

MERRIMAC MUNICIPAL LIGHT DEPARTMENT

INVITATION FOR BID AND
CONTRACT DOCUMENTS
FOR

Office Building Renovation Project IFB # 5-2025

June 12, 2025

DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS

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SECTION A

INVITATION FOR GENERAL BIDS AND SUB-BIDS- (IFB) – IFB

The Merrimac Municipal Light Department (or “MMLD”) invites bids from qualified bidders for renovation of MMLD’s offices located at 10 West Main Street, Merrimac, Massachusetts 01860.

Prime Contractor’s Certification Category: General Building Construction

Sub-bid Categories:

DIVISION 23 - HVAC

Refer to Drawings

Specifications and bid forms will be available electronically beginning on June 12, 2025. Electronic copies will be available Monday through Friday 8AM to 4PM from June 12, 2025. There is no mailing of plan sets.

Registered Bidders (General and Sub-Bidders) so designated are those entities recognized by MMLD as included in an "official list of plan holders" for the particular project (IFB) for purposes of issuing Addenda and updating the Massachusetts Central Register. MMLD assumes no responsibility for distribution of Addenda to third parties or others, excepting official plan holders or Registered Bidders.

All questions or requests for clarification regarding this IFB should be emailed to: Mary Usovicz, General Manager, Merrimac Municipal Light Department, 10 West Main Street, Merrimac MA 01860, musovicz@merrimacmld.com with the IFB # 5-2025 in the subject line.

Filed sub-bids for trades shall be addressed to Merrimac Municipal Light Department, 10 West Main Street, Merrimac MA 01860 and marked “MMLD Office Renovation Project IFB# 5-2025 Sub-bid” no later than 3:00 PM on June 26, 2025. All Filed Sub-Bids will be publicly opened and read aloud MMLD’s offices at 10 West main Street, Merrimac, MA 01860 at 3:00 PM on June 26, 2025.

General bids must be sealed and marked on the outside “MMLD Office Renovation Project IFB # 5-2025” and be received at the office of the Merrimac Municipal Light Department, 10 West Main Street, Merrimac, MA 01860 no later than 3:00 PM on July 2, 2025, at which time and place they will be publicly opened and read.

General and sub-bids shall be accompanied by bid security in the form of a bid bond, or certified or cashier’s check issued by a responsible U.S. Bank or Trust Company, payable to the order of the Merrimac Municipal Light Department for a sum not less than 5% of the of the bid price. Checks will be returned to the unsuccessful bidders after the award.

All bids (general and sub-bids) must be accompanied by bid security, a copy of the DCAMM Certificate of Eligibility and a completed and signed Update Statement in the form prescribed by DCAMM.

A performance bond in an amount equal to 100 percent of the total amount of the bid with a surety company qualified to do business in the Commonwealth of Massachusetts will be required for the

faithful performance of the contract, as well as a labor and materials payment bond in an amount equal to 100 percent of the total bid amount.

All bids for this project are subject to applicable bidding laws of Massachusetts, including M.G.L. c. 149, §§ 44A-H and M.G.L. c. 30, § 39M.

Attention is directed to the minimum wage rates to be paid as determined by the Department of Labor Standards under the provisions of M.G.L. c. 149, §§ 26-27D.

A mandatory pre-bid conference and site visit will be held at MMLD's offices at 10 West Main Street, Merrimac, Massachusetts 01860 on June 26 & July 1, 2025 at 9:00 AM. All prospective bidders are required to attend one of the above scheduled visits or schedule a visit by appointment.

MMLD reserves the right to reject any and all general bids, and to reject any sub-bid on any sub-trade if it determines that such sub-bid does not represent the sub-bid of a person competent to perform the work as specified or that less than three such sub-bids were received and that the prices are not reasonable for acceptance without further competition.

Mary Usovicz, General Manager

SECTION B

INSTRUCTIONS TO BIDDERS

1. Receipt and Opening of Bids

- A. Merrimac Municipal Light Department (“MMLD”) also referred to as the Owner, will receive sealed general bids from DCAMM-certified General Building Construction contractors. Such general bids shall be sealed in an envelope and marked with the name of the project and IFB number, and shall be addressed to the Merrimac Municipal Light Department, 10 West Main Street, Merrimac, MA 021. Such general bids will be received at the MMLD until 3:00 PM, on July 2, 2025 at which time and place said bids will be publicly opened and read aloud via Zoom broadcast.
- B. Owner will receive sealed sub-bids from DCAMM-certified subcontractors in the categories set forth in Article 2 of these Instructions.

Such sub-bids shall be sealed in an envelope and marked with the name of the project and IFB number, and shall be addressed to Merrimac Municipal Light Department, 10 West Main Street, Merrimac, MA 01860. Such sub-bids shall be received at 10 West Main Street, Merrimac, MA until 3:00 PM, on June 26, 2025, at which time and place said sub-bids will be publicly opened and read aloud.

Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof. Any bid received after the time and date specified will not be considered. The bidder agrees that this bid shall be good and may not be withdrawn for a period of 90 days, Saturdays, Sundays, and legal holidays excluded, after the opening of bids.

2. Location and Work to be Done

The “Work” consists of: renovation of MMLD’s offices at 10 West Main Street in the Town of Merrimac, Massachusetts 01860.

The following categories of work for the project require filed sub-bids:

DIVISION 23 - HVAC

Refer to Drawings

The Contractor shall furnish all labor, services, materials, tools, supplies, and all other things necessary to do all work required for the completion of each item of the Work and as herein specified.

The Contractor will be expected to commence work upon issuance of the Notice to Proceed by Owner. The estimated date for such Notice to Proceed is 7 days after the bid opening. All construction on the Project shall be completed by October 24, 2025.

The Work to be done and paid for under any item shall not be limited to the exact extent mentioned or described but shall include all incidental work necessary or customarily done for the completion of that item.

3. Preparation of General Bid

Each bid must be submitted on the prescribed form, **Section C, FORM OF GENERAL BID**. All blank spaces for bid prices must be filled in, in ink or typewritten, in both words and figures.

Each bid must be submitted in a sealed envelope bearing on the outside the name of the bidder, its address, and endorsed with the name of the project as specified in Receipt and Opening of Bids, above.

If forwarded by mail, the sealed envelope containing the bid must be enclosed in another envelope addressed as specified in Receipt and Opening of Bids, above.

The following must be included with the bid:

- Bid Security
- DCAMM Certification Form CQ-7: General Building Construction
- DCAMM Update Statement Form CQ-3
- Bidder Qualifications (see Article 5)
- Corporate Resolution (if necessary)
- Foreign Corporations Certificate (if necessary)

Bidders, upon signed written request, may be given permission to withdraw their bids not later than one-half hour prior to the time set for the opening thereof.

4. Preparation of Sub-Bids

Each sub-bid must be submitted on the prescribed form, **Section D, FORM OF SUB-BID** and be accompanied by bid security in accordance with paragraph 5 hereof. All blank spaces for bid prices must be filled in, in ink or typewritten, in both words and figures.

Each sub-bid must be submitted in a sealed envelope bearing on the outside the name of the bidder, his address, and endorsed with the name of the project as specified in Receipt and Opening of Bids, above.

If forwarded by mail, the sealed envelope containing the bid must be enclosed in another envelope addressed as specified in Receipt and Opening of Bids, above.

Each Filed Sub-Bidder must be certified by DCAMM in the appropriate category of work and be eligible to submit bids for public construction projects and to perform the sub-trade required. For a Filed Sub-Bid to be considered eligible, a DCAMM Certificate of Eligibility in the category of work and an Update Statement indicating additional work or contracts performed or executed after the certification date must be submitted and attached to the Form of Sub-bid. In addition, a

Corporate Resolution and Foreign Corporations Certificate must be attached to the Form of Sub-bid if applicable.

5. Bid Security, Bid Opening Procedure

Bids shall be filed at the place and before the times specified in Receipt and Opening of Bids, above.

General and sub-bids shall be accompanied by bid security in the form of a bid bond, or certified or cashier's check issued by a responsible U.S. Bank or Trust Company, payable to the order of the Merrimac Municipal Light Department for a sum not less than 5% of the of the bid price. Bid Bonds shall be T-Listed; Surety company(ies) shall be listed in the U.S. Treasury Department Circular 570, most recent edition, as amended.

The Bid Securities of all General Bidders, except those of the three lowest responsible and eligible General Bidders, will be returned within five (5) days, Saturdays, Sundays, and legal holidays excluded, after the opening of General Bids.

The Bid Securities of all Filed Sub-Bidders, except those of the Sub-Bidders named in the General Bids of the three lowest responsible and eligible General Bidders, and those of the three lowest responsible and eligible Sub-Bidders for each sub-trade, will be returned within five (5) days, Saturdays, Sundays, and legal holidays excluded, after the opening of General Bids. Properly executed bid security shall be placed in a sealed envelope and shall be attached to the outside of the envelope containing the bid.

Bid signatures will be checked.

All addenda will be sent by certified mail, with return receipt requested, to all prospective bidders and the last of which will be mailed not later than five days prior to the date established for submission of bids. All bidders shall include with their bids the written acknowledgement form provided in **Section C, FORM OF GENERAL BID** or **Section D, FORM OF SUB-BID**, as applicable.

The total dollar amount of each general bid will be read, and the three apparent lowest bids will be selected for further consideration. These three apparent low bids will be read aloud for the benefit of the other bidders and the bid opening procedure will be closed. All those present at the bid opening may examine all bids after the bid opening and after the reading of the three apparent low bids.

6. Ability and Experience of General Bidder

No award will be made to any bidder who cannot satisfy the Owner that he has sufficient ability and experience in this class of work and sufficient capital and plant to enable him to prosecute and complete the work successfully. The Owner's decision or judgment on these matters will be final, conclusive, and binding.

The Owner may make such investigations as he deems necessary, and the bidder shall furnish to the Owner, all such information and data for this purpose as the Owner may request. In addition to the information requested in **Section C, FORM OF GENERAL BID**, the information requested in the **Bidder Qualifications** section and schedules attached thereto must also be submitted for inclusion in the bid evaluation process.

7. Conditions of Work

Each bidder must familiarize himself fully with the conditions relating to the construction of the project and the employment of labor thereon. Failure to do so will not relieve a successful bidder of his obligation to furnish all material and labor necessary to carry out the provisions of his contract. Insofar as possible the Contractor, in carrying out his work, must employ such methods or means as will not cause any interruption of or interference with the work of any other Contractor.

8. Addenda and Interpretations

No interpretation of the meaning of the plans, specifications or other documents will be made to any bidder orally. All information given to bidders other than by means of the plans, specifications, or by addenda, as described below, is given informally and shall not be used as the basis of a claim against the Owner.

Every request for such interpretation should be in writing and sent to: Mary Usovicz, General Manager, Merrimac Municipal Light Department, 10 West Main Street, Merrimac MA 01860, musovicz@merrimacmunicipal.com with the IFB # referenced in the subject line. In order to receive consideration, such request must be received at least seven (7) days prior to the date fixed for the opening of bids. Any and all such interpretations and any supplemental instructions will be in the form of written addenda to the specifications which, when issued, will be emailed and mailed by certified mail with return receipt requested to all prospective bidders (at the respective address furnished by them for such purposes), not later than five (5) days prior to the date fixed for the opening of bids. Failure of any bidder to receive any such addendum or interpretation shall not relieve such bidder from any obligation under his bid as submitted. All addenda so issued shall become part of the Contract Documents.

9. Security for Faithful Performance

Simultaneously with delivery of the executed Contract, the Contractor shall furnish a surety bond or bonds in the amount of 100% of the contract price as security for faithful performance of this contract and for the payment of all persons performing labor and materials under this contract as specified in **Section F, PERFORMANCE BOND** and **Section G, PAYMENT BOND**, included herein. The surety on such bond or bonds shall be a surety company qualified to do business under the laws of the Commonwealth and satisfactory to the Owner. The bonds shall remain in force for one year after final acceptance of the work by the Owner, unless the Owner, in writing, releases the Contractor from the obligation sooner.

10. Power of Attorney

Attorneys-in-fact who sign Contract bonds must file with each bond a certified and effectively dated copy of their power of attorney.

11. Laws and Regulations

The bidder's attention is directed to the fact that all applicable State and Federal laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over the Work ("Laws") shall apply to the contract throughout, and they will be deemed to be included in the Contract the same as though herein written out in full.

11. Liquidated Damages for Failure to Enter into Contract

The successful bidder, upon his failure or refusal to execute and deliver the Contract and bonds required within ten (10) days after he/she has received notice of the acceptance of his/her bid, shall forfeit to the Owner, as liquidated damages for such failure or refusal, a portion of security deposited with his/her bid, but the amount forfeited shall not exceed the difference between his/her bid price and the bid price of the next lowest responsible and eligible bidder. In case of death, disability, *bona fide* clerical or mechanical error of a substantial nature, or other similar unforeseen circumstances affecting the bidder, his/her bid deposit will be returned.

12. Obligation of Bidder

At the time of the opening of bids each bidder will be presumed to have inspected the site and to have read and to be thoroughly familiar with the Contract Documents (including all addenda). The failure or omission of any bidder to examine any form, instrument, or document shall in no way relieve any bidder from any obligation in respect of his bid.

13. Information Not Guaranteed

All information given in the Contract Documents relating to subsurface and other conditions, natural phenomena, existing pipes and other structures is from the best sources presently available to the Owner. All such information is furnished only for the information and convenience of bidders and is not guaranteed.

It is agreed and understood that the Owner does not warrant or guarantee that the subsurface and other conditions, natural phenomena, existing pipes and other structures encountered during construction will be the same as those indicated in the Contract Documents.

It is further agreed and understood that no bidder or Contractor shall use or be entitled to use any of the information made available to him or obtained in any examination made by him in any manner as a basis of or ground for any claim or demand against the Owner, arising from or by reason of any variance which may exist between the information made available and the actual subsurface or other structures actually encountered during the construction work, except as may otherwise be expressly provided for in the Contract Documents.

14. Bid Security

Each bid (general and sub-bid) must be accompanied by a certified check, a bid bond, or cashier's check, payable to the Owner, in the amount of 5% of the bid price. Such checks will be returned to all except the three lowest responsible and eligible bidders within five days, Saturdays, Sundays, and legal holidays excluded, after the opening of bids, and the remaining checks will be returned promptly after the Owner and the accepted bidder have executed the Contract, or if no notice of intent to award has been presented to the selected contractor within 30 days, Saturdays, Sundays and holidays excluded, after the date of the opening of bids, upon demand of the bidder at any time thereafter.

15. Rejection/Disqualification

The Owner reserves the right to waive any informalities or reject any and all bids, should the Owner deem it to be in the public interest to do so.

The Owner may also reject bids which in its sole judgment are incomplete, conditional, obscure or not responsive or which contain additions not called for, erasures not properly initialed, alterations, or similar irregularities.

The Owner also reserves the right to reject the bid of any bidder that the Owner considers to be unqualified based on the criteria set forth in Article 5 herein.

The following, without limitation, are some of the causes, which may be considered as sufficient for the disqualification of a bidder and the rejection of his bid:

- A. More than one bid for the same work from an individual, firm, partnership or corporation.
- B. Evidence of collusion among Bidders.
- C. Poor performance in the execution of work under previous contract.
- D. Failure to achieve reasonable progress on existing contract.

- E. Default on previous contracts or failure to execute Contract Documents after award.
- F. Failure to supply Bid Bond, Certified Check or Cashier's Check.
- G. Failure to fully complete Bid Form.
- H. Failure to include information required by this IFB.

16. Site Visit/Pre-Bid Conference

A mandatory pre-bid conference and site visit will be held on June 12 & 17 2025, at 9:00 AM. All prospective bidders shall attend one of the sessions or make an appointment for an alternative site visit.

17. Comparison of Bids

Bids will be compared on the basis of the lump sum prices set forth in the bid forms.

In the event that there is a discrepancy in the bid forms between the lump sum prices written in words and figures, the prices written in words will govern.

18. Award of Contract

The Contract will be awarded to "the lowest responsible and eligible bidder" pursuant to the procedures of M.G.L. c. 149, § 44A. Such a bidder shall possess the skill, ability and integrity necessary for the faithful performance of the work, shall be able to furnish labor that can work in harmony with all other elements of labor employed, or to be employed, in the work, and shall otherwise comply with all applicable provisions of law.

19. Statutes Regulating Competitive Bidding

Any bid which does not comply with the provisions of M.G.L. c. 149, §§44A *et seq.* and M.G. L. c. 30, §39M as applicable need not be accepted and the Owner may reject every such bid.

20. Wage Rates

Prevailing Wage Rates as determined by the Division of Occupational Safety, Department of Labor and Workforce Development under the provisions of M.G.L. c. 149, §§ 26 – 27G, apply to this project. It is the responsibility of the contractor, before bid opening, to request if necessary, any additional information on Prevailing Wage Rates for those trades people who may be employed for the proposed work under this contract.

Prevailing wage rates for this project are included in **Section J, PREVAILING WAGE SCHEDULE.**

21. Contractor Records

The Contractor shall comply with the provisions of M.G.L. c. 30, § 39R, concerning Contractor records.

22. Insurance

The Contractor shall carry and continuously maintain until completion of the Contract, insurance as specified in **Section H, CERTIFICATE OF INSURANCE** and in such form as shall protect him performing work covered by this Contract, or the Owner and its employees, agents and officials, from all claims and liability for damages for bodily injury, including accidental death, and for property damage, which may arise from operations under this Contract. The Contractor covenants and agrees to hold Owner and its employees, agents and officials harmless from loss or damage due to claims for personal injury and/or property damage arising from, or in connection with operations under this Contract.

23. Terms and Conditions

The successful bidder will be expected to sign the **AGREEMENT** in **Section E**, attached to which will be Terms and Conditions to the Agreement, appearing in substantially similar form as set forth in **Section I, TERMS AND CONDITIONS** and **Section K, SUPPLEMENTARY TERMS AND CONDITIONS**

24. OSHA Certification

Pursuant to the provisions of M.G.L. c. 30, § 39S, the successful bidder must be able to certify that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins work and must furnish documentation of successful completion of said course with the first certified payroll report for each employee.

25. Prohibition of PCBs, Asbestos, Lead, Chromium, Mercury, Selenium, Barium, Cadmium, Benzene, Silver, Chlorofluorocarbons, Etc.

Under no circumstances shall the Contractor provide materials or components, which contain PCBs or asbestos. This prohibition includes items such as, but not limited to, packings, seals, gaskets, or insulation, regardless whether the item is encapsulated or asbestos fibers are impregnated with a binder material. The restriction shall apply to all materials and/or chemicals which contain lead, chromium, mercury, selenium, barium, cadmium, silver or their respective compounds; benzene; Chlorofluorocarbons, such as Freon; and chlorinated hydrocarbons such as but not limited to 1,1,1-Trichloroethane, Perchloroethylene, Carbon Tetrachloride, or Methylene Chlorite, etc. In the instance or application where no other material is an acceptable or feasible substitute for any of the above referenced items, the Contractor shall, in writing inform the Owner of the pertinent facts regarding the application. The Owner will respond, in writing, with the disposition of the material or chemical component. No verbal requests and dispositions shall

be contractually binding unless accompanied by an MSDS Form and such requests and dispositions are confirmed in writing and accepted by the Owner.

SECTION C

FORM OF GENERAL BID

To the Awarding Authority:

A. The Undersigned proposes to furnish all labor and materials required for the Office Renovation Project in Merrimac, Massachusetts, in accordance with the accompanying plans and specifications prepared by Pitman & Wardley Associates LLC for the contract price specified below, subject to additions and deductions according to the terms of the specifications.

B. This bid includes addenda numbered _____.

C. The proposed contract price is _____ dollars
(\$ _____).

For Alternate No. _____; Add \$ _____ Subtract \$ _____
For Alternate No. _____; Add \$ _____ Subtract \$ _____
For Alternate No. _____; Add \$ _____ Subtract \$ _____

D. The subdivision of the proposed contract price is as follows:

Item 1. The work of the general contractor, being all work other than that covered by Item 2.
\$ _____

Item 2. Sub-bids as follows:—

The undersigned agrees that each of the above named sub-bidders will be used for the work indicated at the amount stated, unless a substitution is made. The undersigned further agrees to pay the premiums for the performance and payment bonds furnished by sub-bidders as requested herein and that all of the cost of all such premiums is included in the amount set forth in Item 1 of this bid.

The undersigned agrees that if he is selected as general contractor, he will promptly confer with the awarding authority on the question of sub-bidders; and that the awarding authority may substitute for any sub-bid listed above a sub-bid filed with the awarding authority by another sub-bidder for the sub-trade against whose standing and ability the undersigned makes no objection; and that the undersigned will use all such finally selected sub-bidders at the amounts named in their respective sub-bids and be in every way as responsible for them and their work as if they had been originally named in this general bid, the total contract price being adjusted to conform thereto.

E. The undersigned agrees that, if he is selected as general contractor, he will within five days, Saturdays, Sundays and legal holidays excluded, after presentation thereof by the awarding authority, execute a contract in accordance with the terms of this bid and furnish a performance

bond and also a labor and materials or payment bond, each of a surety company qualified to do business under the laws of the commonwealth and satisfactory to the awarding authority and each in the sum of the contract price, the premiums for which are to be paid by the general contractor and are included in the contract price; provided, however, that if there is more than 1 surety company, the surety companies shall be jointly and severally liable.

The undersigned hereby certifies that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work; that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; and that he will comply fully with all laws and regulations applicable to awards made subject to section 44A.

The undersigned further certifies under the penalties of perjury that this bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this subsection the word "person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity. The undersigned further certifies under penalty of perjury that the said undersigned is not presently debarred from doing public construction work in the commonwealth under the provisions of section twenty-nine F of chapter twenty-nine, or any other applicable debarment provisions of any other chapter of the General Laws or any rule or regulation promulgated thereunder.

Date _____

(Name of General Bidder)

By _____
(Name of Person Signing Bid and Title)

(Business Address)

(City and State)

CORPORATE RESOLUTION

(to be filed if General Contractor is a Corporation)

I, _____, hereby certify that I am the duly qualified
(Secretary of Corporation)
acting Secretary of _____ and I further certify
(Name of Corporation)
that a meeting of the Directors of said Company, duly called and held on _____,
at which all Directors were present and voting, the following individuals(s):

were duly authorized and empowered to execute Forms of General Bid, Contracts,
Agreements or Bonds on behalf of the Corporation. I further certify that the above
authority is still in effect and has not changed or modified in any respect.

By _____
(Secretary of Corporation)

A True Copy:

Attest _____
(Notary Public)

My Commission Expires _____
(Date)

(Corporate Seal)

NOTE: THIS IS PART OF SECTION C, AND MUST BE INCLUDED IN SUBMISSION

BIDDER QUALIFICATIONS

The following data, statements of experience, personnel, equipment and general qualifications of the Bidder are submitted as a part of the Bid and the Bidder represents and its ability to meet the qualifications requirements specified in the Bid Documents. Additional sheets attached shall be properly cross referenced.

SUBMITTED BY:

Official Name of Firm: _____

Address: _____

SUBMITTED FOR: _____

TYPE OF WORK: _____

1. BIDDER'S CONTACT INFORMATION

Contact Person: _____

Title: _____

Phone: _____

Email: _____

2. AFFILIATED COMPANIES:

Name: _____

Address: _____

3. TYPE OF ORGANIZATION:

SOLE PROPRIETORSHIP

Name of Owner: _____

Doing Business As: _____

Date of Organization: _____

PARTNERSHIP

Date of Organization: _____

Type of Partnership: _____

Name of General Partner(s): _____

CORPORATION

State of Organization: _____

Date of Organization: _____

Executive Officers:

- President: _____

- Vice President(s): _____

- Treasurer: _____

- Secretary: _____

JOINT VENTURE

State of Organization: _____

Date of Organization: _____

Form of Organization: _____

Joint Venture Managing Partner

- Name: _____

- Address: _____

Joint Venture Managing Partner

- Name: _____

- Address: _____

Joint Venture Managing Partner

- Name: _____

- Address: _____

LIMITED LIABILITY COMPANY

Date of Organization: _____

Name and address of Managers: _____

Contact Person: _____
Title: _____
Phone: _____
Email: _____

4. LICENSING

Jurisdiction: _____
Type of License: _____
License Number: _____
Jurisdiction: _____
Type of License: _____
License Number: _____

5. BONDING INFORMATION

Bonding Company: _____
Address: _____

Bonding Agent: _____
Address: _____

Contact Name: _____
Phone: _____
Aggregate Bonding Capacity: _____
Available Bonding Capacity as of date of this submittal: _____

6. FINANCIAL INFORMATION

Financial Institution: _____

Address: _____

Account Manager: _____

Phone: _____

7. CONSTRUCTION EXPERIENCE:

Bidder’s organization has had experience in construction comparable to that required by the Contract Documents (**as defined herein**) as a prime contractor for _____ years and as a subcontractor for _____ years.

As a minimum, Contractor shall:

- a. have been regularly and actively engaged in similar work as described in the Contract Documents, operating under the same business name and business organization structure, for the last 10 years on at least 5 projects;
- b. have successfully completed at least 5 projects involving construction of line pipe facilities in the same state as the Project covered by the Contract Documents; and
- c. have a full-time project manager in responsible charge of the work with at least 10 years’ experience as project manager on comparable projects.

Current Experience/Certifications:

Include attached to Schedule C-1: DCAMM Form CQ-7, Certification and DCAMM Form CQ-3 Update Statement.

Previous Experience:

List on Schedule C-2 at least 5 public projects completed within the last 10 years in Massachusetts which are similar in type, character and magnitude to that required by the Contract. (If Joint Venture, list each participant's projects separately).

Has firm listed in Section 1 ever failed to complete a construction contract awarded to it?

YES NO

If YES, attach as an attachment details including project owner's contact information.

Has any corporate officer, partner, joint venture participant, LLC manager or sole proprietor ever failed to complete a construction contract awarded to them in their name or when acting as a principal of another entity?

YES NO

If YES, attach as an attachment details including project owner's contact information.

ADDITIONAL INFORMATION:

In addition to the information requested above the following information must be submitted for inclusion in the bid evaluation process:

- a. The Contractor and subcontractors shall show proof of compliance with Drug and Alcohol Test Procedure (D.O.T.) for any CDL drivers.
- b. The Contractor and subcontractors shall submit proof of necessary trade licenses as required by Massachusetts law.
- c. The Contractor shall submit a brief resume of the qualifications of all key personnel and foremen and supervisors.
- d. The Contractor shall submit company resume and key personnel of all subcontractors.

8. INFORMATION, SCHEDULES AND DATA

Provide the schedule and work plan information requested and attach to this form.

I HEREBY CERTIFY THAT THE INFORMATION SUBMITTED HERewith, INCLUDING ANY ATTACHMENTS, IS TRUE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

NAME OF ORGANIZATION: _____

BY: _____

TITLE: _____

DATED: _____

NOTARY ATTEST:

SUBSCRIBED AND SWORN TO BEFORE ME

THIS _____ DAY OF _____, 2021

NOTARY PUBLIC - STATE OF _____

MY COMMISSION EXPIRES: _____

REQUIRED ATTACHMENTS

1. Schedule C-1– Attach DCAMM Certification and Update Statement here. (Form CQ-7 and CQ-3. NOTE: Form CQ-3 is not a public record).
2. Schedule C-2 (Previous Experience)
3. Evidence of authority for individuals listed in Section 3 to bind organization to an agreement (Form of Corporate Resolution)
4. Foreign Corporation Certificate if applicable
5. Resumes of supervisory personnel and key individuals of firm named in Section 1 available for assignment to the Project (project manager, superintendents, principal foremen)
6. List of Bidder and Subcontractor(s) current licenses.

SCHEDULE C-1
CURRENT EXPERIENCE/CERTIFICATION

[ATTACH DCAMM FORM CQ-7, CERTIFICATION AND DCAMM FORM CQ-3, UPDATE STATEMENT, HERE. NOTE: the Update Statement is not a public record]

SCHEDULE C-2

PREVIOUS EXPERIENCE (Include ALL Projects Completed within last 5 years)

Project Name	Owner's Contact Person	Design Engineer	Contract Date	Type of Work	Status	Cost of Work
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				

SCHEDULE C-2

PREVIOUS EXPERIENCE (Include ALL Projects Completed within last 5 years)

Project Name	Owner's Contact Person	Design Engineer	Contract Date	Type of Work	Status	Cost of Work
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				
	Name: Address: Telephone:	Name: Company: Telephone:				

NOTE: THIS IS PART OF SECTION C, BID FORM AND MUST BE INCLUDED

PROPOSED SUPPLIERS FORM

The following Suppliers are proposed to furnish the identified products, material and equipment to be incorporated into the Work. Attach additional sheets as necessary.

