT, WITH UL TESTING LABEL.

E. THERMOSTATS: 7-DAY PROGRAMMABLE THERMOSTATS WITH MINIMUM 4 DAILY OCCUPIED & UNOCCUPIED SETTING AND TEMPERATURE-HOLD SETTINGS. MANUFACTURED BY SAMSUNG OR EQUAL. SEE SEQUENCE OF OPERATIONS ON DRAWINGS FOR THERMOSTAT FUNCTION, HEATING AND COOLING MODES, OUTSIDE AIR MODES, AND OTHER OPERATIONS.

F. VOLUME DAMPER: PROVIDE BALANCING DAMPER AT EACH SUPPLY AND RETURN BRANCH AND WHERE SHOWN ON DRAWINGS.

2.02 PIPING
A. REFRIGERANT PIPING SHALL BE TYPE L COPPER, REFRIGERANT GRADE. PROVIDE 1" INSULATION ON ALL REFRIGERANT PIPING.

2.03 TESTING AND BALANCING

A. PROVIDE INDEPENDANT AIR BALANCE REPORT WITH DIFFUSERS BALANCED TO CFMS SHOWN.

PART 3 – EXECUTION

3.01 GENERAL

A. COORDINATE LOCATION OF ALL THRU-WALL VENTS, STACKS AND OTHER PENETRATIONS NOT LESS THAN TEN (10) FEET AWAY FROM THE OUTSIDE AIR INTAKE VENTS (OR OTHER BUILDING OPENINGS) SHOWN ON DRAWINGS.

B. CUTTING AND NOTCHING: ALL CUTTING, NOTCHING, AND DRILLING SHALL BE DONE WITHIN THE LIMITS SET FORTH IN SPECIFICATIONS OR AS OTHERWISE DESCRIBED IN THIS SECTION.

C. TESTS: EACH SYSTEM SHALL BE TESTED TO INSURE THAT THE INTENT STATED ABOVE HAS BEEN REALIZED. TEMPERATURES AND EQUIPMENT NOISE LEVELS SHALL BE CHECKED TO INSURE PROPER EQUIPMENT OPERATION. AIR FLOW AT EACH DIFFUSER SHALL BE CHECKED TO INSURE PROPER AND UNRESTRICTED FLOW OF AIR THROUGH THE DUCT SYSTEM.

3.02 CLEANING

A. INSTALL NEW, CLEAN, AND FINAL AIR FILTERS IN ALL AIR HANDLERS AFTER COMPLETION OF ALL CONSTRUCTION AND DUCT CLEANING DESCRIBED ABOVE. REMOVE AND DISPOSE OF ALL TEMPORARY AIR FILTERS.

3.04 SEQUENCE OF OPERATION (SPLIT SYSTEM UNIT)

SEVEN DAY 24 HOUR PROGRAMMABLE THERMOSTAT SHALL CYCLE THE UNIT TO PROVIDE HEATING OR COOLING AS REQUIRED BY THE SPACE. A HEAT/COOL SWITCH ON THE THERMOSTAT SHALL PUT THE SYSTEM IN THE PROPER MODE OF OPERATION. THE FAN SHALL RUN CONTINUOUSLY. ERV SHALL OPERATE WHEN ANY HP UNIT IS ON.

IT ROOM EXHAUST FAN SHALL OPERATE ON THERMOSTAT.

WATER ROOM ELECTRIC FINTUBE SHALL OPERATE FROM WALL MOUNTED THERMOSTAT.

MINIMUM PIPE INSULATION THICKNESS (INCHES)

FLUID OPERATING TEMPERATURE RANGE AND USAGE (°F)	INSULATION CONDUCTIVITY		NOMINAL PIPE OR TUBE SIZE (inches)				
	CONDUCTIVITY Btu x in/h x ft²x °F[b]	NEW RATING TEMPERATURE°F	<1	1 TO <1-1/2	1-1/2 TO <4	4 TO <8	≥8
>350	0.32 – 0.34	250	4.5	5.0	5.0	5.0	5.0
251 – 350	0.29 – 0.32	200	3.0	4.0	4.5	4.5	4.5
201 – 250	0.27 – 0.30	150	2.5	2.5	2.5	3.0	3.0
141 – 200	0.25 – 0.34	125	1.5	1.5	2.0	2.0	2.0
105 – 140	0.21 – 0.28	100	1.0	1.0	1.5	1.5	1.5
40 – 60	0.21 – 0.27	75	0.5	0.5	1.0	1.0	1.0
<40	0.20 – 0.26	75	0.5	0.5	1.0	1.0	1.5

a. FOR PIPES SMALLER THAN 1-1/2 INCHES (38mm) AND LOCATED IN PARTITIONS WITHIN CONDITIONED SPACES, REDUCTION OF THESE THICKNESSES BY 1 INCH (25mm) SHALL BE PERMITTED BEFORE THICKNESS ADJUSTMENT REQUIRED BY FOOTNOTE B, BUT TO A THICKNESS LESS THAN 1 INCH (25mm)

b. FOR INSULATION OUTSIDE THE STATED CONDUCTIVITY RANGE, THE MINIMUM THICKNESS (T) SHALL BE DETERMINED AS FOLLOWS

$$T = r\{(1+t/r)^{K/K-1}\}$$

WHERE:
T= MINIMUM INSULATION THICKNESS.
r= ACTUAL OUTSIDE RADIUS OF PIPE.
t= INSULATION THICKNESS LISTED IN THE TABLE FOR APPLICABLE FLUID TEMPERATURE AND PIPE SIZE.
K= CONDUCTIVITY OF ALTERNATE MATERIAL AT MEAN RATING TEMPERATURE INDICATED FOR THE APPLICABLE FLUID TEMPERATURE Btu x in./(h x ft x °F) AND
k = THE UPPER VALUE OF THE CONDUCTIVITY RANGE LISTED IN THE TABLE FOR THE APPLICABLE FLUID TEMPERATURE

c. FOR DIRECT-BURIED HEATING AND HOT WATER SYSTEM PIPING, REDUCTION OF THESE THICKNESSES BY 1-1/2 INCHES (38mm) SHALL BE PERMITTED (BEFORE THICKNESS ADJUSTMENT REQUIRED IN FOOTNOTE B BUT NOT TO THICKNESS LESS THAN 1 INCH (25mm)

ALL INSULATION WILL COMPLY WITH TABLE C403.2.1 OF THE NYS ENERGY CONSTRUCTION CODE.

DUCT CONSTRUCTION MINIMUM SHEET METAL THICKNESS

RECTANGULAR DUCTS

MAXIMUM SIZE (INCHES)	STEEL (MINIMUM THICKNESS, NOMINAL)	ALUMINUM (MINIMUM THICKNESS, NOMINAL)
THROUGH 12	0.022 INCH (26 GAGE, GALV.)	0.020 INCH (NO. 24 B&S GAGE)
13 THROUGH 30	0.028 INCH (24 GAGE, GALV.)	0.025 INCH (NO. 22 B&S GAGE)
31 THROUGH 54	0.034 INCH (22 GAGE, GALV.)	0.032 INCH (NO. 20 B&S GAGE)
55 THROUGH 84	0.040 INCH (20 GAGE, GALV.)	0.040 INCH (NO. 18 B&S GAGE)
OVER 84	0.052 INCH (18 GAGE, GALV.)	0.051 INCH (NO. 16 B&S GAGE)

ROUND DUCTS

MAXIMUM SIZE (INCHES)	SPIRAL SEAM DUCT STEEL (MINIMUM THICKNESS, NOMINAL)	LONGITUDINAL SEAM DUCT STEEL (MINIMUM THICKNESS, NOMINAL)	FITTINGS STEEL (MINIMUM THICKNESS, NOMINAL)
THROUGH 12	0.019 INCH (28 GAGE, GALV.)	0.022 INCH (26 GAGE, GALV.)	0.022 INCH (26 GAGE, GALV.)
13 THROUGH 18	0.022 INCH (26 GAGE, GALV.)	0.028 INCH (24 GAGE, GALV.)	0.028 INCH (24 GAGE, GALV.)
19 THROUGH 28	0.028 INCH (24 GAGE, GALV.)	0.034 INCH (22 GAGE, GALV.)	0.034 INCH (22 GAGE, GALV.)
29 THROUGH 36	0.034 INCH (22 GAGE, GALV.)	0.040 INCH (20 GAGE, GALV.)	0.040 INCH (20 GAGE, GALV.)
37 THROUGH 52	0.040 INCH (20 GAGE, GALV.)	0.052 INCH (18 GAGE, GALV.)	0.052 INCH (18 GAGE, GALV.)