Name	Address	Product, Material, Equipment

NOTE: THIS IS PART OF SECTION C AND MUST BE INCLUDED IN SUBMISSION

INFORMATION, SCHEDULES AND DATA

SCHEDULE

Provide a proposed Project Schedule with the Bid, based on receiving a Notice to Proceed approximately seven calendar (7) days after the bid opening, Substantial Completion as defined in the Contract Documents, within ___ calendar days, and Final Completion as defined in the Contract Documents within ___ calendar days. The schedule shall be presented in sufficient detail for the Owner to evaluate the Bidder's ability to perform the Work within the Contract Time and shall include:

- milestones related to submittal schedules, procurement, construction, and checkout & functional testing; and
- sequencing to limit impacts from construction.

WORK PLAN

Submit a narrative work plan describing the Bidder's approach to the successful execution of the Work to accommodate the proposed Project Schedule and provide for special requirements. Allow for review of submittals, coordination, and development of detailed construction sequencing and coordination; and compliance with special requirements.

END OF SECTION

SECTION D

FORM OF SUB-BID

To all General Bidders Except those Excluded:

A. The undersigned proposes to furnish all labor and materials required for completing, in accordance with the hereinafter described plans, specifications and addenda, all the work specified in Section 26 00 00 of the specifications and in any plans specified in such section, prepared by Pitman & Wardley Associates , LLC for the Merrimac Municipal Light Department in Merrimac, Massachusetts, for the contract sum of _____ dollars (\$ _____).

For Alternate No. _____ ; Add \$ _____ Subtract \$ _____
For Alternate No. _____ ; Add \$ _____ Subtract \$ _____
For Alternate No. _____ ; Add \$ _____ Subtract \$ _____

B. This sub-bid includes addenda numbered _____

C. This sub-bid:

may be used by any general bidder except:

may only be used by the following general bidders:

[To exclude general bidders, insert "X" in one box only and fill in blank following that box. Do not answer C if no general bidders are excluded.]

D. The undersigned agrees that, if he is selected as a sub-bidder, he will, within 5 days, Saturdays, Sundays and legal holidays excluded, after presentation of a subcontract by the general bidder selected as the general contractor, execute with such general bidder a subcontract in accordance with the terms of this sub-bid, and contingent upon the execution of the general contract, and, if requested so to do in the general bid by the general bidder, who shall pay the premiums therefor, or if prequalification is required pursuant to section 44D 3/4, furnish a performance and payment bond of a surety company qualified to do business under the laws of the commonwealth and satisfactory to the awarding authority, in the full sum of the subcontract price.

E. The names of all persons, firms and corporations furnishing to the undersigned labor or labor and materials for the class or classes or part thereof of work for which the provisions of the section of the specifications for this sub-trade require a listing in this paragraph, including the undersigned if customarily furnished by persons on his own payroll and in the absence of a contrary provision in the specifications, the name of each such class of work or part thereto and the bid price for such class of work or part thereof are:

Name	Class of Work	Bid Price
_____	_____	_____
_____	_____	_____
_____	_____	_____

[Do not give bid price for any class or part thereof furnished by undersigned.]

F. The undersigned agrees that the above list of bids to the undersigned represents bona fide bids based on the hereinbefore described plans, specifications and addenda and that, if the undersigned is awarded the contract, they will be used for the work indicated at the amounts stated, if satisfactory to the awarding authority.

G. The undersigned further agrees to be bound to the general contractor by the terms of the hereinbefore described plans, specifications and bid documents, including all general conditions stated therein, and addenda, and to assume toward him all the obligations and responsibilities that he, by those documents, assumes toward the owner.

H. The undersigned offers the following information as evidence of his qualifications to perform the work as bid upon according to all the requirements of the plans and specifications:

1. Have been in business under present business name: ___ years.

2. Ever failed to complete any work awarded? If yes, describe circumstances (if necessary attach additional pages. _____

3. List one or more recent building projects with names of the general contractor and architect on which you served as a sub-contractor for work of similar character as required for the above-named building.

Building Type	Architect	General Contractor	Contract Amount
_____	_____	_____	\$ _____
_____	_____	_____	\$ _____
_____	_____	_____	\$ _____

4. Bank reference _____

I. The undersigned hereby certifies that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work; that all employees to be employed at the work site will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of

said course with the first certified payroll report for each employee; and that he will comply fully with all laws and regulations applicable to awards of subcontracts subject to section 44F. The undersigned understands that all bids for this project are subject to the applicable bidding laws of the Commonwealth of Massachusetts, including M.G.L. c. 149, § 44A.

The undersigned further certifies under penalties of perjury that this sub-bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this subsection the word "person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity.

The undersigned further certifies under penalty of perjury that the said undersigned is not presently debarred from doing public construction work in the commonwealth under the provisions of section twenty-nine F of chapter twenty-nine, or any other applicable debarment provisions of any other chapter of the General Laws or any rule or regulation promulgated thereunder.

Pursuant to M.G.L. c. 62C, § 49A, the undersigned certifies under the pains and penalties of perjury that he has complied with all laws of the commonwealth relating to taxes, reporting of employees and contractors, and withholding and remitting of child support.

Date _____

(Name of Sub-bidder)

By _____
(Title and Name of Person Signing Bid)

(Business Address)

(City and State)

Note: Attach to this form the following: DCAMM Certification and DCAMM Update Statement; note that Update Statement is not a public record. Attach Corporate Resolution if subcontractor is a corporation; attach Foreign Corporation Certificate if a foreign (non-Massachusetts) corporation.

CORPORATE RESOLUTION

(to be filed if Subcontractor is a Corporation)

I, _____, hereby certify that I am the duly qualified

(Secretary of Corporation)
acting Secretary of _____ and I further certify
(Name of Corporation)
that a meeting of the Directors of said Company, duly called and held on _____,
at which all Directors were present and voting, the following individuals(s):

were duly authorized and empowered to execute Forms of Sub-Bid, Contracts,
Agreements or Bonds on behalf of the Corporation. I further certify that the above
authority is still in effect and has not changed or modified in any respect.

By _____
(Secretary of Corporation)

A True Copy:

Attest _____
(Notary Public)

My Commission Expires _____
(Date)

(Corporate Seal)

SECTION E

AGREEMENT

THIS AGREEMENT, made this _____ day of _____, 2025, by and between the party of the first part, the Merrimac Municipal Light Department, hereinafter called "OWNER," acting herein through its General Manager, and the party of the second part, _____ doing business as *(an individual) (a partnership) (a joint venture) (a corporation) located in the *(City) (Town) of _____, County of _____, and State of _____, hereinafter called "CONTRACTOR."

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned, to be made and performed by the OWNER, the CONTRACTOR hereby agrees with the OWNER to commence and complete the project described as follows:

The Work generally consists of: renovation of an office building as described in the SPECIFICATIONS at Owner's site at 10 West Main Street, Merrimac, MA 01860

hereinafter called the Project, for the sum of _____ Dollars (\$ _____) and all extra work in connection therewith, under the terms as stated in the Contract Documents; and at his (its or their) own proper cost and expense to furnish all the materials, supplies, machinery equipment, tools, superintendence, labor, insurance, and other accessories and services necessary to complete the said project in accordance with the conditions and prices stated in Section C, FORM OF GENERAL BID, Section I, TERMS AND CONDITIONS, and the specifications and Contract Documents as prepared by the Owner.

The CONTRACTOR hereby agrees to commence work under this Contract on or before a date to be specified in written "Notice to Proceed" of the OWNER.

The CONTRACTOR further agrees to fully complete the project within 95 calendar days of the date of the Notice to Proceed.

The CONTRACTOR further agrees to pay as liquidated damages the sum of \$250 for each consecutive calendar day thereafter as provided in the Liquidated Damages Paragraph of Section I GENERAL CONDITIONS.

*Strike out inapplicable term.

The CONTRACTOR agrees not to discriminate against or exclude any person from participation herein on grounds of race, religion, color, sex, age or national origin; and that it shall take affirmative actions to insure that applicants are employed, and that employees are treated during their employment, without regard to race, religion, color, sex, age, handicapped status, or national origin.

The CONTRACTOR agrees not to participate in or cooperate with an international boycott, as defined in Section 999 (b)(3) and (4) of the Internal Revenue Code of 1954, as amended, or engage in conduct declared to be unlawful by Section 2 of Chapter 151E of the Massachusetts General Laws.

The OWNER agrees to pay the CONTRACTOR in current funds for the performance of the contract, subject to additions and deductions, as provided in Section I, GENERAL CONDITIONS.

IN WITNESS WHEREOF, the parties to these presents have executed this contract in four (4) counterparts, each of which shall be deemed an original, in the year and day first above mentioned.

AGREED:

Merrimac Municipal Light Department
(Owner)

By _____

(Name)

(Title)

(Contractor)

By _____

(Name)

(Title)

(Address)

CERTIFICATE OF VOTE
(to be filed if Contractor is a Corporation)

I, _____, hereby certify that I am
(Secretary of the Corporation)

the duly qualified and acting Secretary of _____
(Name of Corporation)

and I further certify that a meeting of the Directors of said Company, duly called and held on
_____, at which
(Date of Meeting)

all Directors were present and voting, the following vote was unanimously passed:

VOTED: To authorize and empower

Anyone acting singly, to execute Forms of General Bid, Contracts or Bonds on behalf of the Corporation.

I further certify that the above vote is still in effect and has not been changed or modified in any respect.

By: _____
(Secretary of Corporation)

A True Copy:

Attest: _____
(Notary Public)

My Commission Expires: _____
(Date)

SECTION F

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: That we _____

_____ a _____
(Name of Contractor) (Corporation, Partnership, Joint Venture or Individual)

hereinafter called "Principal" and _____
(Surety)

of _____, State of _____ hereinafter
(City and State)

called the "Surety" and licensed by the State Division of Insurance to do business under the laws of the Commonwealth of Massachusetts, are held and firmly bound to the Merrimac Municipal Light Department, hereinafter called "Owner", in the penal sum of _____

_____ Dollars

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

THE CONDITION OF THIS OBLIGATION is such that Whereas, the Principal entered into a certain contract with the Owner, dated the _____ day of _____, 2025, a copy of which is hereto attached and made a part hereof for the construction described as follows:

Renovation of an office building located at Owner's site at 10 West Main Street in Merrimac, MA 01860

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term thereof, and any extensions thereof which may be granted by the Owner, with or without notice to the Surety, and if he shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the Owner from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the Owner all outlay and expense which the Owner may incur in making good any default, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the work to be performed thereunder or the specifications accompanying the same shall in any way affect its obligation

on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of this contract or to the work or to the specifications.

PROVIDED FURTHER, that Owner is the beneficiary of this bond and entitled to claims against Surety under this bond.

PROVIDED, FURTHER, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in four (4) counterparts, each one of which shall be deemed an original, this the _____ day of _____, 2025.

ATTEST:

Principal

By _____
(Principal Secretary)

(Address-Zip Code)

Witness as to Principal (SEAL)

(Address-Zip Code)

ATTEST:

Surety

By _____
(Attorney-in-Fact)

(Address-Zip Code)

Witness as to Surety (SEAL)

(Address-Zip Code)

NOTE: Date of Bond must not be prior to date of Contract. If Contractor is a Partnership, all partners should execute Bond.

SECTION G

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: That we _____

_____ a _____
(Name of Contractor) (Corporation, Partnership, Joint Venture or Individual)

hereinafter called "Principal" and _____
(Surety)

of _____, State of _____ hereinafter
(City and State)

called the "Surety" and licensed by the State Division of Insurance to do business under the laws of the Commonwealth of Massachusetts, are held and firmly bound to the Merrimac Municipal Light Department, hereinafter called "Owner", in the penal sum of _____

_____ Dollars

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

THE CONDITION OF THIS OBLIGATION is such that Whereas, the Principal entered into a certain contract with the Owner, dated the _____ day of _____, 2025, a copy of which is hereto attached and made a part hereof for the construction described as follows:

Renovation of an office building located at Owner's site at 10 West Main Street in Merrimac, MA 01860

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms, subcontractors, and corporations furnishing materials for or performing labor in the prosecution of the work provided for in such contract, and any authorized extension or modification thereof, including all amounts due for materials, lubricants, oil, gasoline, coal and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such work, and all insurance premiums on said work, and for all labor, performed in such work whether by subcontractor or otherwise, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said Surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the work to be performed thereunder or the specifications accompanying the same shall in any way affect its obligation

on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of this contract or to the work or to the specifications.

PROVIDED FURTHER, that Owner is the beneficiary of this bond and entitled to claims against Surety under this bond.

PROVIDED, FURTHER, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in six (6) counterparts, each one of which shall be deemed an original, this the _____ day of _____, 2025.

ATTEST:

Principal

By _____
(Principal Secretary)

(Address-Zip Code)

Witness as to Principal (SEAL)

(Address-Zip Code)

ATTEST:

Surety

By _____
(Attorney-in-Fact)

(Address-Zip Code)

Witness as to Surety (SEAL)

(Address-Zip Code)

NOTE: Date of Bond must not be prior to date of Contract. If Contractor is a Partnership, all partners should execute Bond.

SECTION H

CERTIFICATE OF INSURANCE

Limits should be on ACORD Form submitted as set forth below and coverages set forth in Article 11 of **Section I, GENERAL TERMS AND CONDITIONS**

TYPE	MINIMUM LEVEL
i) Worker's Compensation	Statutory
ii) Employer's Liability	\$1,000,000 per occurrence
iii) Automobile Liability	
a) Bodily Injury	\$1,000,000 per person \$2,000,000 per occurrence
b) Property Damage (Combined Limit)	\$1,000,000 per occurrence
iv) Commercial General Liability	
a) General Aggregate Limit	\$4,000,000
b) Products-Completed Operations Aggregate Limit	\$4,000,000
c) Personal & Advertising Injury Limit	\$4,000,000
d) Each Occurrence Limit	\$2,000,000

SECTION I

GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION

ARTICLE 1

CONTRACT DOCUMENTS

1.1 DEFINITIONS

1.1.1 THE CONTRACT DOCUMENTS

The Contract Documents consist of the Owner-Contractor Agreement, these General Conditions, the Supplementary Terms and Conditions, the Drawings, the Specifications, all Addenda issued prior to and all Modifications issued after execution of the Contract, and all applicable laws, ordinances and regulations. A Modification is (1) a written amendment to the contract signed by both parties, (2) a Change Order, (3) a written interpretation issued by the Owner or (4) a written order for a minor change in the Work issued by the Owner pursuant to Paragraph 12.3. The Contract Documents include Bidding Documents such as the Advertisement or Invitation to Bid, the Instructions to Bidders, sample forms, the Contractor's Bid or portions of Addenda relating to any of these, or any other documents, specifically enumerated in the Owner-Contractor Agreement.

1.1.2 THE CONTRACT

The Contract Documents form the Contract for Construction. This Contract represents the entire and integrated agreement between the parties hereto and supersedes all prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification as defined in Subparagraph 1.1.1.

1.1.3 THE WORK

The Work comprises the completed construction required by the Contract Documents and includes all labor necessary to produce such construction, and all materials and equipment incorporated or to be incorporated in such construction.

1.1.4 THE PROJECT

The project is the total construction of which the Work performed under the Contract Documents may be the whole or a part.

1.1.5 "OR EQUAL"

The use of the words "Or Equal" following the name of any manufacturer, vendor or proprietary product shall be understood to mean that articles or materials may be substituted which, in the opinion of the Owner, are equal in quality, durability, appearance, strength, design and performance to the articles or materials named or described and will perform adequately in providing a first-class facility.

When submitting shop drawing information on articles or materials which are being proposed as substitutes for specified items, the Contractor shall clearly identify them as such. If the articles or

materials are accepted as equal to those on which dimensions on the drawings are based, any dimensional variance from those shown and/or specified shall be shown on the shop drawings prepared by the Contractor, illustrating the manner in which conformity to dimensions and design is to be obtained. All such drawings shall be subject to the approval of the Owner and the installation of the article shall not proceed without first obtaining said approval.

1.2 EXECUTION, CORRELATION AND INTENT

1.2.1 The Contract Documents shall be signed in not less than quadruplicate by the Owner and Contractor.

1.2.2 By executing the Contract, the Contractor represents that he has visited the site, familiarized himself with the local conditions under which the Work is to be performed, and correlated his observations with the requirements of the Contract Documents.

1.2.3 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work. The Contract Documents are complementary, and what is required by any one shall be as binding as if required by all. Work not covered in the Contract Documents will not be required unless it is consistent therewith and is reasonably inferable therefrom as being necessary to produce the intended results. Words and abbreviations which have well-known technical or trade meanings are used in the Contract Documents in accordance with such recognized meanings.

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

1.3 OWNERSHIP AND USE OF DOCUMENTS

1.3.1 All Drawings, Specifications and copies thereof furnished by the Owner are and shall remain the Owner's property. They are to be used only with respect to this Project and are not to be used on any other project without the prior written consent of the Owner. With the exception of one contract set for each party to the Contract, such documents are to be returned or suitably accounted for to the Owner at the completion of the Work. Submission or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of any reserved rights.

ARTICLE 2

2.1 ADMINISTRATION OF THE CONTRACT

2.1.1 The designated representative of the Owner or its Architect will visit the site at intervals appropriate to the stage of construction to familiarize himself generally with the progress and quality of the Work and to determine in general if the Work is proceeding in accordance with the Contract Documents. However, the Owner's Representative will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. For the purposes of this project and Contract, the Owner's Architect is Pitman & Wardley Associates, LLC.

2.1.2 The Owner shall at all times have access to the Work wherever it is in preparation and progress. The Contractor shall provide facilities for such access so the Owner may perform its functions under the Contract Documents.

2.1.3 Based on the Owner's observations and an evaluation of the Contractor's Applications for Payment, the Owner will determine the amounts owing to the Contractor and will issue Certificates for Payment in such amounts, as provided in Paragraph 9.4.

2.1.4 The Owner will render information necessary for the proper execution or progress of the Work within twenty (20) days of any request by the Contractor or in accordance with any time limit agreed upon.

2.1.5 The Owner will have authority to reject Work which does not conform to the Contract Documents. Whenever, in his opinion, he considers it necessary or advisable for the implementation of the intent of the Contract Documents, he will have authority to require special inspection or testing of the Work in accordance with Subparagraph 7.7.2 whether or not such Work be then fabricated, installed or completed. Any such rejection of work shall not relieve the Contractor of the responsibility for maintaining protection of the Work and the Owner's property.

2.1.8 The Owner will conduct inspections to determine the date of Substantial Completion and Final Completion, will review written warranties and related documents required by the Contract and assembled by the Contractor, and will issue a final Certificate for Payment upon compliance with the requirements of Paragraph 9.9.

ARTICLE 3

OWNER

3.1 DEFINITION

3.1.1 The Owner is the person or entity identified as such in the Owner-Contractor Agreement and is referred to throughout the Contract Documents as if singular in number and masculine in gender. The term Owner means the Owner or his authorized representative, including Owner's engineer.

3.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

3.2.1 The Owner shall, at the time of execution of the Agreement and any subsequent Change Orders, certify for the Contractor that financial arrangements have been made to fulfill the Owner's obligations under the Contract.

3.2.2 The Owner shall furnish all surveys describing the physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site.

3.2.3 The Owner will furnish the Contractor with two copies of all Drawings and Specifications and revisions issued during the progress of the Work; all additional copies will be furnished upon request at the cost of reproduction.

3.3 OWNER'S RIGHT TO STOP THE WORK

3.3.1 If the Contractor fails to correct defective Work as required by Paragraph 13.2 or fails to carry out the Work in accordance with the Contract Documents or if the Owner shall for any other

reason so require, the Owner, by a written order signed personally or by an agent specifically so empowered by the Owner in writing, may order the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated or until further written notice from the Owner; however, this right of the Owner to stop the Work shall not give rise to any duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Subparagraph 6.1.3. The Contractor shall resume the Work after such stoppage promptly upon written notice to do so from the Owner. If such stoppage is required through no fault of the Contractor, the Contract Time (and the dates for achieving Substantial Completion and Final Completion) shall be extended by a period equal to the period of the stoppage, and the Contractor shall be compensated for its reasonable and justifiable costs incurred as a result of such stoppage.

3.4 OWNER'S RIGHT TO CARRY OUT THE WORK

3.4.1 If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within seven (7) days after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to any other remedy he may have, perform such work or cause such work to be performed and/or make good such deficiencies. In such case an appropriate Change Order shall be issued deducting from the payments then or thereafter due the Contractor the cost of correcting such deficiencies, including compensation for additional services made necessary by such default, neglect or failure. If the payments then or thereafter due the Contractor are not sufficient to cover the amount, the Contractor shall pay the difference to the Owner.

ARTICLE 4 CONTRACTOR

4.1 DEFINITION

4.1.1 The Contractor is the person or entity identified as such in the Owner-Contractor Agreement and is referred to throughout the Contract Documents as if singular in number and masculine in gender. The term Contractor means the Contractor or his authorized representative.

4.2 REVIEW OF CONTRACT DOCUMENTS

4.2.1 The Contractor shall carefully study and compare the Contract Documents and shall at once report to the Owner any error, inconsistency or omission he may discover. The Contractor shall not be liable to the Owner for any damage resulting from errors, inconsistencies or omissions in the Contract Documents which he discovers but shall be liable for damage to the extent he reasonably should have but failed to discover such errors, inconsistencies or omissions. The Contractor shall perform no portion of the Work at any time without Contract Documents or, where required, approved Shop Drawings, Product Data or Samples for such portion of the Work.

4.3 SUPERVISION AND CONSTRUCTION PROCEDURES

4.3.1 The Contractor shall supervise and direct the Work, using his best skill and attention which shall not be less than such state of skill and attention generally rendered by the contracting profession for projects similar to the Project in scope, difficulty and location. The Contractor shall maintain adequate supervisory personnel at the Premises during the performance of the Work. He shall be solely responsible for all construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract.

4.3.2 The Contractor shall be responsible to the Owner for the acts and omissions of his employees, Subcontractors and their agents and employees, and other persons performing any of the Work under a contract with the Contractor. This obligation shall also extend to the presence on the Site of suppliers of materials or equipment, their employees, contractors, and agents engaged in the work.

4.3.3 The Contractor shall not be relieved from his obligations to perform the Work in accordance with the Contract Documents either by the activities or duties of the Owner in its administration of the Contract, or by inspection, tests or approvals required or performed under Paragraph 7.7 by persons other than the Contractor.

4.4 LABOR AND MATERIALS

4.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for all labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and service necessary for the proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

4.4.2 The Contractor shall at all times enforce strict discipline and good order among his employees and shall not employ on the Work any unfit person or anyone not skilled in the task assigned to him including all persons on the Site controlled directly or indirectly by the Contractor.

4.5 WARRANTY

4.5.1 The Contractor warrants to the Owner that all materials and equipment furnished under this Contract will be new and of recent manufacture unless otherwise permitted in writing by the Owner and that all Work will be of good quality, free from faults and defects and in conformance with the Contract Documents. All Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective and, promptly after written notification of non-conformance, shall be repaired or replaced by the Contractor with Work conforming to such requirements. If required by the Owner, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment. This warranty is not limited by the provisions of Paragraph 13.2.

4.6 TAXES

4.6.1 Owner is exempt from Commonwealth of Massachusetts Sales and Use Tax and taxes on materials and equipment incorporated in the Work shall not be included in the Contract Sum.

4.7 PERMITS, FEES AND NOTICES

4.7.1 Unless otherwise expressly provided in the Contract Documents, the Contractor shall secure and pay for all permits and fees, licenses and inspections necessary for the proper execution and completion of the Work which are customarily secured after execution of the Contract and which are legally required at the time the bids are received, and the same shall at all times be the property of the Owner and shall be delivered to the Owner upon completion of the Project.

4.7.2 The Contractor shall give all notices and comply with all Laws bearing on the performance of the Work. The Contractor shall provide the Owner with reproductions of all permits, licenses and receipts for any fees paid.

4.7.3 If the Contractor observes that any of the Contract Documents are at variance with applicable laws, statutes, codes and regulations in any respect, he shall promptly notify the Owner in writing, and any necessary changes shall be accomplished by appropriate Modification.

4.7.4 If the Contractor performs any Work which he knows or should know is contrary to such Laws, he shall assume full responsibility therefor and shall bear all costs attributable thereto.

4.8 SUPERINTENDENT

4.8.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site at all times during the progress of the Work. The superintendent shall represent the Contractor and all communications given to the superintendent shall be as binding as if given to the Contractor. Important communications shall be confirmed in writing. Other communications shall be so confirmed on written request in each case.

4.9 PROGRESS SCHEDULE

4.9.1 The Contractor, immediately after being awarded the Contract, shall prepare and submit for the Owner's information an estimated progress schedule for the Work. The progress schedule shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work.

4.10 DOCUMENTS AND SAMPLES AT THE SITE

4.10.1 The Contractor shall maintain at the site for the Owner one record copy of all Drawings, Specifications, Addenda, Change Orders and other Modifications, and "As-Built" Drawings and Specifications in good order and marked currently to record all changes made during construction, and approved Shop Drawings, Product Data and Samples. These shall be available to the Owner upon completion of the Work.

4.11 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

4.11.1 "Shop Drawings" are drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or any Subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

4.11.2 "Product Data" are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate a material, product or system for some portion of the Work.

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

4.11.4 The Contractor shall review, approve and submit, with reasonable promptness and in such sequence as to cause no delay in the Work or in the work of the Owner or any separate contractor, all Shop Drawings, Product Data and Samples required by the Contract Documents.

4.11.5 By approving and submitting Shop Drawings, Product Data and Samples, the Contractor represents that he has determined and verified all materials, field measurements, and field construction criteria related thereto, or will do so, and that he has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

4.11.6 The Contractor shall not be relieved of responsibility for any deviation from the requirements of the Contract Documents by the Owner's approval of Shop Drawings, Product Data or

Samples unless the Contractor has specifically informed the Owner in writing of such deviation at the time of submission and the Owner has given written approval to the specific deviation. The Contractor shall not be relieved from responsibility from errors or omissions in the Shop Drawings, Product Data or Samples by the Owner's approval thereof.

4.11.7 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data or Samples, to revisions other than those requested by the Owner on previous submittals.

4.11.8 No portion of the Work requiring submission of a Shop Drawing, Product Data or Sample shall be commenced until the submittal has been approved by the Owner. All such portions of the Work shall be in accordance with approved submittals.

4.12 USE OF SITE

4.12.1 The Contractor shall confine operations at the site to areas permitted by law, ordinances, permits and the Contract Documents and shall not unreasonably encumber the site with any materials or equipment. The Contractor shall be bound to observe applicable terms of any easement, license or other permit pursuant to which Owner and its contractors and subcontractors obtain access to the Project site.

4.13 CUTTING AND PATCHING OF WORK

4.13.1 The Contractor shall be responsible for all cutting, fitting or patching that may be required to complete the Work or to make its several parts fit together properly.

4.13.2 The Contractor shall not damage or endanger any portion of the Work or the work of the Owner or any separate contractors by cutting, patching or otherwise altering any work, or by excavation. The Contractor shall not cut or otherwise alter the work of the Owner or any separate contractor except with the written consent of the Owner and of such separate contractor. The Contractor shall not unreasonably withhold from the Owner or any separate contractor his consent to cutting or otherwise altering the Work.

4.14 CLEANING UP

4.14.1 The Contractor at all times shall keep the premises free from accumulation of waste materials or rubbish caused by his operations. At the completion of the Work he shall remove all his waste materials and rubbish from and about the Project in full compliance with all applicable laws and regulations as well as all his tools, construction equipment, machinery and surplus materials and the Project shall be thoroughly cleaned and ready for immediate occupancy by the Owner.

4.14.2 If the Contractor fails to clean up at the completion of the Work, the Owner may do so as provided in Paragraph 3.4 and the cost thereof shall be charged to the Contractor.

4.15 COMMUNICATIONS

4.15.1 The Contractor shall forward all communications to the Owner through its representative, Patrick Nash patrick@nashmhd.com.