ENERGY RECOVERY VENTILATOR SCHEDULE

UNIT NO.	LOCATION	CFM	SUPPLY EXHAUST FAN EXT. SP.	FAN RPM	WATTS	HP	VOLT	PH	AMPS	MAX FUSE	HRV MANUFACTURER & MODEL NO.
ERV-1,2	CEILING	70	1	1750	135	–	120	1	1.7	20	RENEW AIRE SL75H

REMARKS: PROVIDE BACK DRAFT DAMPER FOR EACH FAN.
PROVIDE MOTORIZED DAMPER ON OA AND RELIEF AIR DUCT.
PROVIDE 8" DIAMETER OUTSIDE AIR AND RELIEF AIR LOUVERED WALL VENT.

FAN SCHEDULE

FAN No.	AREA SERVICED	CFM	TOTAL S.P. IN. WAT.	RPM	D.V. FPM	MOTOR BHP	MOTOR AMPS	MOTOR VOLT	MOTOR PH	MOTOR HZ	FAN DRIVE	FAN TYPE	FAN CLASS	FAN ARR.	FAN ROTATION	MANUFACTURER AND MODEL No.
EF-1	IT ROOM	75	.25	1161	–	–	0.17	120	1	60	DIRECT	CEILING	–	–	–	PANASONIC FV-11VQ5

REMARKS: 1. EXHAUST FANS SHALL BE INSTALLED WITH BACK DRAFT DAMPER.
2. EXHAUST FAN SHALL OPERATE ON THERMOSTAT.

SPLIT SYSTEM HEAT PUMP UNIT SCHEDULE

UNIT NO.	LOCATION	OA CFM	CFM	AIR HANDLER EXT. SP.	FAN RPM	BHP	HP	MBH TOT.	MBH SEN.	MBH HEAT	VOLT	PH	M.C.A.	MAX FUSE	MANUFACTURER & MODEL NO.	A.C.C.U. VOLT	PH	M.C.A.	MAX FUSE	OPERATING WEIGHT (LBS)	UNIT NO.	MANUFACTURER & MODEL NO.	REMARKS
HP-1,2	BUILDING DEPARTMENT CLERK	35	494	.4	–	–	–	13.4	10.6	12.2	208	1	1.29A	15	SAMSUNG AM015ANMDCH/AA	208	1	32A	50	275.6	HPCU-1	SAMSUNG AM060MXMDCH/AA	
HP-3,5	SUPERVISOR, ASSESSOR	28	424	.4	–	–	–	10.7	8.5	9.7	208	1	0.91A	15	SAMSUNG AM012ANMDCH/AA								
HP-4	FINANCE	14	318	.4	–	–	–	5.6	4.3	5.1	208	1	0.91A	15	SAMSUNG AM006ANMDCH/AA								

REMARKS: PROVIDE CONDENSATE PUMP WITH UNITS. PUMP ALL CONDENSATE TO INDIRECT DRAIN.
PROVIDE DRAIN PAN UNDER UNITS HP-1,2,3 WITH WATER SENSOR. WATER SENSOR SHALL SHUT DOWN UNIT UPON SENSING OF WATER.
PROVIDE ACCESSORY FILTER BOX WITH ALL HP UNITS.

NO.	DATE	ISSUE
1	11/21/2024	ISSUE FOR BID

NO.	DATE	REVISION

PROJECT TITLE:

BEEKMAN TOWN HALL HVAC
4 MAIN ST POUGHQUAG, NEW YORK 12570

DRAWING TITLE:

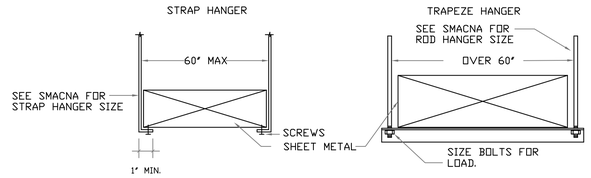
SCHEDULES AND SPECIFICATIONS

THESE DRAWINGS ARE NOT VALID FOR BUILDING PERMIT UNLESS ORIGINALLY SIGNED & SEALED BY CHARLES M. VELZY P.E.

STATE OF NEW YORK · CHARLES MARK VELZY · LICENSED PROFESSIONAL ENGINEER · No. 086317

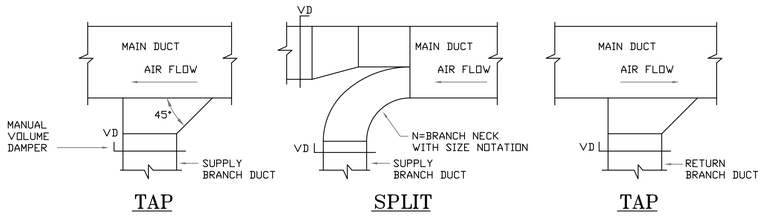
CBK Engineering
44-46 Foster Road
Suite 7
Hopewell Junction, N.Y. 12533
T (914) 509-8161 F (914) 509-8162

SCALE: AS NOTED
DRAWING NO. M-301
DATE: 11/20/2024
DRN. BY:
CBK JOB NO.: 24102
SHEET COUNT 4 OF 8
CBK FILE NO.:



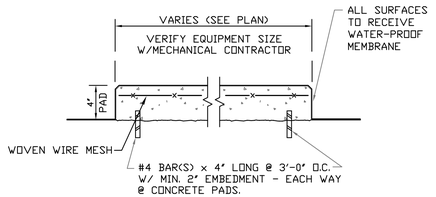
1 DUCT HANGER DETAIL

SCALE: NOT TO SCALE



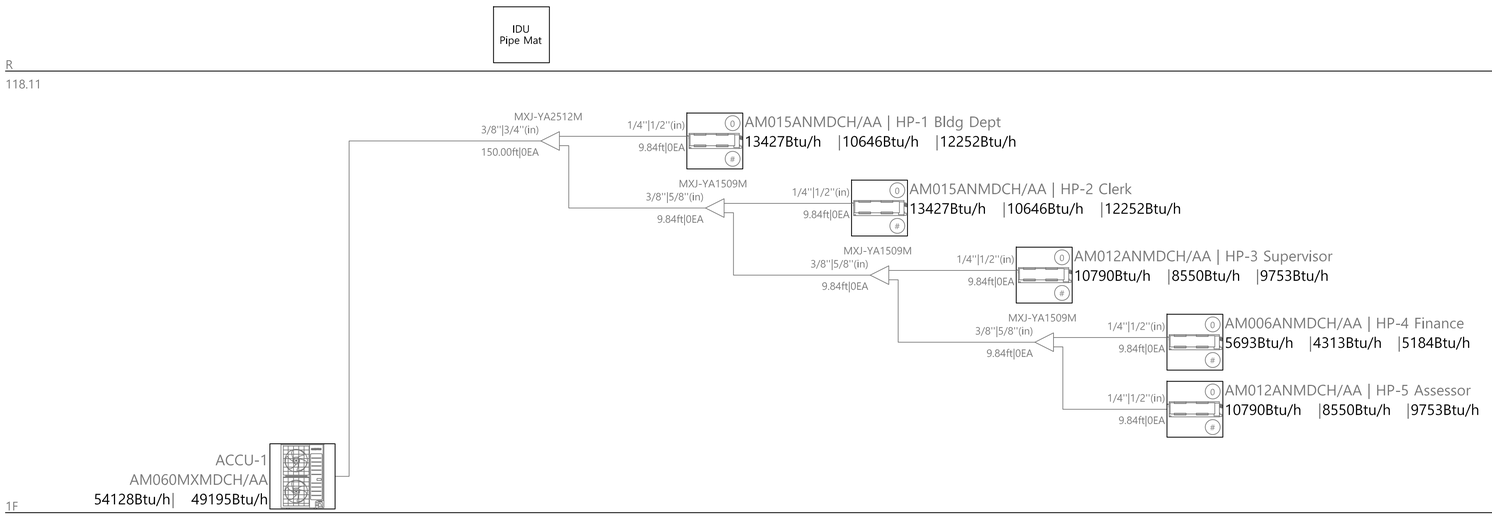
2 BRANCH DUCT TAKEOFF DETAIL

SCALE: NOT TO SCALE



3 NEW CONCRETE PAD DETAIL

SCALE: NOT TO SCALE



4 REFRIGERANT PIPING SCHEMATIC

SCALE: NOT TO SCALE

COMcheck Software Version 4.1.5.5

Mechanical Compliance Certificate

Project Information

Energy Code:	2020 NYStretch Energy Code - 90.1 (2016) Standard
Project Title:	Beekman Town Hall
Location:	Pawling, New York
Climate Zone:	5a
Project Type:	New Construction

Construction Site: 4 Main Street Poughquag, NY

Owner/Agent: Town of Beekman

Designer/Contractor: CBK Engineering

Additional Efficiency Package(s)

Credits: 1.0 Required 0.0 Proposed

Mechanical Systems List

Quantity System Type & Description

1 HVAC System 1 (Single Zone):
VRF Condensing Unit, Air Cooled Heat Pump
Heating Mode: Capacity = 66 kBtu/h,
Proposed Efficiency = 9.50 HSPF, Required Efficiency = 7.70 HSPF
Cooling Mode: Capacity = 60 kBtu/h,
Proposed Efficiency = 16.50 SEER, Required Efficiency: 13.00 SEER
Fan System: None

Mechanical Compliance Statement

Compliance Statement: The proposed mechanical design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 2020 NYStretch Energy Code - 90.1 (2016) Standard requirements in COMcheck Version 4.1.5.5 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

C. Mark Velzy Principal — 11/19/2024

Name - Title — Signature — Date

NO.	DATE	ISSUE
1	11/21/2024	ISSUE FOR BID

NO.	DATE	REVISION

PROJECT TITLE:

BEEKMAN TOWN HALL HVAC 4 MAIN ST POUGHQUAG, NEW YORK 12570

DRAWING TITLE:

DETAILS, COMCHECK AND PIPING DIAGRAM

THESE DRAWINGS ARE NOT VALID FOR BUILDING PERMIT UNLESS ORIGINALLY SIGNED & SEALED BY CHARLES M. VELZY P.E.

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SCALE: AS NOTED	DRAWING NO.
DATE: 11/20/2024	M-302
DRN. BY:	
CBK JOB NO.: 24102	SHEET COUNT
CBK FILE NO.:	5 OF 8

SYMBOLS LIST

CIRCUITRY

- LP-A#3 — SINGLE POLE HOME-RUN TO PANEL AND CIRCUIT AS INDICATED. 2#12,1#12G-3/4"C-20A OCPD UON
- RP-A #1,3,5 — HOMERUN TO PANEL BOARD AS INDICATED. QUANTITY OF ARROWHEADS INDICATE THE NUMBER OF SINGLE POLE CIRCUITS. EACH CIRCUIT WITH DEDICATED NEUTRAL.
- RP-A #2 — MULTIPOLE HOMERUN TO PANELBOARD AS INDICATED.

SECURITY/DOOR CONTROL

- PC DESKTOP COMPUTER FOR SPECIFIC SYSTEM (FIRE ALARM, ACCESS CONTROL ETC...) COMPLETE WITH ALL CONNECTIONS, SOFTWARE AND PROGRAMMING.
- IT/DATA OUTLET/JACK RJ45 WITH CAT 6A CABLING IN ACCESSIBLE CEILING CAVITY FOR POE WiFi ACCESS POINT.
- 226 — DOOR IDENTIFIER. SEE SECURITY/ACCESS CONTROL DETAILS AND ARCHITECTURAL DRAWINGS/SCHEDULES FOR ADDITIONAL INFORMATION
- CONCEALED MAGNETIC SWITCHES IN THE HEAD OF THE DOOR/JAMB (LATCH SIDE) AND IN THE ELECTRIC HINGE HARDWARE.
- ML — ELECTRIFIED MORTISE LOCK/LATCH SET AND ASSOCIATED ELECTRIC HINGE HARDWARE. PROVIDE CONCEALED THRU WIRING IN DOOR THROUGH TO HINGE. PROVIDE MORTAR SHIELD BOX WITH RACEWAY UP FRAME/WALL TO SYSTEM.
- ESR — ELECTRIC STRIKE RELEASE. PROVIDE MORTISE SHIELD WITH CONCEALED WIRING UP FRAME/WALL (IN RACEWAY) TO ACCESS CONTROL SYSTEM.
- ACCESS CONTROL READER AND ASSOCIATED DOOR DEVICES ETC..
- EH — ELECTRIC HINGE WITH CONCEALED MAGNETIC CONTACT AND WIRING THROUGH THE DOOR LEAF TO EML OR STRIKE COMPONENT(S).
- DOORCHIME/BUZZER WITH ASSOCIATED CONTROL POWER TRANSFORMER. CIRCUIT TO ACTIVATE ON OPERATION OF THE ASSOCIATED PUSHBUTTON
- PUSHBUTTON. CIRCUIT TO ACTIVATE ASSOCIATED DOORCHIME/BUZZER.
- PSa — POWER SUPPLY "a" (DESIGNATION VARIES) FOR LED LIGHTING. PROVIDE IN NEMA 1 ENCLOSURE. PROVIDE CONCEALED LOW VOLTAGE CIRCUITRY TO LED.
- EMERGENCY CALL ANNUNCIATOR/CONTROLLER/SYSTEM WITH AUDIO AND VISUAL INDICATING OF EMERGENCY CALL STATION ACTIVATION. CIRCUIT TO ORIGINAL CIRCUIT.
- Ø SR — EMERGENCY CALL ELECTRIC STRIKE RELEASE. CIRCUIT TO RELEASE DOOR ON ACTIVATION OF EMERGENCY CALL STATION ACTIVATION.
- E — IN TOILETS: EMERGENCY CALL PULL STATION WITH PULL CORD. INTERCONNECT WITH SYSTEM. CIRCUIT TO ACTIVATE ASSOCIATED AUDIO-VISUAL ANNUNCIATING DEVICE. PROVIDE COMPLETE SYSTEM AND POWER SUPPLY.
- SURFACE MOUNTED CAMERA. POWERED OVER ETHERNET (POE). PROVIDE WITH CAT6A CABLE IN RACEWAY BACK TO THE NEAREST IT/DATA CLOSET/ROOM

POWER DEVICES

- DECORA STYLE SPECIFICATION GRADE DUPLEX SAFETY GRADE NEMA 5-20R RECEPTACLE. WHERE INDICATED WITH "TV" MOUNT 60"AFF FOR TELEVISION.
- DECORA STYLE DOUBLE DUPLEX (QUAD) RECEPTACLE, SPECIFICATION SAFETY GRADE GRADE NEMA 5-20R. WHERE INDICATED PROVIDE WITH INTEGRAL USB POWER JACKS.
- SPECIFICATION GRADE DECORA DUPLEX NEMA 5-20R RECEPTACLE ON DEDICATED CIRCUIT.
- USB — DECORA STYLE SPECIFICATION GRADE TAMPER RESISTANT DUPLEX NEMA 5-20R RECEPTACLE. WITH TYPE A AND C USB POWER PORTS
- SPECIFICATION GRADE NEMA L21-30R (UON) RECEPTACLE
- SPECIFICATION GRADE NEMA L6-30R (UON) RECEPTACLE
- (OR / OR) RECESSED FLOOR BOX WITH TWO (1) NEMA 5-20R RECEPTACLE, (1) NEMA 5-20R W/USB RECEPTACLE AND DATA/IT/AV/MEDIA ETC... RECEPTACLES. WIREMOLD EVOLUTION SERIES EFB6S-(OG WHERE APPLICABLE). COORDINATE TYPE TO ACCOMMODATE THE TYPE OF CONSTRUCTION BOX IS TO BE INSTALLED IN. PROVIDE COMPLETE WITH SIDE MODULES, PLATES, DIVIDERS, CAPS AND COVERS AND TRIMS. EXPOSED FINISHES AS APPROVED BY ARCHITECT. PROVIDE CONCEALED POWER CIRCUITRT IN 1¼"C. PROVIDE CONCEALED 1 ¼" DATA RACEWAY.
- P — WALL MOUNTED/TRANSITION BASE POWER FEED WITH CONNECTION WHIP TO/FOR FURNITURE. "P" DENOTES FOR POWER. "D" DENOTES LOW VOLTAGE (DATA, TELEPHONE ETC..).
- FLOOR MOUNTED/TRANSITION BASE FEED FOR FURNITURE. FIRE RATED FLOOR BOX WITH CONNECTION WHIP. "P" OR "PWR" DENOTES FOR POWER. "D" OR "DATA" DENOTES LOW VOLTAGE (DATA, TELEPHONE ETC.)

PROVIDE CIRCUITRY DOWN THROUGH FEED TO ASSOCIATED DEVICES IN FURNITURE. FOR DATA PROVIDE 1 1/4" RACEWAY CONCEALED FROM FEED UP WALL INTO ACCESSIBLE CEILING CAVITY.

GENERAL

- # — KEYED NOTE

FIRE ALARM

- CO — CEILING MOUNTED CARBON MONOXIDE DETECTOR. PROGRAM FOR SUPERVISORY ANNUNCIATION
- DUCT MOUNTED SMOKE DETECTOR WITH PITOT SAMPLING TUBE, HOUSING, HEATER AND WEATHER ENCLOSURE. PROVIDE REMOTE STATION.
- Z — INTELLIGENT MONITOR MODULE.
- S — ADDRESSABLE OPEN AREA CEILING MOUNTED SMOKE DETECTOR.
- B — ADDRESSABLE BEAM TYPE SMOKE DETECTOR.
- F — MANUAL PULL STATION
- F — AUDIO/VISUAL INDICATING APPLIANCE. (FIRE-ALARM)
- F — VISUAL INDICATING APPLIANCE.
- PAD — FIRE ALARM SUPERVISED EXTENDED POWER SUPPLY WITH AUDIO/VISUAL APPLIANCE CIRCUIT(S).
- FACP — FIRE ALARM CONTROL PANEL (FACP).
- FAA — FIRE ALARM 2 LINE LIQUID CRYSTAL ANNUNCIATOR.
- FIRE ALARM REMOTE INDICATOR STATION. ILLUMINATES WHEN ASSOCIATED (USUALLY CONCEALED) DEVICE IS ACTIVATED.
- AT — THREAT INDICATING APPLIANCE. (FIRE-ALARM)
- AT — THREAT PULL STATION
- S ELEV — ADDRESSABLE OPEN AREA CEILING MOUNTED SMOKE DETECTOR PROVIDED FOR ELEVATOR RECALL.

ONE-LINE

- M — METER
- (3) — METERING CURRENT TRANSFORMERS AND POTENTIAL CT'S/TAPS AS APPLICABLE.
- # — CIRCUIT TAG
- CIRCUIT BREAKER - 3 POLE UON. "ST" INDICATES WITH SHUNT TRIP COIL.
- CIRCUIT BREAKER - 3 POLE UON
- FUSED DISCONNECT (ONE-LINE)
- GROUND
- PANEL — PANELBOARD (ONE-LINE)
- SPD OR SPD — SURGE PROTECTION DEVICE-JOSLYN SURGITRON III 1455-49
- STATIONARY ELECTRIC GENERATOR.
- G — PORTABLE TRAILER MOUNTED ELECTRIC GENERATOR.
- UTILITY POLE
- TRANSFORMER
- AUTOMATIC TRANSFER SWITCH.

GROUNDING

- LIGHTNING PROTECTION AIR TERMINAL AND ASSOCIATED COMPONENTS.
- GROUNDING/BONDING CONNECTION. CADWELD UON.
- GROUND ROD. COPPER CLAD 5/8"ø 10' LONG UON
- (OR) COPPER GROUND BAR.

LIGHTING

- 2'X4' (NOMINAL) LIGHTING FIXTURE -TYPE 'BB' UON
- 2'X4' (NOMINAL) LIGHTING FIXTURE WITH INTEGRAL EMERGENCY BATTERY PACK -TYPE 'BBE' UON
- 2'X2' (NOMINAL) LIGHTING FIXTURE-TYPE 'BA' UON
- 2'X2' (NOMINAL) EMERGENCY LIGHT FIXTURE WITH INTEGRAL EMERGENCY BATTERY PACK -TYPE 'BAE' UON.
- RECESSED DOWN LIGHT
- WALL MOUNTED LIGHT FIXTURE WITH INTEGRAL EMERGENCY BATTERY PACK -TYPE 'T' UON.
- 1'X4' (NOMINAL) LIGHTING FIXTURE. TYPE T WITH PENDANT MOUNT UON.
- WALL MOUNTED LIGHT FIXTURE. CIRCUITING/FIXTURE TYPE AS INDICATED. WHERE NO TYPE IS INDICATED PROVIDE TYPE "X" WITH BATTERY BACKUP.
- SYMBOL FOR HEAD / TRACK — TRACK LIGHTING WITH ALL ASSOCIATED FITTINGS AND PLATES. TRACK LENGTH PER PLANS HEADS AS INDICATED.
- WALL MOUNTED LED ILLUMINATED EXIT LIGHT WITH INTEGRAL BATTERY BACKUP AND DUAL EMERGENCY LIGHTS
- SAME AS ABOVE BUT DUAL DIRECTIONAL AND CEILING MOUNTED
- SAME AS ABOVE BUT DIRECTIONAL AND WALL MOUNTED
- WALL MOUNTED EMERGENCY LIGHT