4.16 ROYALTIES AND PATENTS

4.16.1 The Contractor shall pay all royalties and license fees. He shall defend all suits or claims for infringement of any patent rights and shall save the Owner harmless from loss on account thereof, except that the Owner shall be responsible for all such loss when a particular design, process or the

product of a particular manufacturer or manufacturers is specified, but if the Contractor believes or has reason to believe that the design, process or product specified is an infringement of a patent, he shall be responsible for such loss unless he promptly gives such information to the Owner, and thereafter the Owner insists on the use of the design, process or products specified.

4.17 INDEMNIFICATION

4.17.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, and their agents and employees from and against all claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from the performance of the Work, provided that any such claim, damage, loss or expense (1) is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself) including the loss of use resulting therefrom, and (2) is caused in whole or in part by any negligent act or omission of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or otherwise reduce any other right or obligation of indemnity which would otherwise exist as to any party or person described in this Paragraph 4.17.

4.17.2 In any and all claims against the Owner and any of their agents or employees by any employee of the Contractor, 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 under this Paragraph 4.17 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 workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts.

ARTICLE 5 SUBCONTRACTORS

5.1 DEFINITION

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

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

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

5.2.1 Unless otherwise required by the Contract Documents, the Contractor, as soon as practicable after the award of the Contract, shall furnish to the Owner in writing the names of the persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each of the principal portions of the Work. The Owner will reply to the Contractor

in writing within twenty (20) days stating whether or not the Owner, after due investigation, has reasonable objection to any such proposed person or entity.

5.2.2 The Contractor shall not contract with any such proposed person or entity to whom the Owner has made reasonable objection under the provisions of Subparagraph 5.2.1.

5.2.3 If the Owner has reasonable objection to any such proposed person or entity, the Contractor shall submit a substitute to whom the Owner has no reasonable objection.

5.2.4 The Contractor shall make no substitution for any Subcontractor, person or entity previously selected if the Owner makes reasonable objection to such substitution.

5.3 SUBCONTRACTUAL RELATIONS

5.3.1 By an appropriate agreement, written where legally required for validity, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by the terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities which the Contractor, by these Documents, assumes toward the Owner. Said agreement shall preserve and protect the rights of the Owner under the Contract Documents with respect to the Work to be performed by the Subcontractor so that the subcontracting thereof will not prejudice such rights. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with his Sub-subcontractors. The Contractor shall make availability to each proposed Subcontractor, prior to the execution of the Subcontract, copies of the Contract Documents to which the Subcontractor will be bound by this Paragraph 5.3, and identify to the Subcontractor any terms and conditions of the proposed Subcontract which may be at variance with the Contract Documents. Each Subcontractor shall similarly make copies of such Documents available to his Sub-subcontractors. The Contractor shall be fully responsible to the Owner for the acts and omissions of all Subcontractors and other entities or persons directly or indirectly employed by him to perform the Work. If requested by the Owner, the form and substance of any Subcontract with the Contractor shall be subject to the prior written consent of the Owner, which consent shall not be unreasonably withheld or delayed.

ARTICLE 6

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ARTICLE 7

MISCELLANEOUS PROVISIONS

7.1 GOVERNING LAW

7.1.1 The Contract shall be governed by the law of the Commonwealth of Massachusetts. All applicable provisions of Federal, state, or local laws, by-laws, rules, or regulations are incorporated into the Contract as if fully set forth herein, and shall prevail over any conflicting provisions of the General Conditions.

7.2 SUCCESSORS AND ASSIGNS

7.2.1 The Owner and the Contractor each bind himself, his partners, successors, assigns and legal representatives to the other party hereto and to the partners, successors, assigns and legal representatives of such other party in respect to all covenants, agreements and obligations contained in

the Contract Documents. 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 moneys due or to become due to him hereunder, without the previous written consent of the Owner.

7.3 WRITTEN NOTICE

7.3.1 Written notice shall be deemed to have been duly served if delivered in person to the individual or member of the firm or entity 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. Written Notice to the Owner shall be delivered to the General Manager, Merrimac Municipal Light Department, 10 West Main Street, Merrimac, MA 01860.

7.4 CLAIMS FOR DAMAGES

7.4.1 Should either party to the Contract suffer injury or damage to person or property because of any act or omission of the other party or of any of his employees, agents or others for whose acts he is legally liable, claim shall be made in writing to such other party within a reasonable time after the first observance of such injury or damage. The reasonable time shall not exceed fourteen days.

7.5 PERFORMANCE BOND AND LABOR AND PAYMENT BOND

7.5.1 The Contractor shall furnish a Performance Bond in an amount at least equal to one hundred percent (100%) of the Contract price as security for the faithful performance of this Contract and also a Payment Bond in an amount at least equal to one hundred percent (100%) of the Contract price as security for the payment of all persons performing labor on the project under this Contract and furnishing materials in connection with this Contract. The Performance Bond and the Payment Bond may be in one or in separate instruments in accordance with local law, and in a form acceptable to the Owner, and shall remain in effect through the one-year warranty period.

7.6 RIGHTS AND REMEDIES

7.6.1 The duties and obligations imposed by the Contract Documents and the rights and remedies available thereunder shall be in addition to and not a limitation of any duties, obligations, rights and remedies otherwise imposed or available by law, except as otherwise set forth therein.

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

ARTICLE 8 TIME

8.1 DEFINITIONS

8.1.1 Unless otherwise provided, the Contract Time is the period of time allotted in the Contract Documents for Substantial and Final Completion of the Work as defined in Subparagraph 8.1.3, including authorized adjustments thereto. Time is of the essence with regard to completion of the Work required by the Contract.

8.1.2 The date of commencement of the Work is the date established in a notice to proceed. If there is no notice to proceed, it shall be the date of the Owner-Contractor Agreement or such other date as may be established therein.

8.1.3 The Date of Substantial Completion of the Work or designated portion thereof is the Date certified by the Owner when construction is substantially complete, in accordance with the Contract Documents, other than only custom punch list items, the lack of or completion of which will not interfere with the Owner's use, so the Owner can lawfully occupy and utilize the Work or designated portion thereof for the use for which it is intended. The Date of Final Completion of the Work is the date on which the Owner issues its final Certificate for Payment in accordance with Paragraph 9.9.1 hereof.

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

8.2 PROGRESS AND COMPLETION

8.2.1 All time limits stated in the Contract Documents are of the essence of the Contract.

8.2.2 The Contractor shall begin the Work on the date of commencement as defined in Subparagraph 8.1.2. He shall carry the Work forward expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time, and Final Completion thereafter in accordance with the provisions of the Contract Documents.

8.3 DELAYS AND EXTENSIONS OF TIME

8.3.1 If the Contractor is delayed at any time in the progress of the Work by any act or neglect of the Owner or by any employee of the Owner, or by any separate contractor employed by the Owner, or by changes ordered in the Work, or by labor disputes, fire, unusual delay in transportation, adverse weather conditions not reasonably anticipated, unavoidable casualties, or any causes beyond the Contractor's or its Subcontractor's control, other than by delay in access described in Section 4.18, or by delay authorized by the Owner, then, provided such delay in no way results from the act or neglect of the Contractor or any of its Subcontractors, the Contract Time shall be extended by Change Order for such reasonable time as the Owner may determine.

8.3.2 Any claim for extension of time shall be made in writing to the Owner not more than seven (7) days after the commencement of the delay; otherwise it shall be waived. In the case of a continuing delay only one claim is necessary. The Contractor shall provide an estimate of the probable effect of such delay on the progress of the Work.

8.3.3 If no agreement is made stating the dates upon which interpretations shall be furnished, then no claim for delay shall be allowed on account of failure to furnish such interpretation until fifteen (15) days after written request is made for them, and not then unless such claim is reasonable.

8.4 LIQUIDATED DAMAGES

8.4.1 If the Contractor shall neglect, fail or refuse to complete the Work within the time herein specified after issuance of a Notice to Proceed, or any proper extension thereof granted by the Owner, then the Contractor does hereby agree, as a part consideration for the awarding of this Contract, to pay to the Owner the amount specified in the Contract, not as a penalty but as liquidated damages for such

breach of contract as hereinafter set forth, for each and every calendar day that the Contract shall be in default after the time stipulated in the Contract for completing the work.

The said amount is fixed and agreed upon by and between the Contractor and the Owner because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the Owner would in such event sustain, and said amount is agreed to be the amount of damages which the Owner would sustain and said amount shall be retained from time to time by the Owner from current periodical estimates.

8.4.2 It is further agreed that time is of the essence of each and every portion of this Contract and of the specifications wherein as definite and certain length of times if fixed for the performance of any act whatsoever; and where under the Contract an additional time is allowed for the completion of any work, the new time limit fixed by such extension shall be of the essence of this contract.

8.4.3 Provided, that the contractor shall not be charged with liquidated damages or any excess cost when the Owner determines that the Contractor is without fault and the Contractor's reasons for the time extension are acceptable to the Owner; Provided, further, that the Contractor shall not be charged with liquidated damages or any excess cost when the delay in completion of the work is due:

1. to any preference, priority or allocation order duly issued by the Government;
2. to unforeseeable cause beyond the control and without the fault of negligence of the Contractor, including, but not restricted to, acts of God, or of the public enemy, acts of the Owner, acts of another Contractor in the performance of a contract with the Owner, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and severe weather; and
3. to any delays of subcontractors or suppliers occasioned by any of the causes specified in subsection (1.) and (2.) of this article:

8.4.4 Provided, further, that the Contractor shall, within ten (10) days from the beginning of such delay, unless the Owner shall grant a further period of time prior to the date of final settlement of the Contract, notify the Owner, in writing, of the causes of the delay, who shall ascertain the facts and extent of the delay and notify the Contractor within a reasonable time of its decision in the matter.

ARTICLE 9

PAYMENTS AND COMPLETION

9.1 CONTRACT SUM

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

9.2 SCHEDULE OF VALUES

9.2.1 Before the first Application for Payment, the Contractor shall submit to the Owner a schedule of values allocated to the various portions of the Work, prepared in such form and supported by

such data to substantiate its accuracy as the Owner may require. This schedule, unless objected to by the Owner, shall be used only as a basis for the Contractor's Application for Payment.

9.3 APPLICATIONS FOR PAYMENT

9.3.1 The Contractor shall submit to the Owner an itemized Application for Payment supported by such data substantiating the Contractor's right to payment as provided elsewhere in the Contract Documents for the period ending the 25th day of each month within the Contract period.

9.3.2 Unless otherwise provided in the Contract Documents, payments will be made on account of materials or equipment not incorporated in the Work but delivered and suitably stored at the site and, if approved in advance by the Owner, payments may similarly be made for materials or equipment suitably stored at some other location agreed upon in writing. Payments for materials or equipment stored on or off the site shall be conditioned upon submission by the Contractor of bills of sale or such other procedures satisfactory to the Owner to establish the Owner's title to such materials or equipment or otherwise protect the Owner's interest, including applicable insurance and transportation to the site for those materials and equipment stored off the site. The Contractor shall assume responsibility to protect all such materials from loss or damage at no cost to the Owner, until they are finally incorporated into the Work, whether or not they have been paid for by the Owner.

9.3.3 The Contractor warrants that title to all Work, materials and equipment covered by an Application for Payment will pass to the Owner either by incorporation in the construction or upon the receipt of payment by the Contractor, whichever occurs first, free and clear of all liens, claims, security interests or encumbrances, hereinafter referred to in this Article 9 as "liens"; and that no Work, materials or equipment covered by an Application for Payment will have been acquired by the Contractor, or by any other person performing Work at the site or furnishing materials and equipment for the Project, subject to an agreement under which an interest therein or an encumbrance thereon is retained by the seller or otherwise imposed by the Contractor or such other person.

9.4 CERTIFICATES OF PAYMENT

9.4.1 The Owner will, within ten days after the receipt of the Contractor's Application for Payment, issue a Certificate for Payment to the Contractor for such amount as the Owner determines is properly due, or notify the Contractor in writing his reasons for withholding a Certificate as provided in Subparagraph 9.6.1.

9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Owner, based on its observations at the site as provided in Subparagraph 3.2.7 and the data comprising the application for Payment, that the Work has progressed to the point indicated; that, to the best of his knowledge, information and belief, the quality of Work is in accordance with the Contract Documents (subject to an evaluation of the Work for conformance with the Contract Document upon Substantial Completion, to the results of any subsequent tests required by or performed under the Contract Documents correctable prior to completion, and to any specific qualifications stated in his Certificate); and that the Contractor is entitled to payment in the amount certified. However, by issuing a Certificate for Payment, the Owner shall not thereby be deemed to represent that he has made exhaustive or continuous on-site inspections to check the quality or quantity of the Work or that he has reviewed the construction means, methods, techniques, sequences or procedures, or that he has made any examination

to ascertain how or for what purpose the Contractor has used the moneys previously paid on account of the Contract Sum.

9.5 PROGRESS PAYMENTS

9.5.1 After the Owner has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents. The Owner reserves the right to a 5% general retainage from each progress payment, which retainage shall be released to the Contractor upon substantial completion.

9.5.2 The Contractor shall promptly pay each Subcontractor, upon receipt of payment from the Owner, out of the amount paid to the Contractor on account of such Subcontractor's Work, the amount to which said Subcontractor is entitled, reflecting the percentage actually retained, if any, from payments to the Contractor on account of such Subcontractor's Work. The Contractor shall, by an appropriate agreement with each Subcontractor, require each Subcontractor to make payments to his Sub-subcontractors in similar manner.

9.5.3 The Owner may, on request and at his discretion, furnish to any Subcontractor, if practicable, information regarding the percentages of completion or the amounts applied for by the Contractor and the action taken thereon by the Owner on account of Work done by such Subcontractor.

9.5.4 The Owner shall not have any obligation to pay or to see to the payment of any moneys to any Subcontractor except as may otherwise be required by law.

9.5.5 No Certificate for a progress payment, nor any progress payment, nor any partial or entire use or occupancy of the Project by the Owner, shall constitute an acceptance of any Work not in accordance with the Contract Documents.

9.6 PAYMENTS WITHHELD

9.6.1 The Owner shall decline to certify payment and withhold its Certificate in whole or in part, to the extent necessary reasonably to protect itself. If the Owner is unable to certify payment in the amount of the Application, he will notify the Contractor as provided in Subparagraph 9.4.1. If the Contractor and the Owner cannot agree on a revised amount, the Owner will promptly issue a Certificate for Payment for the amount for which it determines is properly due. The Owner may also decline to certify payment or, because of subsequently discovered evidence or subsequent observations, it may nullify the whole or any part of any Certificate for Payment previously issued, to such extent as may be necessary in its opinion to protect itself from loss because of:

- .1 defective work not remedied,
- .2 third party claims filed or reasonable evidence indicating probable filing of such claims,
- .3 failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment,
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum,
- .5 damage to the Owner or another Contractor,

- .6 reasonable evidence that the Work will not be completed within the Contract Time, or
- .7 material failure to carry out the Work in accordance with the Contract Documents.

9.6.2 When the above grounds in Subparagraph 9.6.1 are removed, payment shall be made for amounts withheld because of them.

9.7 SUBSTANTIAL COMPLETION

9.7.1 When the Contractor considers that the Work, or a designated portion thereof which is acceptable to the Owner, is substantially complete as defined in Subparagraph 8.1.3, the Contractor shall prepare for submission to the Owner a list of items to be completed or corrected. The failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents. When the Owner on the basis of an inspection determines that the Work or designated portion thereof is substantially complete, he will then prepare for a Certificate of Substantial Completion which shall establish the Date of Substantial Completion, shall state the responsibilities of the Owner and the Contractor for security, maintenance, heat, utilities, damage to the Work, and insurance, and shall fix the time within which the Contractor shall complete the items listed therein. Warranties required by the Contract Documents shall commence on the Date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion shall be submitted to the Owner and the Contractor for their written acceptance of the responsibility assigned to them in such Certificate.

9.7.2 Upon Substantial Completion of the Work or designated portion thereof and upon application by the Contractor and Certification by the Owner, the Owner shall make payment, reflecting adjustment in retainage, if any, for such Work or portion thereof, as provided in the Contract Documents.

9.8 FINAL COMPLETION AND FINAL PAYMENT

9.8.1 Upon receipt of written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Owner will promptly make such inspection and, when it finds the Work acceptable under the Contract Documents and the Contract fully performed, it will promptly issue a final Certificate for Payment stating that to the best of its knowledge, information and belief, and on the basis of its observations and inspections, the Work has been completed in accordance with the terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor, and noted in said final Certificate, is due and payable. The Owner's final Certificate for Payment will constitute a further representation that the conditions precedent to the Contractor's being entitled to final payment as set forth in Subparagraph 9.8.2 have been fulfilled.

9.8.2 Neither the final payment nor the remaining retained percentage shall become due until the Contractor submits to the Owner (1) an affidavit that all payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or his property might in any way be responsible, have been fully paid or otherwise satisfied, (2) consent of surety, if any, to final payment and (3), if required by the Owner, other data establishing payment or satisfaction of all such obligations, such as the written document described in Paragraph 13.2.2, receipts, releases and waivers of liens arising out of the Contract, to the extent and in such form as may be designated by the Owner. If any

Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify him against any such lien. If any such lien remains unsatisfied after all payments are made, the Contractor shall refund to the Owner all moneys that the latter may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

9.8.3 If, after Substantial Completion of the Work, final completion thereof is delayed for more than ninety (90) days through no fault of the Contractor or by the issuance of Change Orders affecting final completion, the Owner shall, upon application by the Contractor, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted, provided that the remaining balance for Work not fully completed or corrected shall not be less than the retainage stipulated in the Contract Documents, and as bonds will have been furnished as provided in Paragraph 7.5, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Owner prior to certification of such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

9.8.4 The making of final payment shall constitute a waiver of all claims by the Owner except those arising from:

- .1 unsettled liens,
- .2 faulty or defective Work appearing after Substantial Completion,
- .3 failure of the Work to comply with the requirements of the Contract Documents,
or
- .4 terms of any special warranties required by the Contract Documents.
- .5 obligations under the Performance and Payment Bonds.

9.9.5 The acceptance of final payment shall constitute a waiver of all claims by the Contractor except those previously made in writing and identified by the Contractor as unsettled prior to the time of the final Application for Payment.

ARTICLE 10

PROTECTION OF PERSONS AND PROPERTY

10.1 SAFETY PRECAUTIONS AND PROGRAMS

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

10.2 SAFETY OF PERSONS AND PROPERTY

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

- .1 all employees on the Work and all other persons who may be affected thereby;
- .2 all the Work and all materials and equipment to be incorporated therein, whether in storage on or off the site, under the care, custody or control of the Contractor or any of his Subcontractors or Sub-subcontractors; and
- .3 other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

10.2.2 The Contractor shall erect and maintain, as required by existing conditions and progress of the Work, all reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent utilities.

10.2.3 The Contractor shall promptly remedy all damage or loss to any property referred to in Clauses 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, any Subcontractor, any Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable and for which the Contractor is responsible under Clauses 10.2.1.2 and 10.2.1.3., except damage or loss solely attributable to the acts or omissions of the Owner, or anyone directly or indirectly employed by the Owner, or by anyone for whose acts the Owner may be liable, and not attributable to the acts or omissions of the Owner, or anyone directly or indirectly employed by Owner, or by anyone for whose acts it may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to his obligation under Paragraph 4.17.

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

10.3 EMERGENCIES

10.3.1 In any emergency affecting the safety of persons or property, the Contractor shall act, at his discretion, to prevent threatened damage, injury or loss. Any additional compensation or extension of time claimed by the Contractor on account of emergency work shall be determined as provided in Article 12 for Changes in the Work.

ARTICLE 11 INSURANCE

11.1 CONTRACTOR'S LIABILITY INSURANCE

11.1.1 The Contractor will furnish and maintain insurance with the coverages and limits set forth in **Section H, INSURANCE** at its own expense, without limiting its indemnity under this Agreement and provide evidence of the coverage on certificates issued by Contractor's insurance broker as required in **Section H, INSURANCE**, on behalf of the carriers qualified to do business in the Commonwealth of Massachusetts having a Best rating of A- and a financial classification of IX or better. The insurance shall be effective as of the date of the Notice to Proceed. Deductible amounts shall be the responsibility of the Contractor. Such coverage shall include the following:

1. Include Owner and its commissioners, agents, and employees as additional insureds for the activities and operations under this Contract;
2. Severability-of-Interest or Cross-Liability Paragraph;
3. A copy of the additional insured endorsement listing Owner as an additional insured under the insurance policy.

11.2 The insurance required by Subparagraph 11.1. shall be written for not less than any limits of liability specified in the Contract Documents, or required by law, whichever is greater.

11.3 Certificates of Insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the Work. See **Section H, INSURANCE**. Notice of cancellation of coverage before expiration of the policies shall be provided to Owner consistent with Massachusetts law. Certificates of renewal shall be delivered to the Owner at least fifteen (15) days prior to the expiration date of any insurance policy. The Contractor shall not commence the Work until all insurance required hereunder shall have been obtained and approved by the Owner, and the Contractor shall not permit any Subcontractor or Sub-subcontractor to commence work until all insurance required of them shall have been similarly obtained and approved. Coverage shall remain effective for a period of two (2) years after termination of the Owner-Contractor Agreement for any reason.

ARTICLE 12 CHANGES IN THE WORK

12.1 CHANGE ORDER

12.1.1 A Change Order is a written order to the Contractor signed by the Owner, issued after execution of the Contract and issuance of a notice to proceed, authorizing a change in the Work or an adjustment in the Contract Sum or the Contract Time. The Contract Sum and the Contract Time may be changed only by Change Order.

12.1.2 The Owner, without invalidating the Contract, may order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Sum and the Contract Time being adjusted accordingly. All such changes in the Work shall be authorized by Change Order, and shall be performed under the applicable conditions of the Contract Documents.

12.1.3 The cost or credit to the Owner resulting from a change in the Work shall be determined in one or more of the following ways:

- .1 by mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- .2 by unit prices stated in the Contract Documents or subsequently agreed upon;
- .3 by cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
- .4 by the method provided in Subparagraph 12.1.4.

12.1.4 If none of the methods set forth in Clauses 12.1.3.1, 12.1.3.2 or 12.1.3.3 is agreed upon, the Contractor, provided he receives a written order signed by the Owner, shall promptly proceed with the Work involved. The cost of such Work shall then be determined by the Owner on the basis of the reasonable expenditures and savings of those performing the Work attributable to the change. In such case, and also under Clauses 12.1.3.3 and 12.1.3.4 above, the Contractor shall keep and present an itemized accounting together with appropriate supporting data for inclusion in a Change Order. Unless otherwise provided in the Contract Documents, cost shall be limited to the following: actual cost of

materials, not including sales tax and cost of delivery; wages at rates set forth in the Contract Documents; rental value of equipment and machinery; and the additional costs of supervision and field office personnel directly attributable to the change. Pending final determination of cost to the Owner, payments on account shall be made on the Owner's Certificate for Payment. The amount of credit to be allowed by the Contractor to the Owner for any deletion or change which results in a net decrease in the Contract Sum will be the amount of the actual net cost.

12.1.5 Unit prices are stated in the Bid Form and the Contract shall include all costs of the Contractor to the Owner as listed in Paragraph 12.1.4. No additional charges shall be allowed for these items under any circumstances.

12.2 CONCEALED CONDITIONS

12.2.1 Should concealed conditions encountered in the performance of the Work below the surface of the ground or should concealed or unknown conditions in an existing structure be at variance with the conditions indicated by the Contract Documents, or should unknown physical conditions below the surface of the ground or should concealed or unknown conditions in an existing structure of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in his Contract, be encountered, the Contract Sum shall be equitably adjusted by Change Order upon claim by either party made within twenty days after the first observance of the conditions.

12.3 CLAIMS FOR ADDITIONAL COST

12.3.1 If the Contractor wishes to make a claim for an increase in the Contract Sum, he shall give the Owner written notice thereof within twenty days after the occurrence of the event giving rise to such claim. This notice shall be given by the Contractor before proceeding to execute the Work, except in an emergency endangering life or property in which case the Contractor shall proceed in accordance with Paragraph 10.3. No such claim shall be valid unless so made. Any change in the Contract Sum resulting from such claim shall be authorized by Change Order.

12.3.2 If the Contractor claims that additional cost is involved because of, but not limited to, (1) any written interpretation by the Owner or Engineer, (2) any order by the Owner to stop the Work pursuant to Paragraph 3.3 where the Contractor was not at fault, (3) any written order for a minor change in the Work issued pursuant to Paragraph 12.4, or (4) failure of payment by the Owner pursuant to Paragraph 9.7, the Contractor shall make such claim as provided in Subparagraph 12.3.1.

12.4 MINOR CHANGES IN THE WORK

12.4.1 The Owner and Engineer will have authority to order minor changes in the Work not involving an adjustment in the Contract Sum or an extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes shall be affected by written order, and shall be binding on the Owner, Engineer and the Contractor. The Contractor shall carry out such written orders promptly.

ARTICLE 13

UNCOVERING AND CORRECTION OF WORK

13.1 UNCOVERING OF WORK

13.1.1 If any portion of the work should be covered contrary to the request of the Owner or to requirements specifically expressed in the Contract Documents, it must, if required in writing by the Owner, be uncovered for his observation and shall be replaced at the Contractor's expense.

13.1.2 If any other portion of the Work has been covered which the Owner has not specifically requested to observe prior to being covered, the Owner may request to see such Work and it shall be uncovered by the Contractor. If such Work be found in accordance with the Contract Documents, the cost of uncovering and replacement shall, by appropriate Change Order, be charged to the Owner. If such Work be found not in accordance with the Contract Documents, the Contractor shall pay such costs unless it be found that this condition was caused by the Owner or a separate contractor as provided in Article 6, in which event the Owner shall be responsible for the payment of such costs.

13.2 CORRECTION OF WORK

13.2.1 The Contractor shall promptly correct all Work rejected by the Owner or Engineer as defective or as failing to conform to the Contract Documents whether observed before or after Substantial Completion and whether or not fabricated, installed or completed. The Contractor shall bear all costs of correcting such rejected Work, including compensation for the Owner's additional services made necessary thereby.

13.2.2 The Contractor shall provide a document to the Owner certifying that if within one year after the Date of Substantial Completion of the Work or designated portion thereof or within one year after acceptance by the Owner of designated equipment or within such longer period of time as may be prescribed by law or by the terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be defective or requiring excessive service or maintenance or not in accordance with the Contract Documents, the Contractor shall correct it within seven (7) days after receipt of a written notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such approval, which written acceptance shall specifically refer to such defect. This obligation shall survive termination of the Contract. The Owner shall give such notice promptly after discovery of the condition. The provisions of this paragraph are in addition to, and not in limitation of, the Owner's other rights and remedies hereunder and in law and equity.

13.2.3 The Contractor shall remove from the site all portions of the Work which are defective or non-conforming and which have not been corrected under Subparagraph 4.5.1, 13.2.1 and 13.2.2, unless removal is waived by the Owner in writing.

13.2.4 If the Contractor fails to correct defective or nonconforming Work as provided in Subparagraphs 4.3.1, 12.2.1 and 13.2.2, the Owner may correct it in accordance with Paragraph 3.4.

13.2.5 If the Contractor does not proceed with the correction of such defective or non-conforming Work within a reasonable time fixed by written notice from the Owner, the Owner may remove it and may store the materials or equipment at the expense of the Contractor. If the Contractor does not pay the cost of such removal and storage within ten days thereafter, the Owner may upon ten additional days' written notice sell such Work at auction or at private sale and shall account for the net proceeds thereof, after deducting all the costs that should have been borne by the Contractor, including compensation for the Owner's additional services made necessary thereby. If such proceeds of sale do not cover all costs which the Contractor should have borne, the difference shall be charged to the

Contractor and an appropriate Change Order shall be issued. If the payments then or thereafter due the Contractor are not sufficient to cover such amount, the Contractor shall pay the difference to the Owner.

13.2.6 The Contractor shall bear the cost of making good all work of the Owner or separate contractors destroyed or damaged by such correction or removal.

13.2.7 Nothing contained in this Paragraph 13.2 shall be construed to establish a period of limitation with respect to any other obligation which the Contractor might have under the Contract Documents, including Paragraph 4.5 hereof. The establishment of the time period of one year after the Date of Substantial Completion or such longer period of time as may be prescribed by law or by the terms of any warranty required by the Contract Documents relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which his obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to his obligation other than specifically to correct the Work.