UPPER CASE LETTER(S) DENOTES TYPE, NUMBER DENOTES CIRCUIT, LOWER CASE LETTER DENOTES SWITCH LEG

LIGHTING CONTROLS

- S_{3a} — ANTIMICROBIAL DECORA SERIES SPDT (3 WAY) 120-277 VAC SPECIFICATION GRADE SWITCH
- S — ANTIMICROBIAL DECORA SERIES SPST 120-277 VAC SPECIFICATION GRADE SWITCH
- S_P — ANTIMICROBIAL DECORA SERIES SPST 120-277 VAC SPECIFICATION GRADE SWITCH ILLUMINATED WHEN ON LEVITON SERIES 5628.
- S_T — THERMAL SWITCH
- S_a^{LV}, $S_{a,b,f}^{LV}$, $S_{a,c-f}^{LV}$ — LOW VOLTAGE SPECIFICATION GRADE NETWORKED DIGITAL SWITCH. WATT STOPPER. NUMBER OF BUTTONS TO PROVIDE SWITCH LEGS AS DESIGNATED BY SUBLETTERS AND/OR NUMBER IN PARENTHESES. SUB LETTER DESIGNATED WITH A HYPHEN REPRESENTS ONE BUTTON PROGRAMMED TO CONTROL SEVERAL SWITCH LEGS/GROUPS.
- S_{TM} — BATHROOM FAN/LIGHT SWITCH WITH DELAY TIMERS AND VENTILATION TIMER. AIRCYCLER SMART EXHAUST SE1 (TOGGLE) SED-S (DECORA).
- S_a^{PIR} — LOW VOLTAGE LIGHTING CONTROL SWITCH DIGITAL OCCUPANCY SENSOR/WALL SWITCH. PROGRAMMIBLE AS OCCUPANCY OR VACANCY AS DIRECTED IN THE FIELD. WATT STOPPER LMPW-101*.
- S_a^{VS} — LOW VOLTAGE LIGHTING CONTROL SWITCH DIGITAL VACANCY SENSOR/WALL SWITCH WITH ON/OFF AND DIMMER. WATT STOPPER LMPW-101*.
- S_P^{3a} — SPECIFICATION GRADE 3-WAY SWITCH WITH ILLUMINATED HANDLE. SWITCH ILLUMINATES WHEN LOAD IS ON.
- S_a^{OC} — CONVENTIONAL HARD WIRED LIGHTING CONTROL SWITCH/VACANCY SENSOR/WALL SWITCH.
- OS a — DIGITAL NETWORKED ULTRASONIC/PASSIVE INFRARED OCCUPANCY SENSOR. WATT STOPPER LMDC-100. "US" INDICATES ULTRASONIC ONLY
- VS a — DIGITAL NETWORKED ULTRASONIC/PASSIVE INFRARED VACANCY SENSOR. WATT STOPPER LMDC-VS-100. "US" INDICATES ULTRASONIC ONLY
- 1 LC a,b,c — DIGITAL LOAD CONTROL RELAY WITH 3 RELAYS. WATT STOPPER LMRC-213.
- I/O — DIGITAL NETWORK INPUT/OUTPUT DEVICE. WATT STOPPER
- TS — 4 ZONE PROGRAMMABLE TIME SWITCH. PROVIDE WITH NETWORK I/O DEVICE MODULE. INTERFACE TO CONTROL (1)EXTERIOR LIGHTS (2)OUTDOOR SIGN LIGHTS (3)END OF WORK DAY LIGHTS OFF
- DH — DAYLIGHT HARVESTING NETWORK SENSOR.
- OC a — CONVENTIONAL HARD WIRED ULTRASONIC OCCUPANCY SENSOR. WATT STOPPER.
- CAT 6A ETHERNET (LAN) PATCH CORD WITH RJ45 TERMINATED ENDS. RED OUTER JACKET. PROVIDE FOR INTERCONNECTIONS BETWEEN LIGHTING CONTROL DEVICES. RUN CONCEALED. WHERE EXPOSED (NO CEILING, MECHANICAL ROOMS, OUTDOORS) PROVIDE IN RACEWAY. PROGRAM SYSTEM TO CONTROL(S) AS DESIGNATED BY SUB-LETTERS ON THE DOCUMENTS.

LOWER CASE LETTER DENOTES SWITCH LEG

EQUIPMENT

- ELECTRICAL PANELBOARD SURFACE MOUNTED
- ELECTRICAL PANELBOARD FLUSH MOUNTED
- DISCONNECT SWITCH. 3 POLE, 60 AMPS, WP U.O.N.
- FUSED DISCONNECT SWITCH.
- P — CHARGING STATION FOR ELECTRIC VEHICLES. DUAL STATION TO ACCOMMODATE 2 VEHICLES. LEVITON EVR-GREEN 4000 LEVEL 2 STATION. #CHHU2-CBMBX-CPCAP-B-CPCBX-CPCMX-CPWY3-CPVAL
- AFD — ADJUSTABLE FREQUENCY DRIVE. SEE MECHANICAL DOCUMENTS FOR ADDITIONAL INFORMATION.
- MOTOR CONTROLLER/STARTER. SEE MECHANICAL DOCUMENTS FOR ADDITIONAL INFORMATION.
- MOTOR/HVAC/HWH/FURNACE/FAN. CIRCUIT VIA STARTERS/CONTROLLERS/DRIVES ETC.. SEE MECHANICAL PLANS FOR ADDITIONAL INFORMATION.

IT/DATA/TV

- JACK/OUTLET FOR IT/DATA/TELEPHONE. PROVIDE RECESSED CONCEALED DEEP 1900 BOX, PLASTER RING, 1" RACEWAY UP INTO ACCESSIBLE CEILING. PROVIDE (2)DIGITAL TELEPHONE AND (3) RJ45 COMPUTER JACKS EACH WITH COLOR CODED CAT 6A CABLE TERMINATED AND PATCHED IN THE NEAREST IT CLOSET.
- JACK/OUTLET FOR IT/DATA/TELEPHONE IN MODULAR FURNITURE. PROVIDE AS INDICATED FOR OPEN TRIANGLE SYMBOL EXCEPT EXTENDED INTO THE MODULAR FURNITURE.
- JACK/OUTLET FOR IT/DATA/TELEPHONE. PROVIDE AS INDICATED FOR OPEN TRIANGLE SYMBOL EXCEPT AT NON-STANDARD MOUNTING HEIGHT
- TV — WALL COAX JACK FOR TELEVISION OR AV EQUIPMENT. WITH 1" EMPTY RACEWAY UP INTO ACCESSIBLE CEILING CAVITY.

TERMINATE AT PATCH PANEL (OR PUNCH DOWN BLOCK WHERE APPLICABLE) AS DESIGNATED BY THE OWNER'S REPRESENTATIVE.

INCLUDED IN THIS CONTRACT DOCUMENTS ARE THE BOOK SPECIFICATION SECTIONS

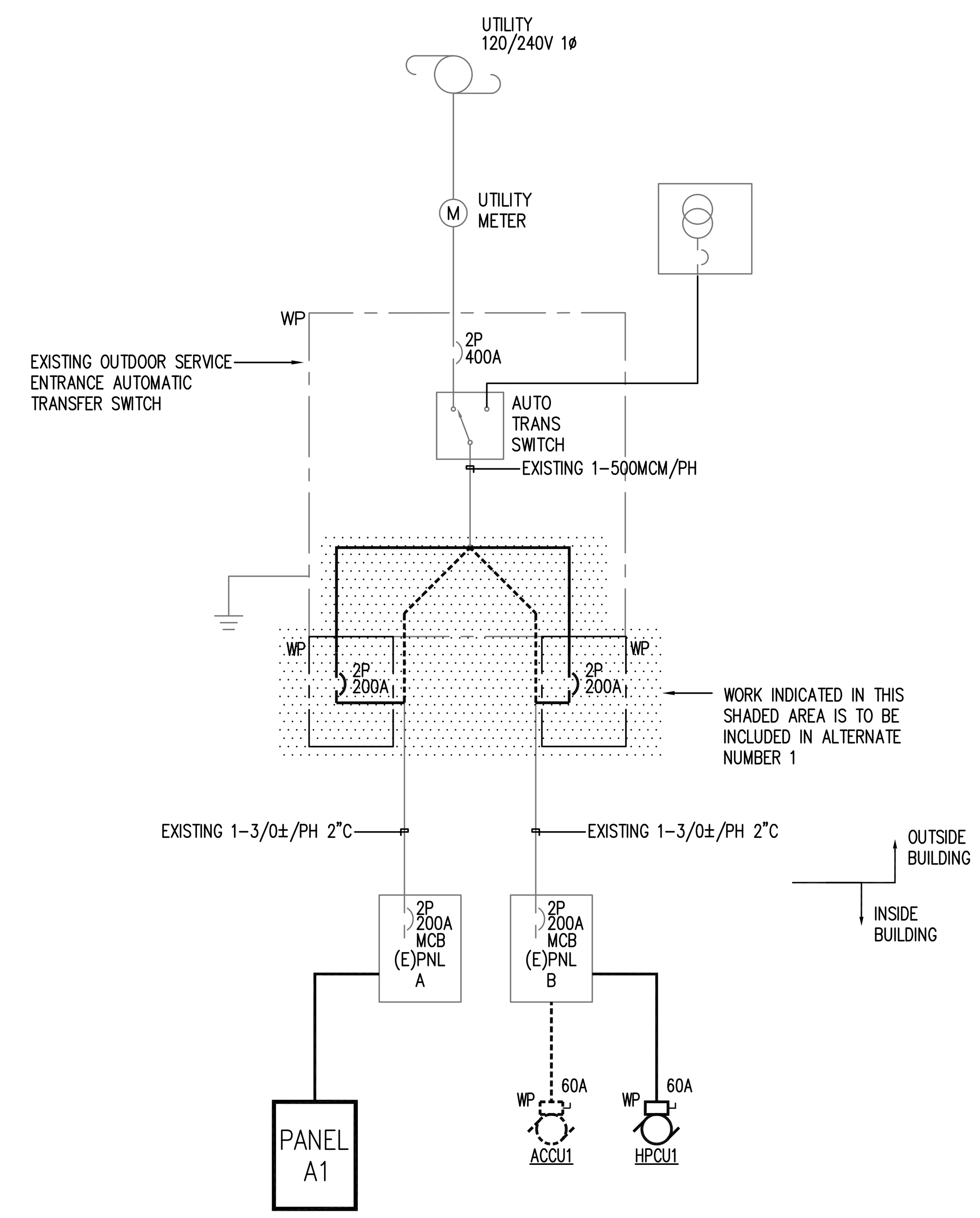
LIST OF ELECTRICAL DRAWINGS

E-001	ELECTRICAL SYMBOLS LIST, PART ONE-LINE DIAGRAM AND LIST OF ELECTRICAL DRAWINGS.
E-101	LOWER LEVEL ELECTRICAL PLAN (REMOVALS).
E-201	LOWER LEVEL ELECTRICAL PLAN

ABBREVIATIONS

ABBREVIATION	DESCRIPTION
A	AMPERE
ACCU	AIR COOLED CONDENSING UNIT
AFF	ABOVE FINISHED FLOOR
AIC	AMPERE INTERRUPTING CAPACITY
ANN	ANNUNCIATOR
AWG	AMERICAN WIRE GAUGE
BKR	BREAKER
CB	CIRCUIT BREAKER
CCT	CORRELATED COLOR TEMPERATURE
CKT	CIRCUIT
COL	COLUMN
DET	DETECTOR
DWG	DRAWING
EF	EXHAUST FAN
ELEC	ELECTRIC(AL)
EMER	EMERGENCY
EML	ELECTRIC MORTISE LOCK
EMT	ELECTRICAL METALLIC TUBING
ESR	ELECTRIC STRIKE RELEASE
(E), EX	EXISTING
EXIST	EXISTING
EXT	EXTERIOR
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FL	FLOOR, FLUORESCENT
FBO	FURNISHED BY ANOTHER DIVISION, WIRED BY THIS DIVISION
FIBO	FURNISHED AND INSTALLED BY ANOTHER DIVISION, WIRED BY THIS DIVISION
FLA	FULL LOAD AMPERES
FLR, FL	FLOOR
FLUOR	FLUORESCENT
FUT	FUTURE
FURN	FURNISH, FURNITURE
G, GND	GROUND
GFF	GAS FIRED FURNACE
GFI	GROUND FAULT CIRCUIT INTERRUPTER
GFP	GROUND FAULT PROTECTION
HP	HORSEPOWER, HEAT PUMP
HTR	HEATER
HWH	HOT WATER HEATER
IBC	INTERNATIONAL BUILDING CODE
JB	JUNCTION BOX
J-BOX	JUNCTION BOX

ABBREVIATION	DESCRIPTION
JCT	JUNCTION
KCMIL	THOUSAND CIRCULAR MILS
KVA	KILOVOLT-AMPERE
KW	KILOWATT
LP	LIGHTING PANEL
LTG	LIGHTING
LT(S)	LIGHT(S)
MCB	MAIN CIRCUIT BREAKER
MCM	THOUSAND CIRCULAR MILS
MIN	MINIMUM
MLO	MAIN LUGS ONLY
MTD	MOUNTED
MTR	MOTOR
NEC	NATIONAL ELECTRIC CODE
NL	NIGHT LIGHT
NO	NORMALLY OPEN
OC	OVER COUNTER
OCPD	OVERCURRENT PROTECTIVE DEVICE
P	POLE(S)
PNL	PANEL
POE	POINT OF ENTRY
PWR	POWER
ø	PHASE
(R)	REMOVE
RP	RECEPTACLE PANEL
RECP, RECEP	RECEPTACLE
RM	ROOM
SCH	SCHEDULE
SPD	SURGE PROTECTION DEVICE
SPR	SPARE
STA	STATION
SUSP	SUSPEND(ED)
SW	SWITCH
SWBD	SWITCHBOARD
T, TEL, TELE	TELEPHONE
TEMP	TEMPORARY
TV	TELEVISION
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
V	VOLT, VOLTS
VIF	VERIFY IN FIELD
W	WIRE
WH	WATER HEATER
WP	WEATHERPROOF
WG	WIRE GUARD
XFRM	TRANSFORMER



1 PART ONE-LINE DIAGRAM
SCALE: NO SCALE

NO.	DATE	ISSUE
1	11/21/2024	ISSUE FOR BID

NO.	DATE	REVISION

PROJECT TITLE:

BEEKMAN TOWN HALL HVAC 4 MAIN ST POUGHQUAG, NEW YORK 12570

DRAWING TITLE:

ELECTRICAL SYMBOLS LIST, PART ONE-LINE DIAGRAM AND LIST OF ELECTRICAL DRAWINGS

THESE DRAWINGS ARE NOT VALID FOR BUILDING PERMIT UNLESS

STATE OF NEW YORK · CHARLES MARK VELZY · NO. 064374 · LICENSED PROFESSIONAL ENGINEER

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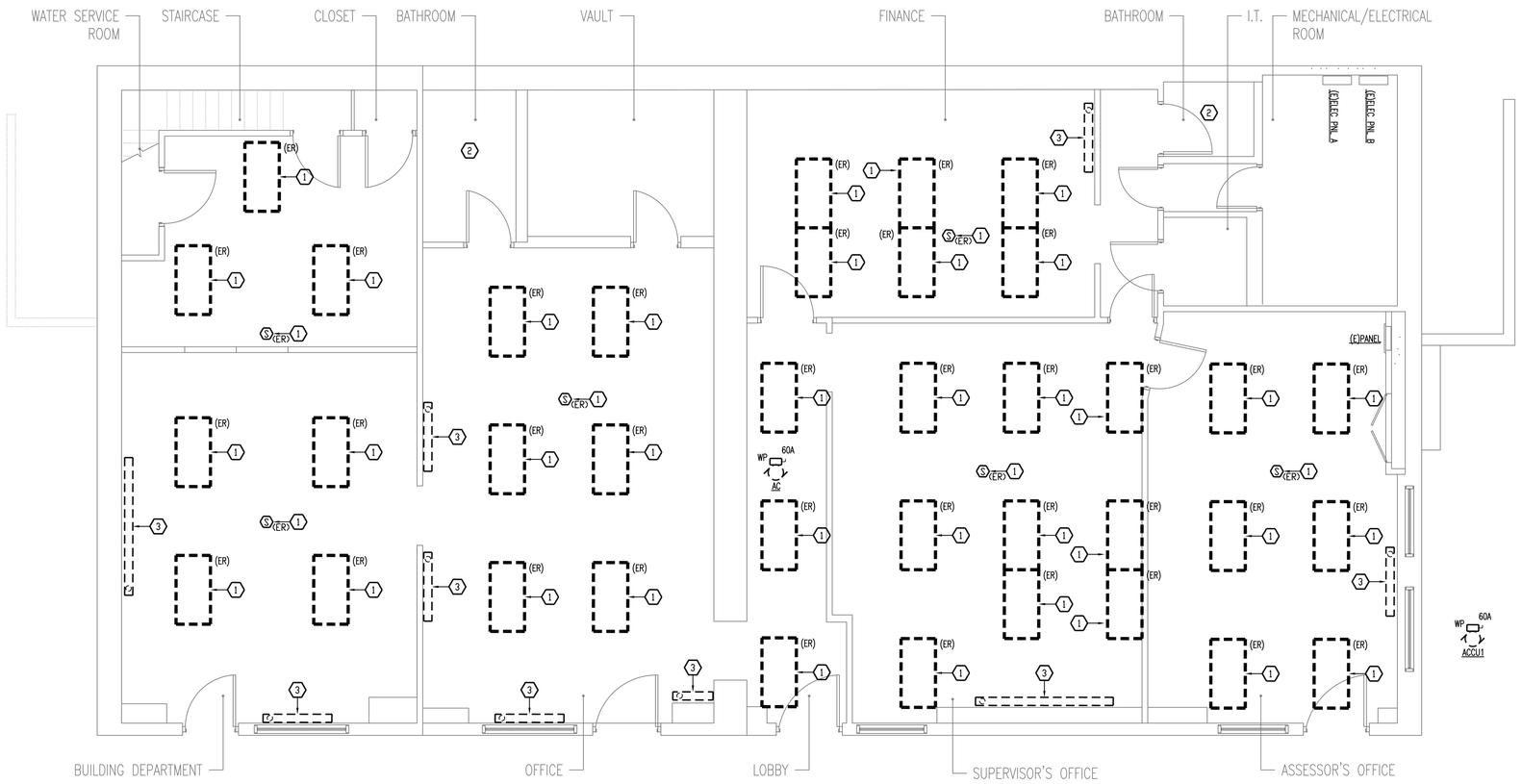
SCALE: AS NOTED	DRAWING NO. E-001
DATE: 11/20/2024	
DRN. BY:	
CBK JOB NO.: 24102	SHEET COUNT 6 OF 8
CBK FILE NO.:	



1 LOWER LEVEL PLAN(REMOVALS)

SCALE: 1/4"=1'-0"

KEYED NOTES

1. TEMPORARILY REMOVE AND/OR SUPPORT THE EXISTING CEILING MOUNTED DEVICE/LIGHT FIXTURE TO ACCOMMODATE THE REMOVALS AND REINSTALLATION OF THE SUSPENDED CEILING SYSTEM.
2. MAINTAIN CONTINUITY TO THE EXISTING ELECTRIC HEATING IN THIS ROOM. PROVIDE CIRCUITRY AS REQUIRED TO MAINTAIN SERVICE WHERE DISRUPTED BY THE REMOVALS.
3. REMOVE THE EXISTING ELECTRICAL RESISTIVE FIN TUBE RADIATION AND ASSOCIATED CIRCUITRY. PROVIDE SPLICE/ACCESSIBLE JUNCTION WITH REMOVABLE COVER WHERE CIRCUITRY CONTINUES TO OTHER DEVICES THAT ARE TO REMAIN, TO KEEP THOSE LOADS IN SERVICE.

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BEEKMAN TOWN HALL
HVAC
4 MAIN ST POUGHQUAG, NEW YORK 12570

DRAWING TITLE:

LOWER LEVEL ELECTRICAL PLAN (REMOVALS)

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SCALE: AS NOTED	DRAWING NO.
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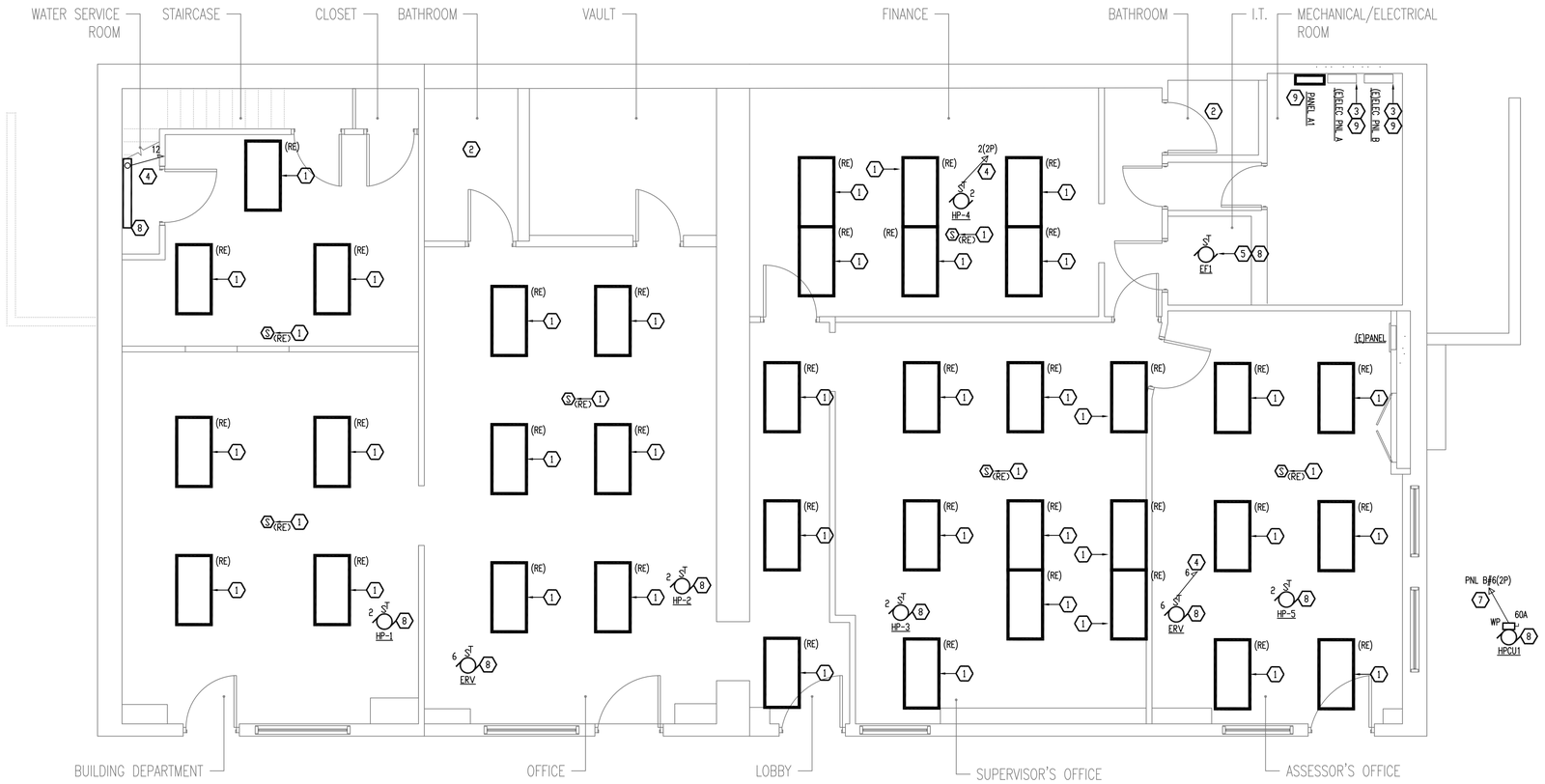
CBK JOB NO.: 24102	SHEET COUNT
CBK FILE NO.:	7 OF 8