13.3 ACCEPTANCE OF DEFECTIVE OR NON-CONFORMING WORK

13.3.1 If the Owner prefers to accept defective or nonconforming Work, he may do so instead of requiring its removal and correction, in which case a Change Order will be issued to reflect a reduction in the Contract Sum where appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 14 TERMINATION OF THE CONTRACT

14.1 TERMINATION BY THE CONTRACTOR

14.1.1 If the Owner unjustifiably has not made payment upon an approved Invoice as provided in Paragraph 9.6, then the Contractor may, upon fifteen (15) additional days written notice to the Owner, terminate the Contract and recover from the Owner payment for all Work executed and for any proven loss sustained upon any materials, equipment, tools, and construction equipment and machinery.

14.2 TERMINATION BY THE OWNER

14.2.1 To the extent permitted by law, if the Contractor is adjudged a bankrupt, or if he makes a general assignment for the benefit of his creditors, or if a receiver is appointed on account of his insolvency, or if he refuses or fails, repeatedly except in cases for which extension of time is provided, to supply enough properly skilled workmen or proper materials, or if he fails to make prompt proper payment to Subcontractors for materials or labor, or disregards laws, or order of any public authority having jurisdiction, or otherwise fails to comply with any provision of the Contract Documents including these Terms and Conditions, then the Owner may, without prejudice to any right or remedy and after giving the Contractor and his surety, if any, seven days' written notice, terminate the employment of the Contractor and take possession of the site and of all materials, equipment, tools, construction equipment and machinery thereon owned by the Contractor and may finish the Work by whatever method he may deem expedient.

14.2.2 If the unpaid balance of the Contract Sum exceeds the costs of finishing the Work, including compensation for the Owner's additional services made necessary thereby, such excess shall be paid to the Contractor. If such costs exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The obligation to pay said amount to the Contractor or to the Owner, as the case may be, shall survive the termination of the Contract.

14.3 ORDER OF PRECEDENCE

14.3.1 In the event of a conflict between these Terms and Conditions and the **SPECIFICATIONS**, the Terms and Conditions shall govern. In the event of a conflict between these Terms and Conditions and the Massachusetts General Laws, the Massachusetts General Laws shall govern.

SECTION J

PREVAILING WAGE SCHEDULE



**THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DEPARTMENT OF LABOR STANDARDS
Prevailing Wage Rates**

MAURA HEALY
Governor

KIM DRISCOLL
Lt. Governor

As determined by the Director under the provisions of the
Massachusetts General Laws, Chapter 149, Sections 26 to 27H

LAUREN JONES
Secretary
MICHAEL FLANAGAN
Director

Awarding Authority: merrimac light **City/Town:** MERRIMAC
Contract Number: 5-2025
Description of Work: Interior office fit out to include new finishes, painting, partition walls, hvac, doors, and windows.
Job Location: 10 West Main St. Merrimac, MA 01860

Information about Prevailing Wage Schedules for Awarding Authorities and Contractors

- The wage rates will remain in effect for the duration of the project, except in the case of multi-year public construction projects. For construction projects lasting longer than one year, awarding authorities must request an updated wage schedule no later than two weeks before the anniversary of the date the contract was executed by the awarding authority and the general contractor. For multi-year CM AT RISK projects, the awarding authority must request an annual update no later than two weeks before the anniversary date, determined as the earlier of: (a) the execution date of the GMP Amendment, or (b) the execution date of the first amendment to permit procurement of construction services. The updated wage schedule must be provided to all contractors, including general and sub-contractors, working on the construction project.
- This annual update requirement is generally not applicable to 27F “rental of equipment” contracts. For such contracts, the prevailing wage rates issued by DLS shall remain in effect for the duration of the contract term. However, if the prevailing wage rate sheet issued does not contain wage rates for each year covered by the contract term, the Awarding Authority must request updated rate sheets from DLS and provide them to the contractor to ensure the correct rates are being paid throughout the duration of the contract. Additionally, if an Awarding Authority exercises an option to renew or extend the contract term, they must request updated rate sheets from DLS and provide them to the contractor.
- This wage schedule applies only to the specific project referenced at the top of this page and uniquely identified by the “Wage Request Number” on all pages of this schedule.
- An Awarding Authority must request an updated wage schedule if it has not opened bids or selected a contractor within 90 days of the date of issuance of the wage schedule. For CM AT RISK projects (bid pursuant to G.L. c.149A), the earlier of: (a) the execution date of the GMP Amendment, or (b) the bid for the first construction scope of work must be within 90-days of the wage schedule issuance date.
- The wage schedule shall be incorporated in any advertisement or call for bids for the project as required by M.G.L. c. 149, § 27. The wage schedule shall be made a part of the contract awarded for the project. The wage schedule must be posted in a conspicuous place at the work site for the life of the project in accordance with M.G.L. c. 149 § 27. The wages listed on the wage schedule must be paid to employees performing construction work on the project whether they are employed by the prime contractor, a filed sub-bidder, or a sub-contractor.
- Apprentices working on the project are required to be registered with the Massachusetts Division of Apprentice Standards (DAS). Apprentices must keep their apprentice identification card on their persons during all work hours on the project. An apprentice registered with DAS may be paid the lower apprentice wage rate at the applicable step as provided on the prevailing wage schedule. **Any apprentice not registered with DAS regardless of whether they are registered with another federal, state, local, or private agency must be paid the journeyworker's rate.**
- Every contractor or subcontractor working on the construction project must submit weekly payroll reports and a Statement of Compliance directly to the awarding authority by mail or email and keep them on file for three years. Each weekly payroll report must contain: the employee’s name, address, occupational classification, hours worked, and wages paid. Do not submit weekly payroll reports to DLS. For a sample payroll reporting form go to <http://www.mass.gov/dols/pw>.
- Contractors with questions about the wage rates or classifications included on the wage schedule have an affirmative obligation to inquire with DLS at (617) 626-6953.
- Contractors must obtain the wage schedules from awarding authorities. Failure of a contractor or subcontractor to pay the prevailing wage rates listed on the wage schedule to all employees who perform construction work on the project is a violation of the law and subjects the contractor or subcontractor to civil and criminal penalties.
- Employees not receiving the prevailing wage rate set forth on the wage schedule may file a complaint with the Fair Labor Division of the office of the Attorney General at (617) 727-3465.

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
(2 AXLE) DRIVER - EQUIPMENT TEAMSTERS JOINT COUNCIL NO. 10	6/1/2025	\$40.95	\$15.57	\$20.17	\$0.00	\$0.00	\$76.69
	12/1/2025	\$40.95	\$15.57	\$21.78	\$0.00	\$0.00	\$78.30
	1/1/2026	\$40.95	\$16.17	\$21.78	\$0.00	\$0.00	\$78.90
	6/1/2026	\$41.95	\$16.17	\$21.78	\$0.00	\$0.00	\$79.90
	12/1/2026	\$41.95	\$16.17	\$23.52	\$0.00	\$0.00	\$81.64
	1/1/2027	\$41.95	\$16.77	\$23.52	\$0.00	\$0.00	\$82.24
(3 AXLE) DRIVER - EQUIPMENT TEAMSTERS JOINT COUNCIL NO. 10	6/1/2025	\$41.02	\$15.57	\$20.17	\$0.00	\$0.00	\$76.76
	12/1/2025	\$41.02	\$15.57	\$21.78	\$0.00	\$0.00	\$78.37
	1/1/2026	\$41.02	\$16.17	\$21.78	\$0.00	\$0.00	\$78.97
	6/1/2026	\$42.02	\$16.17	\$21.78	\$0.00	\$0.00	\$79.97
	12/1/2026	\$42.02	\$16.17	\$23.52	\$0.00	\$0.00	\$81.71
	1/1/2027	\$42.02	\$16.77	\$23.52	\$0.00	\$0.00	\$82.31
(4 & 5 AXLE) DRIVER - EQUIPMENT TEAMSTERS JOINT COUNCIL NO. 10	6/1/2025	\$41.14	\$15.57	\$20.17	\$0.00	\$0.00	\$76.88
	12/1/2025	\$41.14	\$15.57	\$21.78	\$0.00	\$0.00	\$78.49
	1/1/2026	\$41.14	\$16.17	\$21.78	\$0.00	\$0.00	\$79.09
	6/1/2026	\$42.14	\$16.17	\$21.78	\$0.00	\$0.00	\$80.09
	12/1/2026	\$42.14	\$16.17	\$23.52	\$0.00	\$0.00	\$81.83
	1/1/2027	\$42.14	\$16.77	\$23.52	\$0.00	\$0.00	\$82.43
ADS/SUBMERSIBLE PILOT PILE DRIVER LOCAL 56	1/1/2024	\$117.16	\$10.08	\$11.62	\$12.67	\$0.00	\$151.53
For apprentice rates see "Apprentice- PILE DRIVER"							
AIR TRACK OPERATOR LABORERS	6/1/2025	\$41.09	\$9.90	\$9.25	\$9.11	\$0.00	\$69.35
	12/1/2025	\$42.47	\$9.90	\$9.25	\$9.11	\$0.00	\$70.73
	6/1/2026	\$43.91	\$9.90	\$9.25	\$9.11	\$0.00	\$72.17
	12/1/2026	\$45.35	\$9.90	\$9.25	\$9.11	\$0.00	\$73.61
	6/1/2027	\$46.80	\$9.90	\$9.25	\$9.11	\$0.00	\$75.06
	12/1/2027	\$48.25	\$9.90	\$9.25	\$9.11	\$0.00	\$76.51
	6/1/2028	\$49.75	\$9.90	\$9.25	\$9.11	\$0.00	\$78.01
	12/1/2028	\$51.25	\$9.90	\$9.25	\$9.11	\$0.00	\$79.51
For apprentice rates see "Apprentice- LABORER"							
AIR TRACK OPERATOR (HEAVY & HIGHWAY) LABORERS	6/1/2025	\$41.09	\$9.90	\$9.25	\$9.21	\$0.00	\$69.45
	12/1/2025	\$42.47	\$9.90	\$9.25	\$9.21	\$0.00	\$70.83
	6/1/2026	\$43.91	\$9.90	\$9.25	\$9.21	\$0.00	\$72.27
	12/1/2026	\$45.35	\$9.90	\$9.25	\$9.21	\$0.00	\$73.71
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
ASBESTOS REMOVER - PIPE / MECH. EQUIPT. HEAT & FROST INSULATORS LOCAL 6	6/1/2025	\$43.80	\$14.50	\$4.30	\$6.75	\$0.00	\$69.35
	12/1/2025	\$44.80	\$14.50	\$4.30	\$6.75	\$0.00	\$70.35
ASPHALT RAKER LABORERS	6/1/2025	\$40.59	\$9.90	\$9.25	\$9.11	\$0.00	\$68.85
	12/1/2025	\$41.97	\$9.90	\$9.25	\$9.11	\$0.00	\$70.23
	6/1/2026	\$43.41	\$9.90	\$9.25	\$9.11	\$0.00	\$71.67
	12/1/2026	\$44.85	\$9.90	\$9.25	\$9.11	\$0.00	\$73.11
	6/1/2027	\$46.30	\$9.90	\$9.25	\$9.11	\$0.00	\$74.56
	12/1/2027	\$47.75	\$9.90	\$9.25	\$9.11	\$0.00	\$76.01

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
	6/1/2028	\$49.25	\$9.90	\$9.25	\$9.11	\$0.00	\$77.51
	12/1/2028	\$50.75	\$9.90	\$9.25	\$9.11	\$0.00	\$79.01
For apprentice rates see "Apprentice- LABORER"							
ASPHALT RAKER (HEAVY & HIGHWAY) LABORERS	6/1/2025	\$40.59	\$9.90	\$9.25	\$9.21	\$0.00	\$68.95
	12/1/2025	\$41.97	\$9.90	\$9.25	\$9.21	\$0.00	\$70.33
	6/1/2026	\$43.41	\$9.90	\$9.25	\$9.21	\$0.00	\$71.77
	12/1/2026	\$44.85	\$9.90	\$9.25	\$9.21	\$0.00	\$73.21
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE OPERATING ENGINEERS LOCAL 4	6/1/2025	\$58.33	\$15.55	\$13.25	\$3.25	\$0.00	\$90.38
	12/1/2025	\$59.78	\$15.55	\$13.25	\$3.25	\$0.00	\$91.83
	6/1/2026	\$61.08	\$15.55	\$13.25	\$3.25	\$0.00	\$93.13
	12/1/2026	\$62.53	\$15.55	\$13.25	\$3.25	\$0.00	\$94.58
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
BACKHOE/FRONT-END LOADER OPERATING ENGINEERS LOCAL 4	6/1/2025	\$58.33	\$15.55	\$13.25	\$3.25	\$0.00	\$90.38
	12/1/2025	\$59.78	\$15.55	\$13.25	\$3.25	\$0.00	\$91.83
	6/1/2026	\$61.08	\$15.55	\$13.25	\$3.25	\$0.00	\$93.13
	12/1/2026	\$62.53	\$15.55	\$13.25	\$3.25	\$0.00	\$94.58
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
BARCO-TYPE JUMPING TAMPER LABORERS	6/1/2025	\$40.59	\$9.90	\$9.25	\$9.11	\$0.00	\$68.85
	12/1/2025	\$41.97	\$9.90	\$9.25	\$9.11	\$0.00	\$70.23
	6/1/2026	\$43.41	\$9.90	\$9.25	\$9.11	\$0.00	\$71.67
	12/1/2026	\$44.85	\$9.90	\$9.25	\$9.11	\$0.00	\$73.11
	6/1/2027	\$46.30	\$9.90	\$9.25	\$9.11	\$0.00	\$74.56
	12/1/2027	\$47.75	\$9.90	\$9.25	\$9.11	\$0.00	\$76.01
	6/1/2028	\$49.25	\$9.90	\$9.25	\$9.11	\$0.00	\$77.51
	12/1/2028	\$50.75	\$9.90	\$9.25	\$9.11	\$0.00	\$79.01
For apprentice rates see "Apprentice- LABORER"							
BLOCK PAVER, RAMMER / CURB SETTER LABORERS	6/1/2025	\$41.09	\$9.90	\$9.25	\$9.11	\$0.00	\$69.35
	12/1/2025	\$42.47	\$9.90	\$9.25	\$9.11	\$0.00	\$70.73
	6/1/2026	\$43.91	\$9.90	\$9.25	\$9.11	\$0.00	\$72.17
	12/1/2026	\$45.35	\$9.90	\$9.25	\$9.11	\$0.00	\$73.61
	6/1/2027	\$46.80	\$9.90	\$9.25	\$9.11	\$0.00	\$75.06
	12/1/2027	\$48.25	\$9.90	\$9.25	\$9.11	\$0.00	\$76.51
	6/1/2028	\$49.75	\$9.90	\$9.25	\$9.11	\$0.00	\$78.01
	12/1/2028	\$51.25	\$9.90	\$9.25	\$9.11	\$0.00	\$79.51
For apprentice rates see "Apprentice- LABORER"							
BLOCK PAVER, RAMMER / CURB SETTER (HEAVY & HIGHWAY) LABORERS	6/1/2025	\$41.09	\$9.90	\$9.25	\$9.21	\$0.00	\$69.45
	12/1/2025	\$42.47	\$9.90	\$9.25	\$9.21	\$0.00	\$70.83
	6/1/2026	\$43.91	\$9.90	\$9.25	\$9.21	\$0.00	\$72.27
	12/1/2026	\$45.35	\$9.90	\$9.25	\$9.21	\$0.00	\$73.71
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
BOILER MAKER BOILERMAKERS LOCAL 29	1/1/2024	\$48.12	\$7.07	\$14.60	\$6.00	\$0.00	\$75.79

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: BOILER MAKER							
Effective Date: 1/1/2024							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	65.00	\$31.28	\$7.07	\$9.32	\$3.90	\$0.00	\$51.57
2	65.00	\$31.28	\$7.07	\$9.32	\$3.90	\$0.00	\$51.57
3	70.00	\$33.68	\$7.07	\$10.03	\$4.20	\$0.00	\$54.98
4	75.00	\$36.09	\$7.07	\$10.74	\$4.50	\$0.00	\$58.40
5	80.00	\$38.50	\$7.07	\$11.45	\$4.80	\$0.00	\$61.82
6	85.00	\$40.90	\$7.07	\$12.18	\$5.10	\$0.00	\$65.25
7	90.00	\$43.31	\$7.07	\$12.88	\$5.40	\$0.00	\$68.66
8	95.00	\$45.71	\$7.07	\$13.62	\$5.70	\$0.00	\$72.10

BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING)	2/1/2025	\$65.80	\$11.49	\$15.57	\$8.02	\$0.00	\$100.88
BRICKLAYERS LOCAL 3	8/1/2025	\$67.95	\$11.49	\$15.57	\$8.02	\$0.00	\$103.03
	2/1/2026	\$69.30	\$11.49	\$15.57	\$8.02	\$0.00	\$104.38
	8/1/2026	\$71.50	\$11.49	\$15.57	\$8.02	\$0.00	\$106.58
	2/1/2027	\$72.90	\$11.49	\$15.57	\$8.02	\$0.00	\$107.98

Apprentice: BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING)							
Effective Date: 2/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$32.90	\$11.49	\$15.57	\$8.02	\$0.00	\$67.98
2	60.00	\$39.48	\$11.49	\$15.57	\$8.02	\$0.00	\$74.56
3	70.00	\$46.06	\$11.49	\$15.57	\$8.02	\$0.00	\$81.14
4	80.00	\$52.64	\$11.49	\$15.57	\$8.02	\$0.00	\$87.72
5	90.00	\$59.22	\$11.49	\$15.57	\$8.02	\$0.00	\$94.30

Apprentice: BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING)							
Effective Date: 8/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$33.98	\$11.49	\$15.57	\$8.02	\$0.00	\$69.06
2	60.00	\$40.77	\$11.49	\$15.57	\$8.02	\$0.00	\$75.85
3	70.00	\$47.57	\$11.49	\$15.57	\$8.02	\$0.00	\$82.65
4	80.00	\$54.36	\$11.49	\$15.57	\$8.02	\$0.00	\$89.44
5	90.00	\$61.16	\$11.49	\$15.57	\$8.02	\$0.00	\$96.24

BULLDOZER/GRADER/SCRAPER	6/1/2025	\$57.68	\$15.55	\$13.25	\$3.25	\$0.00	\$89.73
OPERATING ENGINEERS LOCAL 4	12/1/2025	\$59.12	\$15.55	\$13.25	\$3.25	\$0.00	\$91.17
	6/1/2026	\$60.40	\$15.55	\$13.25	\$3.25	\$0.00	\$92.45
	12/1/2026	\$61.84	\$15.55	\$13.25	\$3.25	\$0.00	\$93.89

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
CAISSON & UNDERPINNING BOTTOM MAN LABORERS	6/1/2025	\$48.85	\$9.90	\$9.25	\$9.80	\$0.00	\$77.80
	12/1/2025	\$50.35	\$9.90	\$9.25	\$9.80	\$0.00	\$79.30
	6/1/2026	\$51.90	\$9.90	\$9.25	\$9.80	\$0.00	\$80.85
	12/1/2026	\$53.40	\$9.90	\$9.25	\$9.80	\$0.00	\$82.35

For apprentice rates see "Apprentice- LABORER"

CAISSON & UNDERPINNING LABORER LABORERS	6/1/2025	\$47.70	\$9.90	\$9.25	\$9.80	\$0.00	\$76.65
	12/1/2025	\$49.20	\$9.90	\$9.25	\$9.80	\$0.00	\$78.15
	6/1/2026	\$50.75	\$9.90	\$9.25	\$9.80	\$0.00	\$79.70
	12/1/2026	\$52.25	\$9.90	\$9.25	\$9.80	\$0.00	\$81.20

For apprentice rates see "Apprentice- LABORER"

CAISSON & UNDERPINNING TOP MAN LABORERS	6/1/2025	\$48.03	\$9.90	\$9.25	\$9.80	\$0.00	\$76.98
	12/1/2025	\$49.53	\$9.90	\$9.25	\$9.80	\$0.00	\$78.48
	6/1/2026	\$51.08	\$9.90	\$9.25	\$9.80	\$0.00	\$80.03
	12/1/2026	\$52.58	\$9.90	\$9.25	\$9.80	\$0.00	\$81.53

For apprentice rates see "Apprentice- LABORER"

CARBIDE CORE DRILL OPERATOR LABORERS	6/1/2025	\$40.59	\$9.90	\$9.25	\$9.11	\$0.00	\$68.85
	12/1/2025	\$41.97	\$9.90	\$9.25	\$9.11	\$0.00	\$70.23
	6/1/2026	\$43.41	\$9.90	\$9.25	\$9.11	\$0.00	\$71.67
	12/1/2026	\$44.85	\$9.90	\$9.25	\$9.11	\$0.00	\$73.11
	6/1/2027	\$46.30	\$9.90	\$9.25	\$9.11	\$0.00	\$74.56
	12/1/2027	\$47.75	\$9.90	\$9.25	\$9.11	\$0.00	\$76.01
	6/1/2028	\$49.25	\$9.90	\$9.25	\$9.11	\$0.00	\$77.51
	12/1/2028	\$50.75	\$9.90	\$9.25	\$9.11	\$0.00	\$79.01

For apprentice rates see "Apprentice- LABORER"

CARPENTER CARPENTERS	3/1/2025	\$49.62	\$9.83	\$11.47	\$8.50	\$0.00	\$79.42
	9/1/2025	\$50.87	\$9.83	\$11.47	\$8.50	\$0.00	\$80.67
	3/1/2026	\$52.12	\$9.83	\$11.47	\$8.50	\$0.00	\$81.92
	9/1/2026	\$53.37	\$9.83	\$11.47	\$8.50	\$0.00	\$83.17
	3/1/2027	\$54.62	\$9.83	\$11.47	\$8.50	\$0.00	\$84.42

Apprentice: CARPENTER							
Effective Date: 3/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	\$22.33	\$9.83	\$0.00	\$1.73	\$0.00	\$33.89
2	45.00	\$22.33	\$9.83	\$0.00	\$1.73	\$0.00	\$33.89
3	55.00	\$27.29	\$9.83	\$0.00	\$3.40	\$0.00	\$40.52
4	55.00	\$27.29	\$9.83	\$0.00	\$3.40	\$0.00	\$40.52
5	70.00	\$34.73	\$9.83	\$11.41	\$5.10	\$0.00	\$61.07
6	70.00	\$34.73	\$9.83	\$11.41	\$5.10	\$0.00	\$61.07
7	80.00	\$39.70	\$9.83	\$11.44	\$6.80	\$0.00	\$67.77
8	80.00	\$39.70	\$9.83	\$11.44	\$6.80	\$0.00	\$67.77

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: CARPENTER							
Effective Date: 9/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	\$22.89	\$9.83	\$0.00	\$1.73	\$0.00	\$34.45
2	45.00	\$22.89	\$9.83	\$0.00	\$1.73	\$0.00	\$34.45
3	55.00	\$27.98	\$9.83	\$0.00	\$3.40	\$0.00	\$41.21
4	55.00	\$27.98	\$9.83	\$0.00	\$3.40	\$0.00	\$41.21
5	70.00	\$35.61	\$9.83	\$11.41	\$5.10	\$0.00	\$61.95
6	70.00	\$35.61	\$9.83	\$11.41	\$5.10	\$0.00	\$61.95
7	80.00	\$40.70	\$9.83	\$11.44	\$6.80	\$0.00	\$68.77
8	80.00	\$40.70	\$9.83	\$11.44	\$6.80	\$0.00	\$68.77
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CARPENTER WOOD FRAME	10/1/2024	\$26.65	\$7.02	\$3.80	\$1.00	\$0.00	\$38.47
CARPENTERS	10/1/2025	\$27.75	\$7.02	\$3.80	\$1.00	\$0.00	\$39.57
	10/1/2026	\$28.85	\$7.02	\$3.80	\$1.00	\$0.00	\$40.67
All Aspects of New Wood Frame Work							

Apprentice: CARPENTER WOOD FRAME							
Effective Date: 10/1/2024							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	\$15.99	\$7.02	\$0.00	\$0.00	\$0.00	\$23.01
2	60.00	\$15.99	\$7.02	\$0.00	\$0.00	\$0.00	\$23.01
3	65.00	\$17.32	\$7.02	\$0.00	\$1.00	\$0.00	\$25.34
4	70.00	\$18.66	\$7.02	\$0.00	\$1.00	\$0.00	\$26.68
5	75.00	\$19.99	\$7.02	\$3.80	\$1.00	\$0.00	\$31.81
6	80.00	\$21.32	\$7.02	\$3.80	\$1.00	\$0.00	\$33.14
7	85.00	\$22.65	\$7.02	\$3.80	\$1.00	\$0.00	\$34.47
8	90.00	\$23.99	\$7.02	\$3.80	\$1.00	\$0.00	\$35.81

Apprentice: CARPENTER WOOD FRAME							
Effective Date: 10/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	\$16.65	\$7.02	\$0.00	\$0.00	\$0.00	\$23.67
2	60.00	\$16.65	\$7.02	\$0.00	\$0.00	\$0.00	\$23.67
3	65.00	\$18.04	\$7.02	\$0.00	\$1.00	\$0.00	\$26.06
4	70.00	\$19.43	\$7.02	\$0.00	\$1.00	\$0.00	\$27.45
5	75.00	\$20.81	\$7.02	\$3.80	\$1.00	\$0.00	\$32.63
6	80.00	\$22.20	\$7.02	\$3.80	\$1.00	\$0.00	\$34.02
7	85.00	\$23.59	\$7.02	\$3.80	\$1.00	\$0.00	\$35.41
8	90.00	\$24.98	\$7.02	\$3.80	\$1.00	\$0.00	\$36.80

CEMENT MASONRY/PLASTERING	7/1/2024	\$49.19	\$13.35	\$16.43	\$7.78	\$1.80	\$88.55
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Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
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BRICKLAYERS LOCAL 3

Apprentice: CEMENT MASONRY/PLASTERING							
Effective Date: 7/1/2024							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$24.60	\$13.35	\$16.43	\$0.00	\$0.00	\$54.38
2	60.00	\$29.51	\$13.35	\$16.43	\$2.78	\$1.80	\$63.87
3	65.00	\$31.97	\$13.35	\$16.43	\$3.78	\$1.80	\$67.33
4	70.00	\$34.43	\$13.35	\$16.43	\$4.78	\$1.80	\$70.79
5	75.00	\$36.89	\$13.35	\$16.43	\$5.78	\$1.80	\$74.25
6	80.00	\$39.35	\$13.35	\$16.43	\$6.78	\$1.80	\$77.71
7	90.00	\$44.27	\$13.35	\$16.43	\$7.78	\$1.80	\$83.63

CHAIN SAW OPERATOR LABORERS	6/1/2025	\$40.59	\$9.90	\$9.25	\$9.11	\$0.00	\$68.85
	12/1/2025	\$41.97	\$9.90	\$9.25	\$9.11	\$0.00	\$70.23
	6/1/2026	\$43.41	\$9.90	\$9.25	\$9.11	\$0.00	\$71.67
	12/1/2026	\$44.85	\$9.90	\$9.25	\$9.11	\$0.00	\$73.11
	6/1/2027	\$46.30	\$9.90	\$9.25	\$9.11	\$0.00	\$74.56
	12/1/2027	\$47.75	\$9.90	\$9.25	\$9.11	\$0.00	\$76.01
	6/1/2028	\$49.25	\$9.90	\$9.25	\$9.11	\$0.00	\$77.51
	12/1/2028	\$50.75	\$9.90	\$9.25	\$9.11	\$0.00	\$79.01

For apprentice rates see "Apprentice- LABORER"

CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES OPERATING ENGINEERS LOCAL 4	6/1/2025	\$59.51	\$15.55	\$13.25	\$3.25	\$0.00	\$91.56
	12/1/2025	\$60.98	\$15.55	\$13.25	\$3.25	\$0.00	\$93.03
	6/1/2026	\$62.31	\$15.55	\$13.25	\$3.25	\$0.00	\$94.36
	12/1/2026	\$63.79	\$15.55	\$13.25	\$3.25	\$0.00	\$95.84

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

COMPRESSOR OPERATOR OPERATING ENGINEERS LOCAL 4	6/1/2025	\$37.52	\$15.55	\$13.25	\$3.25	\$0.00	\$69.57
	12/1/2025	\$38.47	\$15.55	\$13.25	\$3.25	\$0.00	\$70.52
	6/1/2026	\$39.33	\$15.55	\$13.25	\$3.25	\$0.00	\$71.38
	12/1/2026	\$40.28	\$15.55	\$13.25	\$3.25	\$0.00	\$72.33

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

DELEADER (BRIDGE) PAINTERS LOCAL 35	1/1/2025	\$58.46	\$9.95	\$11.85	\$12.10	\$0.00	\$92.36
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Apprentice: DELEADER (BRIDGE)							
Effective Date: 1/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$29.23	\$9.95	\$0.00	\$0.00	\$0.00	\$39.18
2	55.00	\$32.15	\$9.95	\$0.00	\$6.66	\$0.00	\$48.76
3	60.00	\$35.08	\$9.95	\$0.00	\$7.26	\$0.00	\$52.29
4	65.00	\$38.00	\$9.95	\$0.00	\$7.87	\$0.00	\$55.82

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: DELEADER (BRIDGE)							
Effective Date: 1/1/2025							
	Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment Total Rate
	5	70.00	\$40.92	\$9.95	\$11.85	\$8.47	\$0.00 \$71.19
	6	75.00	\$43.85	\$9.95	\$11.85	\$9.08	\$0.00 \$74.73
	7	80.00	\$46.77	\$9.95	\$11.85	\$9.68	\$0.00 \$78.25
	8	90.00	\$52.61	\$9.95	\$11.85	\$10.89	\$0.00 \$85.30
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DEMO: ADZEMAN LABORERS	6/2/2025	\$47.75	\$9.90	\$9.25	\$9.65	\$0.00	\$76.55
	12/1/2025	\$49.25	\$9.90	\$9.25	\$9.65	\$0.00	\$78.05
	6/1/2026	\$50.80	\$9.90	\$9.25	\$9.65	\$0.00	\$79.60
	12/7/2026	\$52.30	\$9.90	\$9.25	\$9.65	\$0.00	\$81.10
	6/7/2027	\$53.90	\$9.90	\$9.25	\$9.65	\$0.00	\$82.70
	12/6/2027	\$55.50	\$9.90	\$9.25	\$9.65	\$0.00	\$84.30
	6/5/2028	\$57.18	\$9.90	\$9.25	\$9.65	\$0.00	\$85.98
	12/4/2028	\$58.85	\$9.90	\$9.25	\$9.65	\$0.00	\$87.65
For apprentice rates see "Apprentice- LABORER"							
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DEMO: BACKHOE/LOADER/HAMMER OPERATOR LABORERS	6/2/2025	\$48.75	\$9.90	\$9.25	\$9.65	\$0.00	\$77.55
	12/1/2025	\$50.25	\$9.90	\$9.25	\$9.65	\$0.00	\$79.05
	6/1/2026	\$51.80	\$9.90	\$9.25	\$9.65	\$0.00	\$80.60
	12/7/2026	\$53.30	\$9.90	\$9.25	\$9.65	\$0.00	\$82.10
	6/7/2027	\$54.90	\$9.90	\$9.25	\$9.65	\$0.00	\$83.70
	12/6/2027	\$56.50	\$9.90	\$9.25	\$9.65	\$0.00	\$85.30
	6/5/2028	\$58.18	\$9.90	\$9.25	\$9.65	\$0.00	\$86.98
	12/4/2028	\$59.85	\$9.90	\$9.25	\$9.65	\$0.00	\$88.65
For apprentice rates see "Apprentice- LABORER"							
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DEMO: BURNERS LABORERS	6/2/2025	\$48.50	\$9.90	\$9.25	\$9.65	\$0.00	\$77.30
	12/1/2025	\$50.00	\$9.90	\$9.25	\$9.65	\$0.00	\$78.80
	6/1/2026	\$51.55	\$9.90	\$9.25	\$9.65	\$0.00	\$80.35
	12/7/2026	\$53.05	\$9.90	\$9.25	\$9.65	\$0.00	\$81.85
	6/7/2027	\$54.65	\$9.90	\$9.25	\$9.65	\$0.00	\$83.45
	12/6/2027	\$56.25	\$9.90	\$9.25	\$9.65	\$0.00	\$85.05
	6/5/2028	\$57.93	\$9.90	\$9.25	\$9.65	\$0.00	\$86.73
	12/4/2028	\$59.60	\$9.90	\$9.25	\$9.65	\$0.00	\$88.40
For apprentice rates see "Apprentice- LABORER"							
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DEMO: CONCRETE CUTTER/SAWYER LABORERS	6/2/2025	\$48.75	\$9.90	\$9.25	\$9.65	\$0.00	\$77.55
	12/1/2025	\$50.25	\$9.90	\$9.25	\$9.65	\$0.00	\$79.05
	6/1/2026	\$51.80	\$9.90	\$9.25	\$9.65	\$0.00	\$80.60
	12/7/2026	\$53.30	\$9.90	\$9.25	\$9.65	\$0.00	\$82.10
	6/7/2027	\$54.90	\$9.90	\$9.25	\$9.65	\$0.00	\$83.70
	12/6/2027	\$56.50	\$9.90	\$9.25	\$9.65	\$0.00	\$85.30
	6/5/2028	\$58.18	\$9.90	\$9.25	\$9.65	\$0.00	\$86.98
	12/4/2028	\$59.85	\$9.90	\$9.25	\$9.65	\$0.00	\$88.65
For apprentice rates see "Apprentice- LABORER"							

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
DEMO: JACKHAMMER OPERATOR LABORERS	6/2/2025	\$48.50	\$9.90	\$9.25	\$9.65	\$0.00	\$77.30
	12/1/2025	\$50.00	\$9.90	\$9.25	\$9.65	\$0.00	\$78.80
	6/1/2026	\$51.55	\$9.90	\$9.25	\$9.65	\$0.00	\$80.35
	12/7/2026	\$53.05	\$9.90	\$9.25	\$9.65	\$0.00	\$81.85
	6/7/2027	\$54.65	\$9.90	\$9.25	\$9.65	\$0.00	\$83.45
	12/6/2027	\$56.25	\$9.90	\$9.25	\$9.65	\$0.00	\$85.05
	6/5/2028	\$57.93	\$9.90	\$9.25	\$9.65	\$0.00	\$86.73
	12/4/2028	\$59.60	\$9.90	\$9.25	\$9.65	\$0.00	\$88.40
For apprentice rates see "Apprentice- LABORER"							
DEMO: WRECKING LABORER LABORERS	6/2/2025	\$47.75	\$9.90	\$9.25	\$9.65	\$0.00	\$76.55
	12/1/2025	\$49.25	\$9.90	\$9.25	\$9.65	\$0.00	\$78.05
	6/1/2026	\$50.80	\$9.90	\$9.25	\$9.65	\$0.00	\$79.60
	12/7/2026	\$52.30	\$9.90	\$9.25	\$9.65	\$0.00	\$81.10
	6/7/2027	\$53.90	\$9.90	\$9.25	\$9.65	\$0.00	\$82.70
	12/6/2027	\$55.50	\$9.90	\$9.25	\$9.65	\$0.00	\$84.30
	6/5/2028	\$57.18	\$9.90	\$9.25	\$9.65	\$0.00	\$85.98
	12/4/2028	\$58.85	\$9.90	\$9.25	\$9.65	\$0.00	\$87.65
For apprentice rates see "Apprentice- LABORER"							
DIRECTIONAL DRILL MACHINE OPERATOR OPERATING ENGINEERS LOCAL 4	6/1/2025	\$57.68	\$15.55	\$13.25	\$3.25	\$0.00	\$89.73
	12/1/2025	\$59.12	\$15.55	\$13.25	\$3.25	\$0.00	\$91.17
	6/1/2026	\$60.40	\$15.55	\$13.25	\$3.25	\$0.00	\$92.45
	12/1/2026	\$61.84	\$15.55	\$13.25	\$3.25	\$0.00	\$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
DIVER PILE DRIVER LOCAL 56	8/1/2024	\$78.11	\$10.08	\$11.62	\$10.04	\$0.00	\$109.85
as of 8-1-24, Apprentices with diving licenses begin at second year. % of Diver wage 70/80/90 2A \$69.83, 3A \$91.79,4A \$102.14 Total Rate							
DIVER TENDER PILE DRIVER LOCAL 56	8/1/2024	\$55.79	\$10.08	\$11.62	\$12.67	\$0.00	\$90.16
as of 8-1-24, Apprentices with diving licenses begin at second year. % of Piledriver wage 70/80/90 2A \$54.20, 3A \$73.93,4A \$82.05 Total Rate							
DIVER TENDER (EFFLUENT) PILE DRIVER LOCAL 56	8/1/2024	\$83.69	\$10.08	\$11.62	\$12.67	\$0.00	\$118.06
For apprentice rates see "Apprentice- PILE DRIVER"							
DIVER/SLURRY (EFFLUENT) PILE DRIVER LOCAL 56	8/1/2024	\$117.16	\$10.08	\$11.62	\$12.67	\$0.00	\$151.53
For apprentice rates see "Apprentice- PILE DRIVER"							
DRAWBRIDGE OPERATOR (Construction) DRAWBRIDGE - SEIU LOCAL 888	7/1/2020	\$26.77	\$6.67	\$3.93	\$0.00	\$0.16	\$37.53
ELECTRICIAN ELECTRICIANS LOCAL 103	3/1/2025	\$64.26	\$13.00	\$14.31	\$8.72	\$0.00	\$100.29
	9/1/2025	\$66.17	\$13.00	\$14.37	\$8.72	\$0.00	\$102.26
	3/1/2026	\$67.37	\$13.00	\$14.40	\$8.72	\$0.00	\$103.49
	9/1/2026	\$69.28	\$13.00	\$14.46	\$8.72	\$0.00	\$105.46
	3/1/2027	\$70.47	\$13.00	\$14.49	\$8.72	\$0.00	\$106.68
	9/1/2027	\$72.39	\$13.00	\$14.55	\$8.72	\$0.00	\$108.66

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
	3/1/2028	\$73.59	\$13.00	\$14.59	\$8.72	\$0.00	\$109.90

Apprentice: ELECTRICIAN							
Effective Date: 3/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	40.00	\$25.70	\$13.00	\$0.77	\$0.00	\$0.00	\$39.47
2	40.00	\$25.70	\$13.00	\$0.77	\$0.00	\$0.00	\$39.47
3	45.00	\$28.92	\$13.00	\$13.25	\$3.92	\$0.00	\$59.09
4	45.00	\$28.92	\$13.00	\$13.25	\$3.92	\$0.00	\$59.09
5	50.00	\$32.13	\$13.00	\$13.34	\$4.36	\$0.00	\$62.83
6	55.00	\$35.34	\$13.00	\$13.44	\$4.80	\$0.00	\$66.58
7	60.00	\$38.56	\$13.00	\$13.54	\$5.23	\$0.00	\$70.33
8	65.00	\$41.77	\$13.00	\$13.63	\$5.67	\$0.00	\$74.07
9	70.00	\$44.98	\$13.00	\$13.73	\$6.10	\$0.00	\$77.81
10	75.00	\$48.20	\$13.00	\$13.83	\$6.54	\$0.00	\$81.57

Apprentice: ELECTRICIAN							
Effective Date: 9/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	40.00	\$26.47	\$13.00	\$0.79	\$0.00	\$0.00	\$40.26
2	40.00	\$26.47	\$13.00	\$0.79	\$0.00	\$0.00	\$40.26
3	45.00	\$29.78	\$13.00	\$13.27	\$3.92	\$0.00	\$59.97
4	45.00	\$29.78	\$13.00	\$13.27	\$3.92	\$0.00	\$59.97
5	50.00	\$33.09	\$13.00	\$13.37	\$4.36	\$0.00	\$63.82
6	55.00	\$36.39	\$13.00	\$13.47	\$4.80	\$0.00	\$67.66
7	60.00	\$39.70	\$13.00	\$13.57	\$5.23	\$0.00	\$71.50
8	65.00	\$43.01	\$13.00	\$13.67	\$5.67	\$0.00	\$75.35
9	70.00	\$46.32	\$13.00	\$13.77	\$6.10	\$0.00	\$79.19
10	75.00	\$49.63	\$13.00	\$13.87	\$6.54	\$0.00	\$83.04

ELEVATOR CONSTRUCTOR	1/1/2022	\$65.62	\$16.03	\$10.71	\$9.50	\$0.00	\$101.86
ELEVATOR CONSTRUCTORS LOCAL 4							

Apprentice: ELEVATOR CONSTRUCTOR							
Effective Date: 1/1/2022							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$32.81	\$16.03	\$0.00	\$0.00	\$0.00	\$48.84
2	55.00	\$36.09	\$16.03	\$10.71	\$9.50	\$0.00	\$72.33
3	65.00	\$42.65	\$16.03	\$10.71	\$9.50	\$0.00	\$78.89
4	70.00	\$45.93	\$16.03	\$10.71	\$9.50	\$0.00	\$82.17
5	80.00	\$52.50	\$16.03	\$10.71	\$9.50	\$0.00	\$88.74

ELEVATOR CONSTRUCTOR HELPER	1/1/2022	\$45.93	\$16.03	\$10.71	\$9.50	\$0.00	\$82.17
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Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
ELEVATOR CONSTRUCTORS LOCAL 4							
For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"							
FENCE & GUARD RAIL ERECTOR (HEAVY & HIGHWAY) LABORERS	6/1/2025	\$40.59	\$9.90	\$9.25	\$9.21	\$0.00	\$68.95
	12/1/2025	\$41.97	\$9.90	\$9.25	\$9.21	\$0.00	\$70.33
	6/1/2026	\$43.41	\$9.90	\$9.25	\$9.21	\$0.00	\$71.77
	12/1/2026	\$44.85	\$9.90	\$9.25	\$9.21	\$0.00	\$73.21
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY OPERATING ENGINEERS LOCAL 4	5/1/2025	\$53.22	\$15.30	\$13.15	\$3.25	\$0.00	\$84.92
	11/1/2025	\$54.51	\$15.30	\$13.15	\$3.25	\$0.00	\$86.21
	5/1/2026	\$55.95	\$15.30	\$13.15	\$3.25	\$0.00	\$87.65
	11/1/2026	\$57.24	\$15.30	\$13.15	\$3.25	\$0.00	\$88.94
	5/1/2027	\$58.67	\$15.30	\$13.15	\$3.25	\$0.00	\$90.37
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY OPERATING ENGINEERS LOCAL 4	5/1/2025	\$54.82	\$15.30	\$13.15	\$3.25	\$0.00	\$86.52
	11/1/2025	\$56.12	\$15.30	\$13.15	\$3.25	\$0.00	\$87.82
	5/1/2026	\$57.57	\$15.30	\$13.15	\$3.25	\$0.00	\$89.27
	11/1/2026	\$58.87	\$15.30	\$13.15	\$3.25	\$0.00	\$90.57
	5/1/2027	\$60.32	\$15.30	\$13.15	\$3.25	\$0.00	\$92.02
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY OPERATING ENGINEERS LOCAL 4	5/1/2025	\$26.22	\$15.30	\$13.15	\$3.25	\$0.00	\$57.92
	11/1/2025	\$26.98	\$15.30	\$13.15	\$3.25	\$0.00	\$58.68
	5/1/2026	\$27.83	\$15.30	\$13.15	\$3.25	\$0.00	\$59.53
	11/1/2026	\$28.59	\$15.30	\$13.15	\$3.25	\$0.00	\$60.29
	5/1/2027	\$29.44	\$15.30	\$13.15	\$3.25	\$0.00	\$61.14
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
FIRE ALARM INSTALLER ELECTRICIANS LOCAL 103	3/1/2025	\$64.26	\$13.00	\$14.31	\$8.72	\$0.00	\$100.29
	9/1/2025	\$66.17	\$13.00	\$14.37	\$8.72	\$0.00	\$102.26
	3/1/2026	\$67.37	\$13.00	\$14.40	\$8.72	\$0.00	\$103.49
	9/1/2026	\$69.28	\$13.00	\$14.46	\$8.72	\$0.00	\$105.46
	3/1/2027	\$70.47	\$13.00	\$14.49	\$8.72	\$0.00	\$106.68
	9/1/2027	\$72.39	\$13.00	\$14.55	\$8.72	\$0.00	\$108.66
	3/1/2028	\$73.59	\$13.00	\$14.59	\$8.72	\$0.00	\$109.90
For apprentice rates see "Apprentice- ELECTRICIAN"							
FIRE ALARM REPAIR / MAINTENANCE / COMMISSIONING ELECTRICIANS LOCAL 103	3/1/2025	\$51.41	\$13.00	\$13.92	\$6.98	\$0.00	\$85.31
	9/1/2025	\$52.94	\$13.00	\$13.97	\$6.98	\$0.00	\$86.89
	3/1/2026	\$53.90	\$13.00	\$14.00	\$6.98	\$0.00	\$87.88
	9/1/2026	\$55.42	\$13.00	\$14.04	\$6.98	\$0.00	\$89.44
	3/1/2027	\$56.38	\$13.00	\$14.07	\$6.98	\$0.00	\$90.43
	9/1/2027	\$57.91	\$13.00	\$14.12	\$6.98	\$0.00	\$92.01
	3/1/2028	\$58.87	\$13.00	\$14.15	\$6.98	\$0.00	\$93.00
For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"							
FIREMAN (ASST. ENGINEER) OPERATING ENGINEERS LOCAL 4	6/1/2025	\$47.02	\$15.55	\$13.25	\$3.25	\$0.00	\$79.07
	12/1/2025	\$48.19	\$15.55	\$13.25	\$3.25	\$0.00	\$80.24

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
	6/1/2026	\$49.25	\$15.55	\$13.25	\$3.25	\$0.00	\$81.30
	12/1/2026	\$50.43	\$15.55	\$13.25	\$3.25	\$0.00	\$82.48

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

FLAGGER & SIGNALER (HEAVY & HIGHWAY) LABORERS	6/1/2025	\$28.09	\$9.90	\$9.25	\$9.21	\$0.00	\$56.45
	12/1/2025	\$28.09	\$9.90	\$9.25	\$9.21	\$0.00	\$56.45
	6/1/2026	\$29.21	\$9.90	\$9.25	\$9.21	\$0.00	\$57.57
	12/1/2026	\$29.21	\$9.90	\$9.25	\$9.21	\$0.00	\$57.57

For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"

FLOORCOVERER FLOORCOVERERS LOCAL 2168	3/1/2025	\$57.73	\$8.83	\$11.47	\$8.80	\$0.00	\$86.83
	9/1/2025	\$59.23	\$8.83	\$11.47	\$8.80	\$0.00	\$88.33
	3/1/2026	\$60.73	\$8.83	\$11.47	\$8.80	\$0.00	\$89.83
	9/1/2026	\$62.23	\$8.83	\$11.47	\$8.80	\$0.00	\$91.33
	3/1/2027	\$63.73	\$8.83	\$11.47	\$8.80	\$0.00	\$92.83

Apprentice: FLOORCOVERER							
Effective Date: 3/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	\$25.98	\$8.83	\$0.00	\$1.76	\$0.00	\$36.57
2	45.00	\$25.98	\$8.83	\$0.00	\$1.76	\$0.00	\$36.57
3	55.00	\$31.75	\$8.83	\$0.00	\$3.52	\$0.00	\$44.10
4	55.00	\$31.75	\$8.83	\$0.00	\$3.52	\$0.00	\$44.10
5	70.00	\$40.41	\$8.83	\$11.47	\$5.28	\$0.00	\$65.99
6	70.00	\$40.41	\$8.83	\$11.47	\$5.28	\$0.00	\$65.99
7	80.00	\$46.18	\$8.83	\$11.47	\$7.04	\$0.00	\$73.52
8	80.00	\$46.18	\$8.83	\$11.47	\$7.04	\$0.00	\$73.52

Apprentice: FLOORCOVERER							
Effective Date: 9/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	\$26.65	\$8.83	\$0.00	\$1.76	\$0.00	\$37.24
2	45.00	\$26.65	\$8.83	\$0.00	\$1.76	\$0.00	\$37.24
3	55.00	\$32.58	\$8.83	\$0.00	\$3.52	\$0.00	\$44.93
4	55.00	\$32.58	\$8.83	\$0.00	\$3.52	\$0.00	\$44.93
5	70.00	\$41.46	\$8.83	\$11.47	\$5.28	\$0.00	\$67.04
6	70.00	\$41.46	\$8.83	\$11.47	\$5.28	\$0.00	\$67.04
7	80.00	\$47.38	\$8.83	\$11.47	\$7.04	\$0.00	\$74.72
8	80.00	\$47.38	\$8.83	\$11.47	\$7.04	\$0.00	\$74.72

FORK LIFT/CHERRY PICKER OPERATING ENGINEERS LOCAL 4	6/1/2025	\$58.33	\$15.55	\$13.25	\$3.25	\$0.00	\$90.38
	12/1/2025	\$59.78	\$15.55	\$13.25	\$3.25	\$0.00	\$91.83
	6/1/2026	\$61.08	\$15.55	\$13.25	\$3.25	\$0.00	\$93.13
	12/1/2026	\$62.53	\$15.55	\$13.25	\$3.25	\$0.00	\$94.58

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
GENERATOR/LIGHTING PLANT/HEATERS OPERATING ENGINEERS LOCAL 4	6/1/2025	\$37.52	\$15.55	\$13.25	\$3.25	\$0.00	\$69.57
	12/1/2025	\$38.47	\$15.55	\$13.25	\$3.25	\$0.00	\$70.52
	6/1/2026	\$39.33	\$15.55	\$13.25	\$3.25	\$0.00	\$71.38
	12/1/2026	\$40.28	\$15.55	\$13.25	\$3.25	\$0.00	\$72.33

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS) GLAZIERS LOCAL 35	1/1/2025	\$47.96	\$9.95	\$11.85	\$12.10	\$0.00	\$81.86
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Apprentice: GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS)							
Effective Date: 1/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$23.98	\$9.95	\$0.00	\$0.00	\$0.00	\$33.93
2	55.00	\$26.38	\$9.95	\$0.00	\$6.66	\$0.00	\$42.99
3	60.00	\$28.78	\$9.95	\$0.00	\$7.26	\$0.00	\$45.99
4	65.00	\$31.17	\$9.95	\$0.00	\$7.87	\$0.00	\$48.99
5	70.00	\$33.57	\$9.95	\$11.85	\$8.47	\$0.00	\$63.84
6	75.00	\$35.97	\$9.95	\$11.85	\$9.08	\$0.00	\$66.85
7	80.00	\$38.37	\$9.95	\$11.85	\$9.68	\$0.00	\$69.85
8	90.00	\$43.16	\$9.95	\$11.85	\$10.89	\$0.00	\$75.85

HOISTING ENGINEER/CRANES/GRADALLS OPERATING ENGINEERS LOCAL 4	6/1/2025	\$58.33	\$15.55	\$13.25	\$3.25	\$0.00	\$90.38
	12/1/2025	\$59.78	\$15.55	\$13.25	\$3.25	\$0.00	\$91.83
	6/1/2026	\$61.08	\$15.55	\$13.25	\$3.25	\$0.00	\$93.13
	12/1/2026	\$62.53	\$15.55	\$13.25	\$3.25	\$0.00	\$94.58

Apprentice: HOISTING ENGINEER/CRANES/GRADALLS							
Effective Date: 6/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	55.00	\$32.08	\$0.00	\$0.00	\$0.00	\$0.00	\$32.08
2	60.00	\$35.00	\$15.55	\$13.25	\$3.25	\$0.00	\$67.05
3	65.00	\$37.91	\$15.55	\$13.25	\$3.25	\$0.00	\$69.96
4	70.00	\$40.83	\$15.55	\$13.25	\$3.25	\$0.00	\$72.88
5	75.00	\$43.75	\$15.55	\$13.25	\$3.25	\$0.00	\$75.80
6	80.00	\$46.66	\$15.55	\$13.25	\$3.25	\$0.00	\$78.71
7	85.00	\$49.58	\$15.55	\$13.25	\$3.25	\$0.00	\$81.63
8	90.00	\$52.50	\$15.55	\$13.25	\$3.25	\$0.00	\$84.55

Apprentice: HOISTING ENGINEER/CRANES/GRADALLS							
Effective Date: 12/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	55.00	\$32.88	\$0.00	\$0.00	\$0.00	\$0.00	\$32.88
2	60.00	\$35.87	\$15.55	\$13.25	\$3.25	\$0.00	\$67.92

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: HOISTING ENGINEER/CRANES/GRADALLS							
Effective Date: 12/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
3	65.00	\$38.86	\$15.55	\$13.25	\$3.25	\$0.00	\$70.91
4	70.00	\$41.85	\$15.55	\$13.25	\$3.25	\$0.00	\$73.90
5	75.00	\$44.84	\$15.55	\$13.25	\$3.25	\$0.00	\$76.89
6	80.00	\$47.82	\$15.55	\$13.25	\$3.25	\$0.00	\$79.87
7	85.00	\$50.81	\$15.55	\$13.25	\$3.25	\$0.00	\$82.86
8	90.00	\$53.80	\$15.55	\$13.25	\$3.25	\$0.00	\$85.85
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HVAC (DUCTWORK) SHEETMETAL WORKERS LOCAL 17	2/1/2025	\$59.13	\$14.91	\$18.74	\$9.53	\$2.98	\$105.29
	8/1/2025	\$60.98	\$14.91	\$18.74	\$9.53	\$2.98	\$107.14
	2/1/2026	\$62.93	\$14.91	\$18.74	\$9.53	\$2.98	\$109.09
For apprentice rates see "Apprentice- SHEET METAL WORKER"							
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HVAC (ELECTRICAL CONTROLS) ELECTRICIANS LOCAL 103	3/1/2025	\$64.26	\$13.00	\$14.31	\$8.72	\$0.00	\$100.29
	9/1/2025	\$66.17	\$13.00	\$14.37	\$8.72	\$0.00	\$102.26
	3/1/2026	\$67.37	\$13.00	\$14.40	\$8.72	\$0.00	\$103.49
	9/1/2026	\$69.28	\$13.00	\$14.46	\$8.72	\$0.00	\$105.46
	3/1/2027	\$70.47	\$13.00	\$14.49	\$8.72	\$0.00	\$106.68
	9/1/2027	\$72.39	\$13.00	\$14.55	\$8.72	\$0.00	\$108.66
	3/1/2028	\$73.59	\$13.00	\$14.59	\$8.72	\$0.00	\$109.90
For apprentice rates see "Apprentice- ELECTRICIAN"							
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HVAC (TESTING AND BALANCING - AIR) SHEETMETAL WORKERS LOCAL 17	2/1/2025	\$59.13	\$14.91	\$18.74	\$9.53	\$2.98	\$105.29
	8/1/2025	\$60.98	\$14.91	\$18.74	\$9.53	\$2.98	\$107.14
	2/1/2026	\$62.93	\$14.91	\$18.74	\$9.53	\$2.98	\$109.09
For apprentice rates see "Apprentice- SHEET METAL WORKER"							
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HVAC (TESTING AND BALANCING -WATER) PIPEFITTERS LOCAL 537	3/1/2025	\$68.88	\$12.70	\$13.05	\$8.75	\$0.00	\$103.38
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"							
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HVAC MECHANIC PIPEFITTERS LOCAL 537	3/1/2025	\$68.88	\$12.70	\$13.05	\$8.75	\$0.00	\$103.38
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"							
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HYDRAULIC DRILLS LABORERS	6/1/2025	\$41.09	\$9.90	\$9.25	\$9.11	\$0.00	\$69.35
	12/1/2025	\$42.47	\$9.90	\$9.25	\$9.11	\$0.00	\$70.73
	6/1/2026	\$43.91	\$9.90	\$9.25	\$9.11	\$0.00	\$72.17
	12/1/2026	\$45.35	\$9.90	\$9.25	\$9.11	\$0.00	\$73.61
	6/1/2027	\$46.80	\$9.90	\$9.25	\$9.11	\$0.00	\$75.06
	12/1/2027	\$48.25	\$9.90	\$9.25	\$9.11	\$0.00	\$76.51
	6/1/2028	\$49.75	\$9.90	\$9.25	\$9.11	\$0.00	\$78.01
	12/1/2028	\$51.25	\$9.90	\$9.25	\$9.11	\$0.00	\$79.51
For apprentice rates see "Apprentice- LABORER"							
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HYDRAULIC DRILLS (HEAVY & HIGHWAY)	6/1/2025	\$41.09	\$9.90	\$9.25	\$9.21	\$0.00	\$69.45

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
LABORERS	12/1/2025	\$42.47	\$9.90	\$9.25	\$9.21	\$0.00	\$70.83
	6/1/2026	\$43.91	\$9.90	\$9.25	\$9.21	\$0.00	\$72.27
	12/1/2026	\$45.35	\$9.90	\$9.25	\$9.21	\$0.00	\$73.71

For apprentice rates see "Apprentice- LABORER (Heavy and Highway)