1 LOWER LEVEL PLAN

SCALE: 1/4"=1'-0"

KEYED NOTES

1. RE-INSTALL THE EXISTING CEILING MOUNTED DEVICE/LIGHT FIXTURE TO ACCOMMODATE THE REINSTALLATION OF THE SUSPENDED CEILING SYSTEM. PROVIDE CIRCUITRY AS REQUIRED.

   CLEAN THE LIGHT FIXTURES. PLACE FIXTURES IN/ON THE GRID BUT SUPPORT LIGHT FIXTURES DIRECTLY FROM THE STRUCTURE ABOVE THE SUSPENDED CEILING. SUPPORT EACH FIXTURE AT TWO POINTS (AT DIAGONAL CORNERS) USING LIGHT CHAIN OR WIRE ROPE.

   MODIFY CEILING TILES TO ACCOMMODATE DEVICES SUCH AS SMOKE DETECTORS. PROVIDE MOUNTING BOX T GRID BOX HANGERS TO SUPPORT. MOUNT SUCH DEVICES IN THE CENTER OR QUARTER CENTER OF THE CEILING PANEL TO MAINTAIN AN ORGANIZED SYMMETRICAL CEILING LAYOUT.
2. MAINTAIN CONTINUITY TO THE EXISTING ELECTRIC HEATING IN THIS ROOM. PROVIDE CIRCUITRY AS REQUIRED TO MAINTAIN SERVICE WHERE DISRUPTED BY THE REMOVALS.
3. REORGANIZE THE EXISTING POLE POSITIONS IN THE EXISTING PANELBOARDS TO ACCOMMODATE THE REMOVAL OF OCPD'S NO LONGER REQUIRED DUE TO THE REMOVALS UNDER THIS CONTRACT. REORGANIZE EXISTING BREAKERS TO PROVIDE ADJACENT POLE POSITIONS IF REQUIRED FOR NEW MULTI-POLE OCPD'S. MAINTAIN PHASE POSITIONS FOR ANY RELOCATED CIRCUITS THAT SHARE NEUTRAL CONDUCTOR(S).
4. CIRCUIT TO PANEL A1. 2#12,1#12G-3/4"C.
5. CIRCUIT TO THE 120VAC CIRCUIT THAT FEEDS CONSTANT POWER TO THE RECEPTACLES IN THIS ROOM. CIRCUIT VIA THERMOSTAT CONTROL.
6. NOT USED
7. CIRCUIT TO THE EXISTING ELECTRIC PANEL (SEE SCHEDULES). 2#8,1#10G-3/4"C. PROVIDE 2P-50A OCPD. USE CIRCUIT POSITIONS THAT IS MADE AVAILABLE BY THE REMOVAL OF THE ORIGINAL ACCU.
8. LABEL EQUIPMENT/DEVICE(S) WITH PANEL DESIGNATION AND CIRCUIT NUMBER.
9. LABEL PANELBOARD USING ENGRAVED PHENOLIC LABEL. UPDATE BRANCH CIRCUIT LABELS AND PANEL SCHEDULES TO REFLECT FINAL INSTALLATION.

EXISTING MAIN ELECTRICAL PANEL A. 120/208VAC 1Ø 3W+G 2P-200A MCB

SERVES	LOAD WATTS L1	LOAD WATTS L2	CIR No		CIR No	LOAD WATTS L1	LOAD WATTS L2	SERVES
OUTSIDE LIGHTS			1	30A	2			SPARE
---			3	30A	4			---
24,26			5	60A	6			COURT ROOM HEAT
---			7	40A	8			---
SUB-PANEL A1 (1)			9	20A	10			COURT ROOM HEAT
3#6,1#10G-3/4"C WAS SPARE			11	20A	12			---
PANEL UPST OFF			13	20A	14			9
---			15	20A	16			11
2			17	15A	18			13
4			19	15A	20			19
6			21	15A	22			23
8			23	15A	24			25
14 PARKING LOT			25	15A	26			37
16			27	20A	28			39
SOUTH OFFICE			29	20A	30			DOOR CONTROLS
	XXXX	XXXX	XXXX		XXXX	XXXX		

S/N

(1) REMOVE EXISTING BRANCH CIRCUIT AND OCPD. CONNECT LOAD AND PROVIDE OCPD AS INDICATED.

EXISTING MAIN ELECTRICAL PANEL B. 120/208VAC 1Ø 3W+G 2P-200A MCB

SERVES	LOAD WATTS L1	LOAD WATTS L2	CIR No		CIR No	LOAD WATTS L1	LOAD WATTS L2	SERVES
CIRCUIT			1	50A	2			SUB-PANEL
---			3	50A	4			---
HPCU1 (1)			5	50A	6			CIRCUIT
WAS ACCU (REMOVED)			7	15A	8			7
AC			9	15A	10			21
---			11	15A	12			25
AC			13	20A	14			18
---			15	20A	16			32 FLAG TIMER
SUB-PANEL			17	20A	18			7
---			19	30A	20			40
AC			21	20A	22			AC
---			23	20A	24			GENERATOR RECEPT
IT ROOM TELE REC			25	20A	26			GENERATOR RECEPT
IT ROOM RACK REC			27	20A	28			SPACE
ENTRY DOOR			29	20A	30			SPACE
	XXXX	XXXX	XXXX		XXXX	XXXX		

S/N

(1) REMOVE EXISTING BRANCH CIRCUIT AND OCPD. CONNECT LOAD AND PROVIDE OCPD AS INDICATED.

ELECTRICAL PANEL A1. 100A MLO. 120/208VAC 1Ø 3W+G COPPER BUS. PROVIDE WITH STRANCD CIRCUIT SAFE LOCKOUT/TAGOUT SYSTEM.

SERVES	LOAD WATTS L1	LOAD WATTS L2	CIR No		CIR No	LOAD WATTS L1	LOAD WATTS L2	SERVES
SPARE			1	20A	2			HEAT PUMP EVAPS
SPARE			3	20A	4			2#12,1#2G-3/4"C
SPARE			5	20A	6			ERV 1 AND 2
SPARE			7	20A	8			SPARE
SPARE			9	20A	10			SPARE
SPARE			11	20A	12			ELECTRIC BASEBOARD
SPARE			13	20A	14			SPARE
SPARE			15	20A	16			SPARE
SPARE			17	20A	18			SPARE

S/N

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HVAC
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CBK FILE NO.:	8 OF 8