INSULATOR (PIPES & TANKS)	9/1/2024	\$56.92	\$14.75	\$9.52	\$10.09	\$0.00	\$91.28
HEAT & FROST INSULATORS LOCAL 6	9/1/2025	\$60.34	\$14.75	\$9.52	\$10.09	\$0.00	\$94.70
	9/1/2026	\$63.76	\$14.75	\$9.52	\$10.09	\$0.00	\$98.12

Apprentice: INSULATOR (PIPES & TANKS)							
Effective Date: 9/1/2024							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$28.46	\$14.75	\$9.27	\$5.05	\$0.00	\$57.53
2	60.00	\$34.15	\$14.75	\$9.32	\$6.05	\$0.00	\$64.27
3	70.00	\$39.84	\$14.75	\$9.37	\$7.06	\$0.00	\$71.02
4	80.00	\$45.54	\$14.75	\$9.42	\$8.07	\$0.00	\$77.78

Apprentice: INSULATOR (PIPES & TANKS)							
Effective Date: 9/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$30.17	\$14.75	\$9.27	\$5.05	\$0.00	\$59.24
2	60.00	\$36.20	\$14.75	\$9.32	\$6.05	\$0.00	\$66.32
3	70.00	\$42.24	\$14.75	\$9.37	\$7.06	\$0.00	\$73.42
4	80.00	\$48.27	\$14.75	\$9.42	\$8.07	\$0.00	\$80.51

IRONWORKER/WELDER IRONWORKERS LOCAL 7	3/16/2024	\$49.56	\$8.35	\$12.70	\$14.00	\$0.00	\$84.61
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Apprentice: IRONWORKER/WELDER							
Effective Date: 3/16/2024							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	\$29.74	\$8.35	\$12.70	\$14.00	\$0.00	\$64.79
2	70.00	\$34.69	\$8.35	\$12.70	\$14.00	\$0.00	\$69.74
3	75.00	\$37.17	\$8.35	\$12.70	\$14.00	\$0.00	\$72.22
4	80.00	\$39.65	\$8.35	\$12.70	\$14.00	\$0.00	\$74.70
5	85.00	\$42.13	\$8.35	\$12.70	\$14.00	\$0.00	\$77.18
6	90.00	\$44.60	\$8.35	\$12.70	\$14.00	\$0.00	\$79.65

JACKHAMMER & PAVING BREAKER OPERATOR LABORERS	6/1/2025	\$40.59	\$9.90	\$9.25	\$9.11	\$0.00	\$68.85
	12/1/2025	\$41.97	\$9.90	\$9.25	\$9.11	\$0.00	\$70.23
	6/1/2026	\$43.41	\$9.90	\$9.25	\$9.11	\$0.00	\$71.67
	12/1/2026	\$44.85	\$9.90	\$9.25	\$9.11	\$0.00	\$73.11
	6/1/2027	\$46.30	\$9.90	\$9.25	\$9.11	\$0.00	\$74.56

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
	12/1/2027	\$47.75	\$9.90	\$9.25	\$9.11	\$0.00	\$76.01
	6/1/2028	\$49.25	\$9.90	\$9.25	\$9.11	\$0.00	\$77.51
	12/1/2028	\$50.75	\$9.90	\$9.25	\$9.11	\$0.00	\$79.01

For apprentice rates see "Apprentice- LABORER"

LABORER	6/1/2025	\$40.34	\$9.90	\$9.25	\$9.11	\$0.00	\$68.60
LABORERS	12/1/2025	\$41.72	\$9.90	\$9.25	\$9.11	\$0.00	\$69.98
	6/1/2026	\$43.16	\$9.90	\$9.25	\$9.11	\$0.00	\$71.42
	12/1/2026	\$44.60	\$9.90	\$9.25	\$9.11	\$0.00	\$72.86
	6/1/2027	\$46.05	\$9.90	\$9.25	\$9.11	\$0.00	\$74.31
	12/1/2027	\$47.50	\$9.90	\$9.25	\$9.11	\$0.00	\$75.76
	6/1/2028	\$49.00	\$9.90	\$9.25	\$9.11	\$0.00	\$77.26
	12/1/2028	\$50.50	\$9.90	\$9.25	\$9.11	\$0.00	\$78.76

Apprentice: LABORER							
Effective Date: 6/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	\$24.20	\$9.90	\$9.25	\$9.11	\$0.00	\$52.46
2	70.00	\$28.24	\$9.90	\$9.25	\$9.11	\$0.00	\$56.50
3	80.00	\$32.27	\$9.90	\$9.25	\$9.11	\$0.00	\$60.53
4	90.00	\$36.31	\$9.90	\$9.25	\$9.11	\$0.00	\$64.57

Apprentice: LABORER							
Effective Date: 12/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	\$25.03	\$9.90	\$9.25	\$9.11	\$0.00	\$53.29
2	70.00	\$29.20	\$9.90	\$9.25	\$9.11	\$0.00	\$57.46
3	80.00	\$33.38	\$9.90	\$9.25	\$9.11	\$0.00	\$61.64
4	90.00	\$37.55	\$9.90	\$9.25	\$9.11	\$0.00	\$65.81

LABORER (HEAVY & HIGHWAY)	6/1/2025	\$40.34	\$9.90	\$9.25	\$9.21	\$0.00	\$68.70
LABORERS	12/1/2025	\$41.72	\$9.90	\$9.25	\$9.21	\$0.00	\$70.08
	6/1/2026	\$43.16	\$9.90	\$9.25	\$9.21	\$0.00	\$71.52
	12/1/2026	\$44.60	\$9.90	\$9.25	\$9.21	\$0.00	\$72.96

Apprentice: LABORER (HEAVY & HIGHWAY)							
Effective Date: 6/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	\$24.20	\$9.90	\$9.25	\$9.21	\$0.00	\$52.56
2	70.00	\$28.24	\$9.90	\$9.25	\$9.21	\$0.00	\$56.60
3	80.00	\$32.27	\$9.90	\$9.25	\$9.21	\$0.00	\$60.63
4	90.00	\$36.31	\$9.90	\$9.25	\$9.21	\$0.00	\$64.67

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: LABORER (HEAVY & HIGHWAY)							
Effective Date: 12/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	\$25.03	\$9.90	\$9.25	\$9.21	\$0.00	\$53.39
2	70.00	\$29.20	\$9.90	\$9.25	\$9.21	\$0.00	\$57.56
3	80.00	\$33.38	\$9.90	\$9.25	\$9.21	\$0.00	\$61.74
4	90.00	\$37.55	\$9.90	\$9.25	\$9.21	\$0.00	\$65.91
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LABORER: CARPENTER TENDER	6/1/2025	\$40.34	\$9.90	\$9.25	\$9.11	\$0.00	\$68.60
LABORERS	12/1/2025	\$41.72	\$9.90	\$9.25	\$9.11	\$0.00	\$69.98
	6/1/2026	\$43.16	\$9.90	\$9.25	\$9.11	\$0.00	\$71.42
	12/1/2026	\$44.60	\$9.90	\$9.25	\$9.11	\$0.00	\$72.86
	6/1/2027	\$46.05	\$9.90	\$9.25	\$9.11	\$0.00	\$74.31
	12/1/2027	\$47.50	\$9.90	\$9.25	\$9.11	\$0.00	\$75.76
	6/1/2028	\$49.00	\$9.90	\$9.25	\$9.11	\$0.00	\$77.26
	12/1/2028	\$50.50	\$9.90	\$9.25	\$9.11	\$0.00	\$78.76
For apprentice rates see "Apprentice- LABORER"							
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LABORER: CEMENT FINISHER TENDER	6/1/2025	\$40.34	\$9.90	\$9.25	\$9.11	\$0.00	\$68.60
LABORERS	12/1/2025	\$41.72	\$9.90	\$9.25	\$9.11	\$0.00	\$69.98
	6/1/2026	\$43.16	\$9.90	\$9.25	\$9.11	\$0.00	\$71.42
	12/1/2026	\$44.60	\$9.90	\$9.25	\$9.11	\$0.00	\$72.86
	6/1/2027	\$46.05	\$9.90	\$9.25	\$9.11	\$0.00	\$74.31
	12/1/2027	\$47.50	\$9.90	\$9.25	\$9.11	\$0.00	\$75.76
	6/1/2028	\$49.00	\$9.90	\$9.25	\$9.11	\$0.00	\$77.26
	12/1/2028	\$50.50	\$9.90	\$9.25	\$9.11	\$0.00	\$78.76
For apprentice rates see "Apprentice- LABORER"							
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LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER	6/2/2025	\$40.43	\$9.90	\$9.25	\$9.17	\$0.00	\$68.75
LABORERS	12/1/2025	\$41.81	\$9.90	\$9.25	\$9.17	\$0.00	\$70.13
	6/1/2026	\$43.25	\$9.90	\$9.25	\$9.17	\$0.00	\$71.57
	12/7/2026	\$44.69	\$9.90	\$9.25	\$9.17	\$0.00	\$73.01
	6/7/2027	\$46.14	\$9.90	\$9.25	\$9.17	\$0.00	\$74.46
	12/6/2027	\$47.59	\$9.90	\$9.25	\$9.17	\$0.00	\$75.91
	6/5/2028	\$49.09	\$9.90	\$9.25	\$9.17	\$0.00	\$77.41
	12/4/2028	\$50.59	\$9.90	\$9.25	\$9.17	\$0.00	\$78.91
For apprentice rates see "Apprentice- LABORER"							
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LABORER: MASON TENDER	6/1/2025	\$40.59	\$9.90	\$9.25	\$9.11	\$0.00	\$68.85
LABORERS	12/1/2025	\$41.97	\$9.90	\$9.25	\$9.11	\$0.00	\$70.23
	6/1/2026	\$43.41	\$9.90	\$9.25	\$9.11	\$0.00	\$71.67
	12/1/2026	\$44.85	\$9.90	\$9.25	\$9.11	\$0.00	\$73.11
	6/1/2027	\$46.30	\$9.90	\$9.25	\$9.11	\$0.00	\$74.56
	12/1/2027	\$47.75	\$9.90	\$9.25	\$9.11	\$0.00	\$76.01
	6/1/2028	\$49.25	\$9.90	\$9.25	\$9.11	\$0.00	\$77.51
	12/1/2028	\$50.75	\$9.90	\$9.25	\$9.11	\$0.00	\$79.01
For apprentice rates see "Apprentice- LABORER"							

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
LABORER: MASON TENDER (HEAVY & HIGHWAY)	6/1/2025	\$40.59	\$9.90	\$9.25	\$9.21	\$0.00	\$68.95
LABORERS	12/1/2025	\$41.97	\$9.90	\$9.25	\$9.21	\$0.00	\$70.33
	6/1/2026	\$43.41	\$9.90	\$9.25	\$9.21	\$0.00	\$71.77
	12/1/2026	\$44.85	\$9.90	\$9.25	\$9.21	\$0.00	\$73.21

For apprentice rates see "Apprentice- LABORER (Heavy and Highway)

LABORER: MULTI-TRADE TENDER	6/1/2025	\$40.34	\$9.90	\$9.25	\$9.11	\$0.00	\$68.60
LABORERS	12/1/2025	\$41.72	\$9.90	\$9.25	\$9.11	\$0.00	\$69.98
	6/1/2026	\$43.16	\$9.90	\$9.25	\$9.11	\$0.00	\$71.42
	12/1/2026	\$44.60	\$9.90	\$9.25	\$9.11	\$0.00	\$72.86
	6/1/2027	\$46.05	\$9.90	\$9.25	\$9.11	\$0.00	\$74.31
	12/1/2027	\$47.50	\$9.90	\$9.25	\$9.11	\$0.00	\$75.76
	6/1/2028	\$49.00	\$9.90	\$9.25	\$9.11	\$0.00	\$77.26
	12/1/2028	\$50.50	\$9.90	\$9.25	\$9.11	\$0.00	\$78.76

For apprentice rates see "Apprentice- LABORER"

LABORER: TREE REMOVER	6/1/2025	\$40.34	\$9.90	\$9.25	\$9.11	\$0.00	\$68.60
LABORERS	12/1/2025	\$41.72	\$9.90	\$9.25	\$9.11	\$0.00	\$69.98
	6/1/2026	\$43.16	\$9.90	\$9.25	\$9.11	\$0.00	\$71.42
	12/1/2026	\$44.60	\$9.90	\$9.25	\$9.11	\$0.00	\$72.86
	6/1/2027	\$46.05	\$9.90	\$9.25	\$9.11	\$0.00	\$74.31
	12/1/2027	\$47.50	\$9.90	\$9.25	\$9.11	\$0.00	\$75.76
	6/1/2028	\$49.00	\$9.90	\$9.25	\$9.11	\$0.00	\$77.26
	12/1/2028	\$50.50	\$9.90	\$9.25	\$9.11	\$0.00	\$78.76

This classification applies to the removal of standing trees, and the trimming and removal of branches and limbs when related to public works construction or site clearance incidental to construction . For apprentice rates see "Apprentice- LABORER"

LASER BEAM OPERATOR	6/1/2025	\$40.59	\$9.90	\$9.25	\$9.11	\$0.00	\$68.85
LABORERS	12/1/2025	\$41.97	\$9.90	\$9.25	\$9.11	\$0.00	\$70.23
	6/1/2026	\$43.41	\$9.90	\$9.25	\$9.11	\$0.00	\$71.67
	12/1/2026	\$44.85	\$9.90	\$9.25	\$9.11	\$0.00	\$73.11
	6/1/2027	\$46.30	\$9.90	\$9.25	\$9.11	\$0.00	\$74.56
	12/1/2027	\$47.75	\$9.90	\$9.25	\$9.11	\$0.00	\$76.01
	6/1/2028	\$49.25	\$9.90	\$9.25	\$9.11	\$0.00	\$77.51
	12/1/2028	\$50.75	\$9.90	\$9.25	\$9.11	\$0.00	\$79.01

For apprentice rates see "Apprentice- LABORER"

LASER BEAM OPERATOR (HEAVY & HIGHWAY)	6/1/2025	\$40.59	\$9.90	\$9.25	\$9.21	\$0.00	\$68.95
LABORERS	12/1/2025	\$41.97	\$9.90	\$9.25	\$9.21	\$0.00	\$70.33
	6/1/2026	\$43.41	\$9.90	\$9.25	\$9.21	\$0.00	\$71.77
	12/1/2026	\$44.85	\$9.90	\$9.25	\$9.21	\$0.00	\$73.21

For apprentice rates see "Apprentice- LABORER (Heavy and Highway)

MARBLE & TILE FINISHERS	2/1/2025	\$50.36	\$11.49	\$15.57	\$6.05	\$0.00	\$83.47
BRICKLAYERS LOCAL 3	8/1/2025	\$52.08	\$11.49	\$15.57	\$6.05	\$0.00	\$85.19
	2/1/2026	\$53.16	\$11.49	\$15.57	\$6.05	\$0.00	\$86.27
	8/1/2026	\$54.92	\$11.49	\$15.57	\$6.05	\$0.00	\$88.03
	2/1/2027	\$56.04	\$11.49	\$15.57	\$6.05	\$0.00	\$89.15

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: MARBLE MASONS, TILELAYERS & TERRAZZO MECH							
Effective Date: 8/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
4	80.00	\$54.38	\$11.49	\$15.57	\$7.99	\$0.00	\$89.43
5	90.00	\$61.17	\$11.49	\$15.57	\$7.99	\$0.00	\$96.22
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MECH. SWEEPER OPERATOR (ON CONST. SITES)	6/1/2025	\$57.68	\$15.55	\$13.25	\$3.25	\$0.00	\$89.73
OPERATING ENGINEERS LOCAL 4	12/1/2025	\$59.12	\$15.55	\$13.25	\$3.25	\$0.00	\$91.17
	6/1/2026	\$60.40	\$15.55	\$13.25	\$3.25	\$0.00	\$92.45
	12/1/2026	\$61.84	\$15.55	\$13.25	\$3.25	\$0.00	\$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
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MECHANICS MAINTENANCE	6/1/2025	\$57.68	\$15.55	\$13.25	\$3.25	\$0.00	\$89.73
OPERATING ENGINEERS LOCAL 4	12/1/2025	\$59.12	\$15.55	\$13.25	\$3.25	\$0.00	\$91.17
	6/1/2026	\$60.40	\$15.55	\$13.25	\$3.25	\$0.00	\$92.45
	12/1/2026	\$61.84	\$15.55	\$13.25	\$3.25	\$0.00	\$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
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MILLWRIGHT (Zone 2)	1/6/2025	\$45.09	\$10.08	\$11.47	\$10.00	\$0.00	\$76.64
MILLWRIGHTS LOCAL 1121	1/5/2026	\$47.42	\$10.08	\$11.47	\$10.00	\$0.00	\$78.97
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Apprentice: MILLWRIGHT (Zone 2)							
Effective Date: 1/6/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	55.00	\$24.80	\$10.08	\$0.00	\$5.50	\$0.00	\$40.38
2	65.00	\$29.31	\$10.08	\$0.00	\$6.50	\$0.00	\$45.89
3	75.00	\$33.82	\$10.08	\$11.47	\$7.50	\$0.00	\$62.87
4	85.00	\$38.33	\$10.08	\$11.47	\$8.50	\$0.00	\$68.38
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Apprentice: MILLWRIGHT (Zone 2)							
Effective Date: 1/5/2026							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	55.00	\$26.08	\$10.08	\$0.00	\$5.50	\$0.00	\$41.66
2	65.00	\$30.82	\$10.08	\$0.00	\$6.50	\$0.00	\$47.40
3	75.00	\$35.57	\$10.08	\$11.47	\$7.50	\$0.00	\$64.62
4	85.00	\$40.31	\$10.08	\$11.47	\$8.50	\$0.00	\$70.36
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MORTAR MIXER	6/1/2025	\$40.59	\$9.90	\$9.25	\$9.11	\$0.00	\$68.85
LABORERS	12/1/2025	\$41.97	\$9.90	\$9.25	\$9.11	\$0.00	\$70.23
	6/1/2026	\$43.41	\$9.90	\$9.25	\$9.11	\$0.00	\$71.67
	12/1/2026	\$44.85	\$9.90	\$9.25	\$9.11	\$0.00	\$73.11
	6/1/2027	\$46.30	\$9.90	\$9.25	\$9.11	\$0.00	\$74.56

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
	12/1/2027	\$47.75	\$9.90	\$9.25	\$9.11	\$0.00	\$76.01
	6/1/2028	\$49.25	\$9.90	\$9.25	\$9.11	\$0.00	\$77.51
	12/1/2028	\$50.75	\$9.90	\$9.25	\$9.11	\$0.00	\$79.01

For apprentice rates see "Apprentice- LABORER"

OILER (OTHER THAN TRUCK CRANES,GRADALLS) OPERATING ENGINEERS LOCAL 4	6/1/2025	\$25.97	\$15.30	\$13.15	\$3.25	\$0.00	\$57.67
	12/1/2025	\$26.63	\$15.30	\$13.15	\$3.25	\$0.00	\$58.33
	6/1/2026	\$27.22	\$15.30	\$13.15	\$3.25	\$0.00	\$58.92
	12/1/2026	\$27.89	\$15.30	\$13.15	\$3.25	\$0.00	\$59.59

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

OILER (TRUCK CRANES, GRADALLS) OPERATING ENGINEERS LOCAL 4	6/1/2025	\$31.80	\$15.30	\$13.15	\$3.25	\$0.00	\$63.50
	12/1/2025	\$32.60	\$15.30	\$13.15	\$3.25	\$0.00	\$64.30
	6/1/2026	\$33.32	\$15.30	\$13.15	\$3.25	\$0.00	\$65.02
	12/1/2026	\$34.12	\$15.30	\$13.15	\$3.25	\$0.00	\$65.82

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

OTHER POWER DRIVEN EQUIPMENT - CLASS II OPERATING ENGINEERS LOCAL 4	6/1/2025	\$57.68	\$15.55	\$13.25	\$3.25	\$0.00	\$89.73
	12/1/2025	\$59.12	\$15.55	\$13.25	\$3.25	\$0.00	\$91.17
	6/1/2026	\$60.40	\$15.55	\$13.25	\$3.25	\$0.00	\$92.45
	12/1/2026	\$61.84	\$15.55	\$13.25	\$3.25	\$0.00	\$93.89

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

PAINTER (BRIDGES/TANKS) PAINTERS LOCAL 35	1/1/2025	\$58.46	\$9.95	\$11.85	\$12.10	\$0.00	\$92.36
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Apprentice: PAINTER (BRIDGES/TANKS)							
Effective Date: 1/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$29.23	\$9.95	\$0.00	\$0.00	\$0.00	\$39.18
2	55.00	\$32.15	\$9.95	\$0.00	\$6.66	\$0.00	\$48.76
3	60.00	\$35.08	\$9.95	\$0.00	\$7.26	\$0.00	\$52.29
4	65.00	\$38.00	\$9.95	\$0.00	\$7.87	\$0.00	\$55.82
5	70.00	\$40.92	\$9.95	\$11.85	\$8.47	\$0.00	\$71.19
6	75.00	\$43.85	\$9.95	\$11.85	\$9.08	\$0.00	\$74.73
7	80.00	\$46.77	\$9.95	\$11.85	\$9.68	\$0.00	\$78.25
8	90.00	\$52.61	\$9.95	\$11.85	\$10.89	\$0.00	\$85.30

PAINTER (SPRAY OR SANDBLAST, NEW) *	1/1/2025	\$49.36	\$9.95	\$11.85	\$12.10	\$0.00	\$83.26
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* If 30% or more of surfaces to be painted are new construction,
NEW paint rate shall be used.
PAINTERS LOCAL 35

Apprentice: PAINTER (SPRAY OR SANDBLAST, NEW) *							
Effective Date: 1/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
PAINTER / TAPER (BRUSH, REPAINT)	1/1/2025	\$46.02	\$9.95	\$11.85	\$12.10	\$0.00	\$79.92
PAINTERS LOCAL 35							

Apprentice: PAINTER / TAPER (BRUSH, REPAINT)							
Effective Date: 1/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$23.01	\$9.95	\$0.00	\$0.00	\$0.00	\$32.96
2	55.00	\$25.31	\$9.95	\$0.00	\$6.66	\$0.00	\$41.92
3	60.00	\$27.61	\$9.95	\$0.00	\$7.26	\$0.00	\$44.82
4	65.00	\$29.91	\$9.95	\$0.00	\$7.87	\$0.00	\$47.73
5	70.00	\$32.21	\$9.95	\$11.85	\$8.47	\$0.00	\$62.48
6	75.00	\$34.52	\$9.95	\$11.85	\$9.08	\$0.00	\$65.40
7	80.00	\$36.82	\$9.95	\$11.85	\$9.68	\$0.00	\$68.30
8	90.00	\$41.42	\$9.95	\$11.85	\$10.89	\$0.00	\$74.11

PAINTER TRAFFIC MARKINGS (HEAVY/HIGHWAY)	6/1/2025	\$40.34	\$9.90	\$9.25	\$9.21	\$0.00	\$68.70
LABORERS	12/1/2025	\$41.72	\$9.90	\$9.25	\$9.21	\$0.00	\$70.08
	6/1/2026	\$43.16	\$9.90	\$9.25	\$9.21	\$0.00	\$71.52
	12/1/2026	\$44.60	\$9.90	\$9.25	\$9.21	\$0.00	\$72.96

For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"

PANEL & PICKUP TRUCKS DRIVER	6/1/2025	\$40.78	\$15.57	\$20.17	\$0.00	\$0.00	\$76.52
TEAMSTERS JOINT COUNCIL NO. 10	12/1/2025	\$40.78	\$15.57	\$21.78	\$0.00	\$0.00	\$78.13
	1/1/2026	\$40.78	\$16.17	\$21.78	\$0.00	\$0.00	\$78.73
	6/1/2026	\$41.78	\$16.17	\$21.78	\$0.00	\$0.00	\$79.73
	12/1/2026	\$41.78	\$16.17	\$23.52	\$0.00	\$0.00	\$81.47
	1/1/2027	\$41.78	\$16.77	\$23.52	\$0.00	\$0.00	\$82.07

PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK)	8/1/2024	\$55.79	\$10.08	\$11.62	\$12.67	\$0.00	\$90.16
PILE DRIVER LOCAL 56							

For apprentice rates see "Apprentice- PILE DRIVER"

PILE DRIVER	8/1/2024	\$55.79	\$10.08	\$11.62	\$12.67	\$0.00	\$90.16
PILE DRIVER LOCAL 56							

Apprentice: PILE DRIVER							
Effective Date: 8/1/2024							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	\$25.11	\$10.08	\$0.00	\$2.53	\$0.00	\$37.72
2	55.00	\$30.68	\$10.08	\$0.00	\$5.07	\$0.00	\$45.83
3	70.00	\$39.05	\$10.08	\$11.62	\$7.60	\$0.00	\$68.35
4	80.00	\$44.63	\$10.08	\$11.62	\$10.14	\$0.00	\$76.47

PIPEFITTER & STEAMFITTER	3/1/2025	\$68.88	\$12.70	\$13.05	\$8.75	\$0.00	\$103.38
PIPEFITTERS LOCAL 537							

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: PIPEFITTER & STEAMFITTER							
Effective Date: 3/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	40.00	\$27.55	\$12.70	\$0.30	\$8.75	\$0.00	\$49.30
2	45.00	\$31.00	\$12.70	\$13.05	\$8.75	\$0.00	\$65.50
3	60.00	\$41.33	\$12.70	\$13.05	\$8.75	\$0.00	\$75.83
4	70.00	\$48.22	\$12.70	\$13.05	\$8.75	\$0.00	\$82.72
5	80.00	\$55.10	\$12.70	\$13.05	\$8.75	\$0.00	\$89.60
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PIPELAYER LABORERS	6/1/2025	\$40.59	\$9.90	\$9.25	\$9.11	\$0.00	\$68.85
	12/1/2025	\$41.97	\$9.90	\$9.25	\$9.11	\$0.00	\$70.23
	6/1/2026	\$43.41	\$9.90	\$9.25	\$9.11	\$0.00	\$71.67
	12/1/2026	\$44.85	\$9.90	\$9.25	\$9.11	\$0.00	\$73.11
	6/1/2027	\$46.30	\$9.90	\$9.25	\$9.11	\$0.00	\$74.56
	12/1/2027	\$47.75	\$9.90	\$9.25	\$9.11	\$0.00	\$76.01
	6/1/2028	\$49.25	\$9.90	\$9.25	\$9.11	\$0.00	\$77.51
	12/1/2028	\$50.75	\$9.90	\$9.25	\$9.11	\$0.00	\$79.01
For apprentice rates see "Apprentice- LABORER"							
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PIPELAYER (HEAVY & HIGHWAY) LABORERS	6/1/2025	\$40.59	\$9.90	\$9.25	\$9.21	\$0.00	\$68.95
	12/1/2025	\$41.97	\$9.90	\$9.25	\$9.21	\$0.00	\$70.33
	6/1/2026	\$43.41	\$9.90	\$9.25	\$9.21	\$0.00	\$71.77
	12/1/2026	\$44.85	\$9.90	\$9.25	\$9.21	\$0.00	\$73.21
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
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PLUMBER PLUMBERS & GASFITTERS LOCAL 12	3/2/2025	\$69.84	\$14.32	\$12.31	\$8.00	\$0.00	\$104.47
Apprentice: PLUMBER							
Effective Date: 3/2/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	35.00	\$24.44	\$14.32	\$4.61	\$2.80	\$0.00	\$46.17
2	40.00	\$27.94	\$14.32	\$5.22	\$3.20	\$0.00	\$50.68
3	55.00	\$38.41	\$14.32	\$7.03	\$4.40	\$0.00	\$64.16
4	65.00	\$45.40	\$14.32	\$8.30	\$5.20	\$0.00	\$73.22
5	75.00	\$52.38	\$14.32	\$9.53	\$6.00	\$0.00	\$82.23
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PNEUMATIC CONTROLS (TEMP.) PIPEFITTERS LOCAL 537	3/1/2025	\$68.88	\$12.70	\$13.05	\$8.75	\$0.00	\$103.38
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"							
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PNEUMATIC DRILL/TOOL OPERATOR LABORERS	6/1/2025	\$41.09	\$9.90	\$9.25	\$8.29	\$0.00	\$68.53
	12/1/2025	\$42.47	\$9.90	\$9.25	\$8.29	\$0.00	\$69.91
	6/1/2026	\$43.91	\$9.90	\$9.25	\$8.29	\$0.00	\$71.35
	12/1/2026	\$45.35	\$9.90	\$9.25	\$8.29	\$0.00	\$72.79

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
	6/1/2027	\$46.80	\$9.90	\$9.25	\$8.29	\$0.00	\$74.24
	12/1/2027	\$48.25	\$9.90	\$9.25	\$8.29	\$0.00	\$75.69
	6/1/2028	\$49.75	\$9.90	\$9.25	\$8.29	\$0.00	\$77.19
	12/1/2028	\$51.25	\$9.90	\$9.25	\$8.29	\$0.00	\$78.69

For apprentice rates see "Apprentice- LABORER"

PNEUMATIC DRILL/TOOL OPERATOR (HEAVY & HIGHWAY) LABORERS	6/1/2025	\$40.59	\$9.90	\$9.25	\$9.21	\$0.00	\$68.95
	12/1/2025	\$41.97	\$9.90	\$9.25	\$9.21	\$0.00	\$70.33
	6/1/2026	\$43.41	\$9.90	\$9.25	\$9.21	\$0.00	\$71.77
	12/1/2026	\$44.85	\$9.90	\$9.25	\$9.21	\$0.00	\$73.21

For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"

POWDERMAN & BLASTER LABORERS	6/1/2025	\$41.34	\$9.90	\$9.25	\$9.11	\$0.00	\$69.60
	12/1/2025	\$42.72	\$9.90	\$9.25	\$9.11	\$0.00	\$70.98
	6/1/2026	\$44.16	\$9.90	\$9.25	\$9.11	\$0.00	\$72.42
	12/1/2026	\$45.60	\$9.90	\$9.25	\$9.11	\$0.00	\$73.86
	6/1/2027	\$47.05	\$9.90	\$9.25	\$9.11	\$0.00	\$75.31
	12/1/2027	\$48.50	\$9.90	\$9.25	\$9.11	\$0.00	\$76.76
	6/1/2028	\$50.00	\$9.90	\$9.25	\$9.11	\$0.00	\$78.26
	12/1/2028	\$51.50	\$9.90	\$9.25	\$9.11	\$0.00	\$79.76

For apprentice rates see "Apprentice- LABORER"

POWDERMAN & BLASTER (HEAVY & HIGHWAY) LABORERS	6/1/2025	\$41.34	\$9.65	\$9.25	\$9.21	\$0.00	\$69.45
	12/1/2025	\$42.72	\$9.65	\$9.25	\$9.21	\$0.00	\$70.83
	6/1/2026	\$44.16	\$9.65	\$9.25	\$9.21	\$0.00	\$72.27
	12/1/2026	\$45.60	\$9.65	\$9.25	\$9.21	\$0.00	\$73.71

For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"

POWER SHOVEL/DERRICK/TRENCHING MACHINE OPERATING ENGINEERS LOCAL 4	6/1/2025	\$58.33	\$15.55	\$13.25	\$3.25	\$0.00	\$90.38
	12/1/2025	\$59.78	\$15.55	\$13.25	\$3.25	\$0.00	\$91.83
	6/1/2026	\$61.08	\$15.55	\$13.25	\$3.25	\$0.00	\$93.13
	12/1/2026	\$62.53	\$15.55	\$13.25	\$3.25	\$0.00	\$94.58

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

PUMP OPERATOR (CONCRETE) OPERATING ENGINEERS LOCAL 4	6/1/2025	\$57.68	\$15.55	\$13.25	\$3.25	\$0.00	\$89.73
	12/1/2025	\$59.12	\$15.55	\$13.25	\$3.25	\$0.00	\$91.17
	6/1/2026	\$60.40	\$15.55	\$13.25	\$3.25	\$0.00	\$92.45
	12/1/2026	\$61.84	\$15.55	\$13.25	\$3.25	\$0.00	\$93.89

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

PUMP OPERATOR (DEWATERING, OTHER) OPERATING ENGINEERS LOCAL 4	6/1/2025	\$37.52	\$15.55	\$13.25	\$3.25	\$0.00	\$69.57
	12/1/2025	\$38.47	\$15.55	\$13.25	\$3.25	\$0.00	\$70.52
	6/1/2026	\$39.33	\$15.55	\$13.25	\$3.25	\$0.00	\$71.38
	12/1/2026	\$40.28	\$15.55	\$13.25	\$3.25	\$0.00	\$72.33

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

READY-MIX CONCRETE DRIVER TEAMSTERS 170	5/1/2025	\$30.50	\$11.57	\$6.65	\$0.00	\$0.00	\$48.72
	1/1/2026	\$30.50	\$11.97	\$6.65	\$0.00	\$0.00	\$49.12

RECLAIMERS	6/1/2025	\$57.68	\$15.55	\$13.25	\$3.25	\$0.00	\$89.73
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Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
OPERATING ENGINEERS LOCAL 4	12/1/2025	\$59.12	\$15.55	\$13.25	\$3.25	\$0.00	\$91.17
	6/1/2026	\$60.40	\$15.55	\$13.25	\$3.25	\$0.00	\$92.45
	12/1/2026	\$61.84	\$15.55	\$13.25	\$3.25	\$0.00	\$93.89

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

RIDE-ON MOTORIZED BUGGY OPERATOR LABORERS	6/1/2025	\$40.59	\$9.90	\$9.25	\$9.11	\$0.00	\$68.85
	12/1/2025	\$41.97	\$9.90	\$9.25	\$9.11	\$0.00	\$70.23
	6/1/2026	\$43.41	\$9.90	\$9.25	\$9.11	\$0.00	\$71.67
	12/1/2026	\$44.85	\$9.90	\$9.25	\$9.11	\$0.00	\$73.11
	6/1/2027	\$46.30	\$9.90	\$9.25	\$9.11	\$0.00	\$74.56
	12/1/2027	\$47.75	\$9.90	\$9.25	\$9.11	\$0.00	\$76.01
	6/1/2028	\$49.25	\$9.90	\$9.25	\$9.11	\$0.00	\$77.51
	12/1/2028	\$50.75	\$9.90	\$9.25	\$9.11	\$0.00	\$79.01

For apprentice rates see "Apprentice- LABORER"

ROLLER/SPREADER/MULCHING MACHINE OPERATING ENGINEERS LOCAL 4	6/1/2025	\$57.68	\$15.55	\$13.25	\$3.25	\$0.00	\$89.73
	12/1/2025	\$59.12	\$15.55	\$13.25	\$3.25	\$0.00	\$91.17
	6/1/2026	\$60.40	\$15.55	\$13.25	\$3.25	\$0.00	\$92.45
	12/1/2026	\$61.84	\$15.55	\$13.25	\$3.25	\$0.00	\$93.89

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

ROOFER (Inc.Roofer Waterproofing &Roofer Damproofg) ROOFERS LOCAL 33	2/1/2025	\$52.03	\$13.28	\$12.67	\$9.03	\$0.00	\$87.01
	8/1/2025	\$53.53	\$13.28	\$12.67	\$9.03	\$0.00	\$88.51
	2/1/2026	\$54.78	\$13.28	\$12.67	\$9.03	\$0.00	\$89.76

Apprentice: ROOFER (Inc.Roofer Waterproofing &Roofer Damproofg)							
Effective Date: 2/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$26.02	\$13.28	\$6.52	\$9.03	\$0.00	\$54.85
2	60.00	\$31.22	\$13.28	\$12.67	\$9.03	\$0.00	\$66.20
3	65.00	\$33.82	\$13.28	\$12.67	\$9.03	\$0.00	\$68.80
4	75.00	\$39.02	\$13.28	\$12.67	\$9.03	\$0.00	\$74.00
5	85.00	\$44.23	\$13.28	\$12.67	\$9.03	\$0.00	\$79.21

Apprentice: ROOFER (Inc.Roofer Waterproofing &Roofer Damproofg)							
Effective Date: 8/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$26.77	\$13.28	\$6.52	\$9.03	\$0.00	\$55.60
2	60.00	\$32.12	\$13.28	\$12.67	\$9.03	\$0.00	\$67.10
3	65.00	\$34.79	\$13.28	\$12.67	\$9.03	\$0.00	\$69.77
4	75.00	\$40.15	\$13.28	\$12.67	\$9.03	\$0.00	\$75.13
5	85.00	\$45.50	\$13.28	\$12.67	\$9.03	\$0.00	\$80.48

ROOFER SLATE / TILE / PRECAST CONCRETE ROOFERS LOCAL 33	2/1/2025	\$52.28	\$13.28	\$12.67	\$9.03	\$0.00	\$87.26
	8/1/2025	\$53.78	\$13.28	\$12.67	\$9.03	\$0.00	\$88.76

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
	2/1/2026	\$55.03	\$13.28	\$12.67	\$9.03	\$0.00	\$90.01

For apprentice rates see "Apprentice- ROOFER"

SHEETMETAL WORKER	2/1/2025	\$59.13	\$14.91	\$18.74	\$9.53	\$2.98	\$105.29
SHEETMETAL WORKERS LOCAL 17	8/1/2025	\$60.98	\$14.91	\$18.74	\$9.53	\$2.98	\$107.14
	2/1/2026	\$62.93	\$14.91	\$18.74	\$9.53	\$2.98	\$109.09

Apprentice: SHEETMETAL WORKER							
Effective Date: 2/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	42.00	\$24.83	\$14.91	\$6.13	\$0.00	\$0.00	\$45.87
2	42.00	\$24.83	\$14.91	\$6.13	\$0.00	\$0.00	\$45.87
3	47.00	\$27.79	\$14.91	\$11.01	\$1.25	\$1.62	\$56.58
4	47.00	\$27.79	\$14.91	\$11.01	\$1.25	\$1.62	\$56.58
5	52.00	\$30.75	\$14.91	\$11.74	\$1.50	\$1.74	\$60.64
6	52.00	\$30.75	\$14.91	\$11.74	\$1.75	\$1.75	\$60.90
7	60.00	\$35.48	\$14.91	\$12.90	\$2.00	\$1.93	\$67.22
8	65.00	\$38.43	\$14.91	\$13.63	\$2.25	\$2.04	\$71.26
9	75.00	\$44.35	\$14.91	\$15.09	\$2.75	\$2.28	\$79.38
10	85.00	\$50.26	\$14.91	\$16.55	\$2.75	\$2.49	\$86.96

Apprentice: SHEETMETAL WORKER							
Effective Date: 8/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	42.00	\$25.61	\$14.91	\$6.13	\$0.00	\$0.00	\$46.65
2	42.00	\$25.61	\$14.91	\$6.13	\$0.00	\$0.00	\$46.65
3	47.00	\$28.66	\$14.91	\$11.01	\$1.25	\$1.62	\$57.45
4	47.00	\$28.66	\$14.91	\$11.01	\$1.25	\$1.62	\$57.45
5	52.00	\$31.71	\$14.91	\$11.74	\$1.50	\$1.74	\$61.60
6	52.00	\$31.71	\$14.91	\$11.74	\$1.75	\$1.75	\$61.86
7	60.00	\$36.59	\$14.91	\$12.90	\$2.00	\$1.93	\$68.33
8	65.00	\$39.64	\$14.91	\$13.63	\$2.25	\$2.04	\$72.47
9	75.00	\$45.74	\$14.91	\$15.09	\$2.75	\$2.28	\$80.77
10	85.00	\$51.83	\$14.91	\$16.55	\$2.75	\$2.49	\$88.53

SPECIALIZED EARTH MOVING EQUIP < 35 TONS	6/1/2025	\$41.24	\$15.57	\$20.17	\$0.00	\$0.00	\$76.98
TEAMSTERS JOINT COUNCIL NO. 10	12/1/2025	\$41.24	\$15.57	\$21.78	\$0.00	\$0.00	\$78.59
	1/1/2026	\$41.24	\$16.17	\$21.78	\$0.00	\$0.00	\$79.19
	6/1/2026	\$42.24	\$16.17	\$21.78	\$0.00	\$0.00	\$80.19
	12/1/2026	\$42.24	\$16.17	\$23.52	\$0.00	\$0.00	\$81.93
	1/1/2027	\$42.24	\$16.77	\$23.52	\$0.00	\$0.00	\$82.53

SPECIALIZED EARTH MOVING EQUIP > 35 TONS	6/1/2025	\$41.53	\$15.57	\$20.17	\$0.00	\$0.00	\$77.27
TEAMSTERS JOINT COUNCIL NO. 10	12/1/2025	\$41.53	\$15.57	\$21.78	\$0.00	\$0.00	\$78.88
	1/1/2026	\$41.53	\$16.17	\$21.78	\$0.00	\$0.00	\$79.48

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
	6/1/2026	\$42.53	\$16.17	\$21.78	\$0.00	\$0.00	\$80.48
	12/1/2026	\$42.53	\$16.17	\$23.52	\$0.00	\$0.00	\$82.22
	1/1/2027	\$42.53	\$16.77	\$23.52	\$0.00	\$0.00	\$82.82
SPRINKLER FITTER SPRINKLER FITTERS LOCAL 550	3/1/2025	\$64.93	\$11.51	\$7.30	\$16.50	\$0.00	\$100.24

Apprentice: SPRINKLER FITTER							
Effective Date: 3/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	35.00	\$22.73	\$11.51	\$13.07	\$0.00	\$0.00	\$47.31
2	40.00	\$25.97	\$11.51	\$13.90	\$0.00	\$0.00	\$51.38
3	45.00	\$29.22	\$11.51	\$14.72	\$0.00	\$0.00	\$55.45
4	50.00	\$32.47	\$11.51	\$15.55	\$0.00	\$0.00	\$59.53
5	55.00	\$35.71	\$11.51	\$16.38	\$0.00	\$0.00	\$63.60
6	60.00	\$38.96	\$11.51	\$17.20	\$0.00	\$0.00	\$67.67
7	65.00	\$42.20	\$11.51	\$18.03	\$0.00	\$0.00	\$71.74
8	70.00	\$45.45	\$11.51	\$18.85	\$0.00	\$0.00	\$75.81
9	75.00	\$48.70	\$11.51	\$19.68	\$0.00	\$0.00	\$79.89
10	80.00	\$51.94	\$11.51	\$20.50	\$0.00	\$0.00	\$83.95

STEAM BOILER OPERATOR OPERATING ENGINEERS LOCAL 4	6/1/2025	\$57.68	\$15.55	\$13.25	\$3.25	\$0.00	\$89.73
	12/1/2025	\$59.12	\$15.55	\$13.25	\$3.25	\$0.00	\$91.17
	6/1/2026	\$60.40	\$15.55	\$13.25	\$3.25	\$0.00	\$92.45
	12/1/2026	\$61.84	\$15.55	\$13.25	\$3.25	\$0.00	\$93.89

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN OPERATING ENGINEERS LOCAL 4	6/1/2025	\$57.68	\$15.55	\$13.25	\$3.25	\$0.00	\$89.73
	12/1/2025	\$59.12	\$15.55	\$13.25	\$3.25	\$0.00	\$91.17
	6/1/2026	\$60.40	\$15.55	\$13.25	\$3.25	\$0.00	\$92.45
	12/1/2026	\$61.84	\$15.55	\$13.25	\$3.25	\$0.00	\$93.89

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

TELECOMMUNICATION TECHNICIAN ELECTRICIANS LOCAL 103	3/1/2025	\$51.41	\$13.00	\$13.92	\$6.98	\$0.00	\$85.31
	9/1/2025	\$52.94	\$13.00	\$13.97	\$6.98	\$0.00	\$86.89
	3/1/2026	\$53.90	\$13.00	\$14.00	\$6.98	\$0.00	\$87.88
	9/1/2026	\$55.42	\$13.00	\$14.04	\$6.98	\$0.00	\$89.44
	3/1/2027	\$56.38	\$13.00	\$14.07	\$6.98	\$0.00	\$90.43
	9/1/2027	\$57.91	\$13.00	\$14.12	\$6.98	\$0.00	\$92.01
	3/1/2028	\$58.87	\$13.00	\$14.15	\$6.98	\$0.00	\$93.00

Apprentice: TELECOMMUNICATION TECHNICIAN							
Effective Date: 3/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	\$23.13	\$13.00	\$0.69	\$0.00	\$0.00	\$36.82

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: TERRAZZO FINISHERS							
Effective Date: 8/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$33.45	\$11.49	\$15.57	\$8.02	\$0.00	\$68.53
2	60.00	\$40.13	\$11.49	\$15.57	\$8.02	\$0.00	\$75.21
3	70.00	\$46.82	\$11.49	\$15.57	\$8.02	\$0.00	\$81.90
4	80.00	\$53.51	\$11.49	\$15.57	\$8.02	\$0.00	\$88.59
5	90.00	\$60.20	\$11.49	\$15.57	\$8.02	\$0.00	\$95.28
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TEST BORING DRILLER LABORERS	6/1/2025	\$51.70	\$9.90	\$9.25	\$9.80	\$0.00	\$80.65
	12/1/2025	\$53.20	\$9.90	\$9.25	\$9.80	\$0.00	\$82.15
	6/1/2026	\$54.75	\$9.90	\$9.25	\$9.80	\$0.00	\$83.70
	12/1/2026	\$56.25	\$9.90	\$9.25	\$9.80	\$0.00	\$85.20
For apprentice rates see "Apprentice- LABORER"							
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TEST BORING DRILLER HELPER LABORERS	6/1/2025	\$47.82	\$9.90	\$9.25	\$9.80	\$0.00	\$76.77
	12/1/2025	\$49.32	\$9.90	\$9.25	\$9.80	\$0.00	\$78.27
	6/1/2026	\$50.87	\$9.90	\$9.25	\$9.80	\$0.00	\$79.82
	12/1/2026	\$52.37	\$9.90	\$9.25	\$9.80	\$0.00	\$81.32
For apprentice rates see "Apprentice- LABORER"							
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TEST BORING LABORER LABORERS	6/1/2025	\$47.70	\$9.90	\$9.25	\$9.80	\$0.00	\$76.65
	12/1/2025	\$49.20	\$9.90	\$9.25	\$9.80	\$0.00	\$78.15
	6/1/2026	\$50.75	\$9.90	\$9.25	\$9.80	\$0.00	\$79.70
	12/1/2026	\$52.25	\$9.90	\$9.25	\$9.80	\$0.00	\$81.20
For apprentice rates see "Apprentice- LABORER"							
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TRACTORS/PORTABLE STEAM GENERATORS OPERATING ENGINEERS LOCAL 4	6/1/2025	\$57.68	\$15.55	\$13.25	\$3.25	\$0.00	\$89.73
	12/1/2025	\$59.12	\$15.55	\$13.25	\$3.25	\$0.00	\$91.17
	6/1/2026	\$60.40	\$15.55	\$13.25	\$3.25	\$0.00	\$92.45
	12/1/2026	\$61.84	\$15.55	\$13.25	\$3.25	\$0.00	\$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
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TRAILERS FOR EARTH MOVING EQUIPMENT TEAMSTERS JOINT COUNCIL NO. 10	6/1/2025	\$41.82	\$15.57	\$20.17	\$0.00	\$0.00	\$77.56
	12/1/2025	\$41.82	\$15.57	\$21.78	\$0.00	\$0.00	\$79.17
	1/1/2026	\$41.82	\$16.17	\$21.78	\$0.00	\$0.00	\$79.77
	6/1/2026	\$42.82	\$16.17	\$21.78	\$0.00	\$0.00	\$80.77
	12/1/2026	\$42.82	\$16.17	\$23.52	\$0.00	\$0.00	\$82.51
	1/1/2027	\$42.82	\$16.77	\$23.52	\$0.00	\$0.00	\$83.11
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TUNNEL WORK - COMPRESSED AIR LABORERS	6/1/2025	\$59.93	\$9.90	\$9.25	\$10.25	\$0.00	\$89.33
	12/1/2025	\$61.43	\$9.90	\$9.25	\$10.25	\$0.00	\$90.83
	6/1/2026	\$62.98	\$9.90	\$9.25	\$10.25	\$0.00	\$92.38
	12/1/2026	\$64.48	\$9.90	\$9.25	\$10.25	\$0.00	\$93.88
For apprentice rates see "Apprentice- LABORER"							
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TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE)	6/1/2025	\$61.93	\$9.90	\$9.25	\$10.25	\$0.00	\$91.33

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
LABORERS	12/1/2025	\$63.43	\$9.90	\$9.25	\$10.25	\$0.00	\$92.83
	6/1/2026	\$64.98	\$9.90	\$9.25	\$10.25	\$0.00	\$94.38
	12/1/2026	\$66.48	\$9.90	\$9.25	\$10.25	\$0.00	\$95.88

For apprentice rates see "Apprentice- LABORER"

TUNNEL WORK - FREE AIR LABORERS	6/1/2025	\$52.00	\$9.90	\$9.25	\$10.25	\$0.00	\$81.40
	12/1/2025	\$53.50	\$9.90	\$9.25	\$10.25	\$0.00	\$82.90
	6/1/2026	\$55.05	\$9.90	\$9.25	\$10.25	\$0.00	\$84.45
	12/1/2026	\$56.55	\$9.90	\$9.25	\$10.25	\$0.00	\$85.95

For apprentice rates see "Apprentice- LABORER"

TUNNEL WORK - FREE AIR (HAZ. WASTE) LABORERS	6/1/2025	\$54.00	\$9.90	\$9.25	\$10.25	\$0.00	\$83.40
	12/1/2025	\$55.50	\$9.90	\$9.25	\$10.25	\$0.00	\$84.90
	6/1/2026	\$57.05	\$9.90	\$9.25	\$10.25	\$0.00	\$86.45
	12/1/2026	\$58.55	\$9.90	\$9.25	\$10.25	\$0.00	\$87.95

For apprentice rates see "Apprentice- LABORER"

VAC-HAUL TEAMSTERS JOINT COUNCIL NO. 10	6/1/2025	\$41.24	\$15.57	\$20.17	\$0.00	\$0.00	\$76.98
	12/1/2025	\$41.24	\$15.57	\$21.78	\$0.00	\$0.00	\$78.59
	1/1/2026	\$41.24	\$16.17	\$21.78	\$0.00	\$0.00	\$79.19
	6/1/2026	\$42.24	\$16.17	\$21.78	\$0.00	\$0.00	\$80.19
	12/1/2026	\$42.24	\$16.17	\$23.52	\$0.00	\$0.00	\$81.93
	1/1/2027	\$42.24	\$16.77	\$23.52	\$0.00	\$0.00	\$82.53

WAGON DRILL OPERATOR LABORERS	6/1/2025	\$42.00	\$9.65	\$9.00	\$8.70	\$0.00	\$69.35
	12/1/2025	\$43.38	\$9.65	\$9.00	\$8.70	\$0.00	\$70.73
	6/1/2026	\$44.82	\$9.65	\$9.00	\$8.70	\$0.00	\$72.17
	12/1/2026	\$46.26	\$9.65	\$9.00	\$8.70	\$0.00	\$73.61
	6/1/2027	\$47.71	\$9.65	\$9.00	\$8.70	\$0.00	\$75.06
	12/1/2027	\$49.16	\$9.65	\$9.00	\$8.70	\$0.00	\$76.51
	6/1/2028	\$50.66	\$9.65	\$9.00	\$8.70	\$0.00	\$78.01
	12/1/2028	\$52.16	\$9.65	\$9.00	\$8.70	\$0.00	\$79.51

For apprentice rates see "Apprentice- LABORER"

WAGON DRILL OPERATOR (HEAVY & HIGHWAY) LABORERS	6/1/2025	\$40.59	\$9.90	\$9.25	\$9.21	\$0.00	\$68.95
	12/1/2025	\$41.97	\$9.90	\$9.25	\$9.21	\$0.00	\$70.33
	6/1/2026	\$43.41	\$9.90	\$9.25	\$9.21	\$0.00	\$71.77
	12/1/2026	\$44.85	\$9.90	\$9.25	\$9.21	\$0.00	\$73.21

For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"

WASTE WATER PUMP OPERATOR OPERATING ENGINEERS LOCAL 4	6/1/2025	\$58.33	\$15.55	\$13.25	\$3.25	\$0.00	\$90.38
	12/1/2025	\$59.78	\$15.55	\$13.25	\$3.25	\$0.00	\$91.83
	6/1/2026	\$61.08	\$15.55	\$13.25	\$3.25	\$0.00	\$93.13
	12/1/2026	\$62.53	\$15.55	\$13.25	\$3.25	\$0.00	\$94.58

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

WATER METER INSTALLER PLUMBERS & GASFITTERS LOCAL 12	3/2/2025	\$69.84	\$14.32	\$12.31	\$8.00	\$0.00	\$104.47
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For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"

Additional Apprentice Information

All apprentices must be registered with the Division of Apprenticeship Training(DAS) in accordance with M.G.L.c. 23, §§ 11E-11L. Minimum wage rates for apprentices employed on public works projects are listed above as a percentage of the hourly prevailing wage rate established by the Commissioner under the provisions of M.G.L.c. 149, §§ 26-27D.

Apprentice ratios are established by DAS pursuant to M.G.L.c. 23, §§ 11E-11L. Ratios are expressed as the allowable number of apprentices to journeymen or fraction thereof, unless otherwise specified. The ratios listed herein have been taken from relevant private collective bargaining agreements(CBAs) and are provided for illustrative purposes only. They have not been independently verified as being accurate or continuing to be accurate.

Parties having questions regarding what ratio to use should contact DAS.

SECTION K

SUPPLEMENTARY TERMS AND CONDITIONS

STATUTORY PROVISIONS FOR MASSACHUSETTS PUBLIC CONSTRUCTION CONTRACTS

The following provisions are required by or are intended to be consistent with requirements of Massachusetts statutes governing public construction contracts in the Commonwealth of Massachusetts (hereinafter referred to as the "Commonwealth"). Any other provisions required by statute to be included herein shall be deemed to be so included. In addition, the parties recognize that other rights, duties, and obligations with respect to public construction contracts are provided for by statute, notwithstanding the fact that they are not provided for in the Contract Documents. In case of conflict between the provisions of these Supplementary General Conditions and other provisions in the Contract Documents, including the Terms and Conditions, the provisions of these Supplementary General Conditions shall govern. In case of conflict between the provisions of these Supplementary General Conditions and the provisions of any applicable statute, the statutory provisions shall govern. Where the term "awarding authority" appears in the following paragraphs, it shall be taken as meaning the Owner.

ARTICLE 1- PAYMENT, CONTRACT ADMINISTRATION, ETC.

1.1 "Or Equal" Paragraph - (Statutory reference: M.G.L. c. 30, §39M(b)). This Paragraph 1.1 applies to every contract for the construction, reconstruction or repair of any public work or for the purchase of any material by the Commonwealth, any political subdivision thereof, or any county, city, City, district or housing authority (above certain dollar limits, as stated in the statute), and to contracts awarded pursuant to M.G.L. c. 149, §§44A through 44I-I. The said §§44A through 44I-I apply to every contract for the construction, reconstruction, installation, demolition, maintenance or repair of any building by a department, agency, board, commission, authority, or other instrumentality of the Commonwealth or political subdivision thereof or two or more subdivisions thereof, but not including the Massachusetts Bay Transportation Authority, estimated to cost more than a dollar amount set forth in M.G.L. c. 149, §44A.

Where products or materials are prescribed by manufacturer name, trade name, or catalog reference, the word "or approved equal" shall be understood to follow. An item shall be considered equal to the item so named or described if, in the opinion of the Architect:

- a. it is at least equal in quality, durability, appearance, strength and design;
- b. it performs at least equally the function imposed in the general design for the work;
- c. it conforms substantially, even with deviations, to the detailed requirements for the items as indicated by the specifications.

Any structural or mechanical changes made necessary to accommodate substituted equipment under this paragraph shall be at the expense of the Contractor or Subcontractor responsible for

the work item. See other paragraphs of the Terms and Conditions and Supplementary Conditions for procedures to be used in determining compliance with the standards of this paragraph.

- 1.2 Delay – (Statutory reference- M.G.L. c. 30, §39O). This Paragraph 1.3 applies to every contract subject to M.G.L. c. 30, §39M and to every contract subject to M.G.L. c. 149, §§44A through 44H.

Except as otherwise provided by law and by this Paragraph 1.2, the Contractor shall not be entitled to damages on account of any hindrances or delays, avoidable or unavoidable; but if such delay be occasioned by the awarding authority, the Contractor may be entitled to an extension of time only, in which to complete the work, to be determined by the Architect.

- (a) The awarding authority may order the Contractor in writing to suspend, delay, or interrupt all or any part of the work for such period of time as it may determine to be appropriate for the convenience of the awarding authority; provided, however, that if there is a suspension, delay or interruption for fifteen days or more or due to a failure of the awarding authority to act within the time specified in this contract, the awarding authority shall make an adjustment in the contract price for any increase in the cost of performance of this contract but shall not include any profit to the Contractor on such increase; and provided further, that the awarding authority shall not make any adjustments in the contract price under this provision for any suspension, delay, interruption or failure to act to the extent that such is due to any cause for which this contract provides for an equitable adjustment of the contract price under any other contract provisions.
- (b) The Contractor must submit the amount of a claim under provision (a) to the awarding authority in writing as soon as practicable after the end of the suspension, delay, interruption or failure to act and, in any event, not later than the date of final payment under this contract, and except for costs due to a suspension order, the awarding authority shall not approve any costs in the claim incurred more than twenty days before the Contractor notified the awarding authority in writing of the act or failure to act involved in the claim.

In the event a suspension, delay, interruption or failure to act of the awarding authority increases the cost of performance to any Subcontractor, that Subcontractor shall have the same rights against the Contractor for payment for an increase in the cost of his performance as provisions (a) and (b) give the Contractor against the awarding authority, but nothing in provisions (a) and (b) shall in any way change, modify or alter any other rights which the Contractor or the Subcontractor may have against each other.

- 1.3 Deviations. (Statutory reference: M.G.L. c. 30, §39I) This Paragraph 1.3 applies to every contract for the construction, alteration, maintenance, repair or demolition of, or addition to, any public building or public works for the Commonwealth or any political subdivision thereof.

The Contractor shall perform all the work required by this Contract in conformity with the plans and specifications contained herein. No willful and substantial deviation from said plans and specifications shall be made unless authorized in writing by the awarding authority or by the Engineer or Architect in charge of the work who is duly authorized by the awarding authority to approve such deviations. In order to avoid delays in the prosecution of the work required by such contract such deviation from the plans or specifications may be authorized by a written order of the awarding authority or such Engineer or Architect so authorized to approve such deviation. Within thirty days thereafter, such written order shall be confirmed by a certificate of the awarding authority stating: (1) If such deviation involves any substitution or elimination of materials, fixtures or equipment, the reasons why such materials, fixtures or equipment were included in the first instance and the reasons for substitution or elimination, and, if the deviation is of any other nature, the reasons for such deviation, giving justification therefor; (2) that the specified deviation does not materially injure the project as a whole; (3) that either the work substituted for the work specified is of the same cost and quality, or that an equitable adjustment has been agreed upon between the awarding authority and the Contractor and the amount in dollars of said adjustment; and (4) that the deviation is in the best interest of the awarding authority.

Such certificate shall be signed under the penalties of perjury and shall be a permanent part of the file record of the work contracted for.

- 1.4 *Finality of Decisions by Awarding Authority or Architect.* (Statutory reference: M.G.L. c. 30, §39J). This Paragraph 1.4 applies to every contract for the construction, reconstruction, alteration, remodeling, repair or demolition of any public building or public works by the Commonwealth or by any county, city, district, board, commission, or other public body, when the amount of the contract exceeds the amount stated in M.G.L. c. 30, §39J.

Notwithstanding any contrary provision of this contract, no decision by the awarding authority or by the Architect on a dispute, whether of fact or of law, arising under said contract shall be final or conclusive if such decision is made in bad faith, fraudulently, capriciously, or arbitrarily, is unsupported by substantial evidence, or is based upon error of law.

- 1.5 *Differing Site Conditions.* (Statutory reference: M.G.L. c. 30, §30N). This Paragraph 1.5 applies to every contract subject to M.G.L. c. 30, §39M and to every contract subject to M.G.L. c. 149, §§44A through 44H.

If, during the progress of the work, the Contractor or the awarding authority discovers that the actual subsurface or latent physical conditions encountered at the site differ substantially or materially from those shown on the plans or indicated in the Contract Documents, either the Contractor or the awarding authority may request an equitable adjustment in the contract price of the contract applying to work affected by the differing site conditions. A request for such an adjustment shall be in writing and shall be delivered by the party making such claim to the other party as soon as possible after such conditions are discovered. Upon receipt of such a claim from a Contractor, or upon its own initiative, the awarding authority shall make an investigation of such physical conditions, and, if they differ substantially or materially from those shown on the plans or indicated in the Contract Documents or from those ordinarily encountered and generally

recognized as inherent in work of the character provided for in the plans and Contract Documents and are of such a nature as to cause an increase or decrease in the cost of performance of the work or a change in the construction methods required for the performance of the work which results in an increase or decrease in the cost of the work, the awarding authority shall make an equitable adjustment in the contract price and the contract shall be modified in writing accordingly,

- 1.6 Timely Decision by Awarding Authority (Statutory reference: M.G.L. c. 30, §39P). This Paragraph 1.6 applies to every contract subject to M.G.L. c. 30, §39M, and to every contract subject to M.G.L. c. 149, §§44A through 44H.

In every case in which this contract requires the awarding authority, any official, its Architect or Engineer to make a decision or interpretation of the specifications, approval of equipment, material or any other approval, or progress of the work, the decision shall be made promptly and, in any event, no later than thirty days after the written submission for decision; but if such decision requires extended investigation and study, the awarding authority, the official, Architect or Engineer shall, within thirty days after receipt of the submission, give the party making the submission written notice of the reasons why the decision cannot be made within the thirty-day period and the date by which the decision will be made.

- 1.7 Direct Payment. (Statutory reference: M.G.L. c. 30, §39F) This Paragraph 1.7 applies to every contract awarded pursuant to M.G.L. c. 149, §§44A through 44H, and (with the exception of Subparagraph 1.7.9) to every contract awarded pursuant to M.G.L. c. 30, §39M.

- 1.7.1 Forthwith after the Contractor receives payment on account of a periodic estimate, the Contractor shall pay to each Subcontractor the amount paid for the labor performed and the materials furnished by that Subcontractor, less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the Subcontractor by the Contractor.
- 1.7.2 Not later than the sixty-fifth day after each Subcontractor substantially completes his work in accordance with the plans and specifications, the entire balance due under the subcontract, less amounts retained by the awarding authority as the estimated cost of completing the incomplete and unsatisfactory items of work, shall be due the Subcontractor; and the awarding authority shall pay that amount to the Contractor. The Contractor shall forthwith pay to the Subcontractor the full amount received from the awarding authority less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the Subcontractor by the Contractor.
- 1.7.3 Each payment made by the awarding authority to the Contractor pursuant to Subparagraphs 1.7.1 and 1.7.2 of this Paragraph 1.7 for the labor performed and the materials furnished by a Subcontractor shall be made to the Contractor for the account of that Subcontractor; and the awarding authority shall take reasonable steps to compel the Contractor to make each such payment to each such Subcontractor. If the awarding authority has received a demand for direct payment from a Subcontractor for any amount which has already been included in a payment to

the Contractor or which is to be included in a payment to the Contractor for payment to the Subcontractor as provided in Subparagraphs 1.7.1 and 1.7.2, the awarding authority shall act upon the demand as provided in this Paragraph 1.7.

- 1.7.4 If, within seventy days after the Subcontractor has substantially completed the subcontract work, the Subcontractor has not received from the Contractor the balance due under the subcontract including any amount due for extra labor and materials furnished to the Contractor, less any amount retained by the awarding authority as the estimated cost of completing the incomplete and unsatisfactory items of work, the Subcontractor may demand direct payment of that balance from the awarding authority. The demand shall be by sworn statement delivered to or sent by certified mail to the awarding authority, and a copy shall be delivered to or sent by certified mail to the Contractor at the same time. The demand shall contain a detailed breakdown of the balance due under the subcontract and also a statement of the status of completion of the subcontract work. Any demand made after substantial completion of the subcontract work shall be valid even if delivered or mailed prior to the seventieth day after the Subcontractor has substantially completed the subcontract work. Within ten days after the Subcontractor has delivered or so mailed a copy to the Contractor, the Contractor may reply to the demand. The reply shall be a sworn statement delivered to or sent by certified mail to the awarding authority, and a copy shall be delivered to or sent by certified mail to the Subcontractor at the same time. The reply shall contain a detailed breakdown of the balance due under the subcontract, including any amount due for extra labor and materials furnished to the Contractor and of the amount due for each claim made by the Contractor against the Subcontractor.
- 1.7.5 Within fifteen days after receipt of the demand by the awarding authority, but in no event prior to the seventieth day after substantial completion of the subcontract work, the awarding authority shall make direct payment to the Subcontractor of the balance due under the subcontract, including any amount due for extra labor and materials furnished to the Contractor, less any amount (i) retained by the awarding authority as the estimated cost of completing the incomplete or unsatisfactory items of work, (ii) specified in any court proceedings barring such payment, or (iii) disputed by the Contractor in the sworn reply; provided that the awarding authority shall not deduct from a direct payment any amount as provided in part (iii) if the reply is not sworn to, or for which the sworn reply does not contain the detailed breakdown required by Subparagraph 1.7.4. The awarding authority shall make further direct payments to the Subcontractor forthwith after the removal of the basis for deduction from direct payments made as provided in parts (i) and (ii) of this Subparagraph.
- 1.7.6 The awarding authority shall forthwith deposit the amounts deducted from a direct payment as provided in part (iii) of Subparagraph 1.7.5 in an interest-bearing joint account in the names of the Contractor and the Subcontractor in a bank in Massachusetts selected by the awarding authority or agreed upon by the Contractor and the Subcontractor and shall notify the Contractor and the Subcontractor of the date of the deposit and the bank receiving the deposit. The bank shall pay the amount in the account, including accrued interest, as provided in an agreement between the Contractor and the Subcontractor or as determined by decree of a court of competent jurisdiction.

- 1.7.7 All direct payments and all deductions from demands for direct payments deposited in an interest-bearing account or accounts in a bank pursuant to Subparagraph 1.7.6 shall be made out of amounts payable to the Contractor at the time of receipt of a demand for direct payment from a Subcontractor and out of amounts which later become payable to the Contractor and in the order of receipt of such demands from subcontractors. All direct payments shall discharge the obligation of the awarding authority to the Contractor to the extent of such payment.
- 1.7.8 The awarding authority shall deduct from payments to a Contractor amounts which, together with the deposits in interest-bearing accounts pursuant to Subparagraph 1.7.6, are sufficient to satisfy all unpaid balances of demands for direct payment received from Subcontractors. All such amounts shall be earmarked for such direct payments, and the Subcontractors shall have a right in such deductions prior to any claims against such amounts by creditors of the Contractor.
- 1.7.9 If the Subcontractor does not receive payment as provided in Subparagraph 1.7.1 or if the Contractor does not submit a periodic estimate for the value of the labor or materials performed or furnished by the Subcontractor and the Subcontractor does not receive payment for same when due less the deductions provided for in Subparagraph 1.7.1, the Subcontractor may demand direct payment by following the procedure in Subparagraph 1.7.4 and the Contractor may file a sworn reply as provided in that same Subparagraph. A demand made after the first day of the month following that for which the Subcontractor performed or furnished the labor and materials for which the Subcontractor seeks payment shall be valid even if delivered or mailed prior to the time payment was due on a periodic estimate from the Contractor. Thereafter the awarding authority shall proceed as provided in Subparagraphs 1.7.5, 1.7.6 and 1.7.8.
- 1.7.10 Any assignment by a Subcontractor of the rights under this section to a surety company furnishing a bond under the provisions of M.G.L. c. 149, §29 shall be invalid. The assignment and subrogation rights of the surety to amounts included in a demand for direct payment which are in the possession of the awarding authority or which are on deposit pursuant to Subparagraph 1.7.6 shall be subordinate to the rights of all Subcontractors who are entitled to be paid under this section and who have not been paid in full.
- 1.7.11 "Subcontractor" as used in this Paragraph 1.7 for contracts awarded as provided in M.G.L. c. 149, §§44A through 44H, inclusive, shall mean a person who files a sub-bid and receives a subcontract as a result of that filed sub-bid or who is approved by the awarding authority in writing as a person performing labor or both performing labor and furnishing materials pursuant to a contract with the Contractor, (ii) for contracts awarded as provided in M.G.L. c. 30, §39M, paragraph (a) shall mean a person approved by the awarding authority in writing as a person performing labor or both performing labor and furnishing materials pursuant to a contract with the general contractor, and (iii) for contracts with the Commonwealth not awarded as provided in M.G.L. c. 149, §§44A through 44H, inclusive, shall also mean a person contracting with the Contractor to supply materials used or employed in a public works project for a price in excess of the amount stated in M.G.L. c. 30, §39F.

- 1.7.12 A Contractor or a Subcontractor shall enforce a claim to any portion of the amount of a demand for direct payment deposited as provided in Subparagraph 1.7.6 by a petition in equity in the superior court against the other and the bank shall not be a necessary party. A Subcontractor shall enforce a claim for direct payment or a right to require a deposit as provided in Subparagraph 1.7.6 by a petition in equity in the superior court against the awarding authority and the Contractor shall not be a necessary party. Upon motion of any party the court shall advance for speedy trial any petition filed as provided in this paragraph. The court shall not consolidate for trial the petition of any Subcontractor with the petition of one or more Subcontractors or the same general contract unless the court finds that a substantial portion of the evidence of the same events during the course of construction (other than the fact that the claims sought to be consolidated arise under the same general contract) is applicable to the petitions sought to be consolidated and that such consolidation will prevent unnecessary duplication of evidence. A decree in any such proceeding shall not include interest on the disputed amount deposited in excess of the interest earned for the period of any such deposit. No person except a Subcontractor filing a demand for direct payment for which no funds due the Contractor are available for direct payment shall have a right to file a petition in a court of equity against the awarding authority claiming a demand for direct payment is premature, and such Subcontractor must file the petition before the awarding authority has made a direct payment to the Subcontractor and has made a deposit of the disputed portion as provided in part (iii) of Subparagraph 1.7.5 and in Subparagraph 1.7.6.
- 1.7.13 In any petition to collect any claim for which a Subcontractor has filed a demand for direct payment the court shall, upon motion of the Contractor, reduce by the amount of any deposit of a disputed amount by the awarding authority as provided in part (iii) of Subparagraph 1.7.5 and in subparagraph 1.7.6 any amount held under a trustee writ or pursuant to a restraining order.

ARTICLE 2 - WAGES AND EMPLOYMENT PRACTICES

- 2.1 *Preference To Veterans and Citizens In Public Work: Rate of Wages.* (Statutory reference: M.G.L. c. 149, §26) This Paragraph applies to every contract or subcontract for the construction of public works by the Commonwealth or by a county, City or district.
- 2.1.1 In the employment of mechanics and apprentices, teamsters, chauffeurs and laborers, preference shall first be given to citizens of the Commonwealth who have been residents of the Commonwealth for at least six months at the commencement of their employment, who are veterans as defined in M.G.L. c. 4, §7, clause 43, and who are qualified to perform the work to which the employment relates; and secondly, to citizens of the Commonwealth generally who have been residents of the Commonwealth for at least six months at the commencement of their employment, and if they cannot be obtained in sufficient numbers, then to citizens of the United States, and every contract for such work shall contain a provision to this effect. Each county, City or district in the construction of public works, or persons contracting or subcontracting for such works, shall give preference to veterans and citizens who are residents of such county, City or district.

2.1.2 The rate per hour of the wages paid to said mechanics and apprentices, teamsters, chauffeurs and laborers in the construction of public works shall not be less than the rate or rates of wages to be determined by the Commissioner of Labor and Industries as hereinafter provided; provided, that the wages paid to laborers employed on said works shall not be less than those paid to laborers in the municipal service of the City where said works are being constructed; provided, further, that where the same public work is to be constructed in two or more Cities, the wages paid to laborers shall not be less than those paid to laborers in the municipal service of the City paying the highest rate; provided further, that if, in any of the Cities where the works are to be constructed, a wage rate or wage rates have been established in certain trades and occupations ' by collective agreements or understandings between organized labor and employers, the rate or rates to be paid on said works shall not be less than the rates so established; provided, further, that in Cities where no such rate or rates have been so established, the wages paid to mechanics, teamsters, chauffeurs and laborers on public works, shall not be less than the wages paid to the employees in the same trades and occupations by private employers engaged in the construction industry. This section shall also apply to regular employees of the Commonwealth or a county, City or district, when such employees are employed in the construction, addition to or alteration of public buildings for which special appropriations of more than one thousand dollars are provided, Payments by employers to health and welfare plans, pension plans and supplementary unemployment benefit plans under collective bargaining agreements or understandings between organized labor and employers shall be included for the purpose of establishing minimum wage rates as herein provided.

2.2 List of Jobs; Classification; Determination of Rate of Wages; Schedule. (Statutory reference: M.G.L. c. 149, §27) This Paragraph applies to every contract or subcontract for the construction of public works by the Commonwealth, or by a county, City or district.

The Commissioner of Labor and Industries shall prepare, for the use of such public officials or public bodies whose duty it shall be to cause public works to be constructed, a list of the several jobs usually performed on various types of public works upon which mechanics and apprentices, teamsters, chauffeurs and laborers are employed. The Commissioner shall classify said jobs, and he may revise such classifications from time to time, as he may deem advisable. Prior to awarding a contract for the construction of public works, said public official or public body shall submit to the Commissioner a list of the jobs upon which mechanics are to be employed, and shall request the Commissioner to determine the rate of wages to be paid on each job. The Commissioner, subject to the provisions of Paragraph 2.1 of these Supplementary General Conditions, shall proceed forthwith to determine the same, and shall furnish said official or public body with a schedule of such rate or rates of wages as soon as said determination shall have been made. In advertising or calling for bids for said works, the awarding official or public body shall incorporate said schedule in the advertisement or call for bids by an appropriate reference thereto, and shall furnish a copy of said schedule without cost, to any person requesting the same. Said schedule shall be made a part of the contract for said works and shall continue to the minimum rate or rates of wages for said employees during the life of the contract. Any person engaged in the construction of said works shall cause a legible copy of said schedule to be kept posted in a conspicuous place at the site of said works during the life of the contract. The aforesaid rates of wages in

the schedule of wage rates shall include payments by employers to health and welfare plans, pension plans and supplementary unemployment benefit plans as provided in the previous section, and such payments shall be considered as payments to persons under this section performing work as herein provided. Any employer engaged in the construction of such works who does not make payments to a health and welfare plan, a pension plan and a supplementary unemployment benefit plan, where such payments are included in said rates of wages, shall pay the amount of said payments directly to each employee engaged in said construction. Note: The awarding authority does not guarantee the accuracy of any schedule of wage rates furnished to the Contractor hereunder, and the Contractor shall be responsible for ascertaining the prevailing wages in the area where the work will be performed.

2.3 Employment Records To Be Kept By Contractor, Subcontractors; Statement of Compliance. (Statutory reference: M.G.L. c. 149, §27B) This Paragraph applies to every contract or subcontract for the construction of public works by the Commonwealth, or by a country, City or district.

Every Contractor, Subcontractor or public body engaged in said public works to which paragraph 2.2 of these Supplementary General Conditions applies shall keep a true and accurate record of all mechanics and apprentices, teamsters, chauffeurs and laborers employed thereon, showing the name, address and occupational classification of each such employee, and shall furnish to the Commissioner of Labor and Industries, upon his request, a copy of said record, signed by the employer or his authorized agent under the penalties of perjury. Such records shall be open to inspection by any authorized representative of the Department of Labor and Industries at any reasonable time, and as often as may be necessary.

Each such Contractor, Subcontractor or public body shall preserve its payroll records for a period of three years from the date of completion of the contract.

Each such Contractor, Subcontractor or public body shall furnish to the Commissioner of Labor and Industries within fifteen days after completion of its portion of the work a statement, executed by the Contractor, Subcontractor, or a public body who supervises the payment of wages, in the following form:

STATEMENT OF COMPLIANCE

I, _____, do hereby state:
(Name of Signatory Party) (Title)

that I pay or supervise the payment of the persons employed by

(Contractor, Subcontractor or Public Body)

on the _____ and that all mechanics and apprentices, teamsters,
(building or project)

chauffeurs and laborers employed on said projects have been paid in accordance with wages determined under the provisions of sections twenty-six and twenty-seven of chapter one hundred and forty-nine of the General Laws.

Signature _____

Title _____

The above-mentioned copies of payroll records and statements of compliance shall be available for inspection by any interested party filing a written request to the Contractor for such inspections.

2.4 Wages Paid to Operators of Trucks and Other Equipment. (Statutory reference: M.G.L, c. 149, §27F) This Paragraph applies to every contract for the construction of public works by the Commonwealth, or by a county, city, town or district. prescribed rates of wages, as determined by the Commissioner of Labor and Industries, shall be paid to the operators of all trucks, vehicles or equipment employed on the Project. Said rates of wages shall be requested of said Commissioner by the awarding authority and shall be furnished by the Commissioner in a schedule containing the classification of jobs, and the rate of wage to be paid for each job. Said rates of wages shall include payments to health and welfare plans, or, if no such plan is in effect between employers and employees, the amount of such payments shall be paid directly to said operators.

2.5 Reserve Police Officers. (Statutory reference: M.G.L. c. 149, §34B) This Paragraph 2.5 applies to every contract for the construction, alteration, maintenance, repair or demolition of, or addition to, any public works for the Commonwealth or any political subdivision thereof.

The Contractor shall pay to any reserve police officer employed by him in any city or Town the prevailing rate of wages paid to regular police officers in such city or town.

2.6 Lodging, etc. (Statutory reference: M.G.L. c. 149, §25) This paragraph applies to every contract for the doing of public work with the Commonwealth, a county, city, or town, or with a department, board, commission, or officer acting therefor.

Every employee under this Contract shall lodge, board and trade where and with whom he elects, and neither the Contractor nor his agents or employees shall, either directly or indirectly, require as a condition of the employment of any person that the employee shall lodge, board or trade at a particular place or with a particular person.

2.7 Access To Contractor's Records (Executive Order No. 195) This Paragraph applies to every contract for the purchase of services or materials by any agency, bureau, board, commission, institution, or department of the Commonwealth.

The Governor or his designee, the secretary of administration and finance, and the state auditor or his designee shall have the right at reasonable times and upon reasonable notice to examine the books, records and other compilations of data of the Contractor which pertain to the performance and requirements of this contract.

- 2.8 Worker's Compensation Insurance (Statutory reference; M.G.L. c. 149, §34A) This Paragraph 2.8 applies to every contract for the construction, alteration, maintenance, repair or demolition of, or addition to, any public building or other public works for the Commonwealth or any political subdivision thereof.

The Contractor shall, before commencing performance of the contract, provide by insurance for the payment of compensation and the furnishing of other benefits under M.G.L. c. 152 to all persons to be employed under the contract, and the Contractor shall continue such insurance in full force and effect during the term of the contract. Sufficient proof of compliance with this Paragraph 2.8 must be furnished at the time of execution of this contract. Failure to provide and continue in force such insurance as aforesaid shall be deemed a material breach of the contract and shall operate as an immediate termination thereof. No cancellation of such insurance, whether by the insurer or by the insured, shall be valid unless written notice thereof is given by the party proposing cancellation to the other party and to the awarding authority at least fifteen days prior to the intended effective date thereof, which date shall be expressed in said notice.

ARTICLE 3 - EQUAL EMPLOYMENT OPPORTUNITY

(Statutory reference: M.G.L. c. 151B) Subparagraph 3.2 applies to all contractors employing six or more persons.

- 3.1 Definitions. For purposes of this contract, "Commission" refers to the Massachusetts Commission Against Discrimination.
- 3.2 Non-Discrimination. During the performance of this contract, the Contractor and all of (his) Subcontractors (hereinafter collectively referred to as the Contractor), for himself, his assignees, and successors in interest, agree as follows:

In connection with the performance of work under this contract, the Contractor shall not discriminate against any employee or applicant for employment because of race, color, religious creed, national origin, age or sex, sexual orientation, which shall not include persons whose orientation involves minor children as the sex object, genetic information, or ancestry of any individual. The aforesaid provision shall include, but not be limited to, the following; employment upgrading, demotion, or transfer; recruitment advertising; recruitment layoff; termination; rates of pay or other forms of compensation; conditions or privileges of employment; and selection for apprenticeship. The Contractor shall post hereafter in conspicuous places, available for employees and applicants for employment, notices to be provided by the Commission setting forth the provisions of the Fair Employment Practices Law of the Commonwealth.

ARTICLE 4 - CONTRACTOR'S ACCOUNTING METHOD REQUIREMENTS (Statutory reference: M.G.L. c. 30, §39R)

This Article 4 applies to "Contracts" and "Contractors" as defined in Subparagraphs 4.1.1 and 4.1.2 below.

- 4.1 The words defined herein shall have the meaning stated below whenever they appear in this Article 4:
- 4.1.1 "Contractor" means any person, corporation, partnership, joint venture, sole proprietorship, or other entity awarded a contract pursuant to §39M of c. 30, §§ 44A-44H inclusive, of c. 149, and §§38A1/2 – 38O, inclusive, of c.7.
- 4.1.2 "Contract" means any contract awarded or executed pursuant to §§38A1/2 – 30O, inclusive, of c. 7, and any contract awarded or executed pursuant to §39M of c. 30, or §§44A-44H, inclusive, of c. 149, which is for an amount or estimated amount that exceeds the dollar amount set forth in M.G.L. c. 30, §39R.
- 4.1.3 "Records" means books of original entry, accounts, checks, bank statements and all other banking documents, correspondence, memoranda, invoices, computer printouts, tapes, discs, papers and other documents or transcribed information of any type, whether expressed in ordinary or machine language.
- 4.1.4 "Independent Certified Public Accountant" means a person duly registered in good standing and entitled to practice as a certified public accountant under the laws of the place of his/her residence or principal office and who is in fact independent, In determining whether an accountant is independent with respect to a particular person, appropriate consideration should be given to all relationships between the accountant and that person or any affiliate thereof. Determination of an accountant's independence shall not be confined to the relationships existing in connection with the filing of reports with the awarding authority.
- 4.1.5 "Audit", when used in regard to financial statements, means an examination of records by an independent certified public accountant in accordance with generally accepted accounting principles and auditing standards for the purpose of expressed a CERTIFIED opinion thereon, or, in the alternative, a qualified opinion or a declination to express an opinion for stated reasons.
- 4.1.6 "Accountant's Report" when used in regard to financial statements, means a document in which an independent certified public accountant indicates the scope of the audit which he/she has made and sets forth his/her opinion regarding the financial statements taken as a whole with a listing of noted exceptions and qualifications, or an assertion to the effect that an overall opinion cannot be expressed. When an overall opinion cannot be expressed the reason therefor shall be stated. An accountant's report shall include as a part thereof a signed statement by the responsible corporate officer attesting that management has fully disclosed

all material facts to the independent certified public accountant, and that the audited financial statement is a true and complete statement of the financial condition of the Contractor.

- 4.1.7 "Management" when used herein, means the chief executive officers, partners, principals, or other person or persons primarily responsible for the financial and operational policies and practices of the Contractor.
- 4.1.8 Account terms, unless otherwise defined herein, shall have a meaning in accordance with generally accepted accounting principals and auditing standards.
- 4.2 Subparagraph 4.1.2 hereof notwithstanding, every agreement or contract awarded or executed pursuant to §§38A1/2 – 30O, inclusive, of c.7, and pursuant to §39M of c. 30 or to §§44A-44H, inclusive of c. 149, shall provide that:
 - 4.2.1 The Contractor shall make, and keep for at least six years after final payment, books, records, and accounts which in reasonable detail accurately and fairly reflect the . transactions and dispositions of the Contractor.
 - 4.2.2 Until the expiration of six years after final payment, the awarding authority, office of inspector general, and the deputy commissioner of capital planning and operations shall have the right to examine any books, documents, papers or records of the Contractor or his/her Subcontractors that directly pertain to, and involve transactions relating to, the Contractor or his/her Subcontractors.
 - 4.2.3 If the agreement is a contract as defined herein, the Contractor shall describe any change in the method of maintaining records or recording transactions which materially affect any statements filed with the awarding authority, including in his/her description the date of the change and reasons therefor, and shall accompany said description with a letter from the Contractor's independent certified public accountant approving or otherwise commenting on the changes.
 - 4.2.4 If the agreement is a contract as defined herein, the Contractor has filed a statement of . management on internal accounting controls as set forth in Paragraph 4.3 below prior to the execution of the contract.
 - 4.2.5 If the agreement is a contract as defined herein, the Contractor has filed prior to the execution of the contracts and will continue to file annually, an audited financial statement for the most recent completed fiscal year as set forth in Paragraph 4.5 below.
- 4.3. Every Contractor awarded a contract shall file with the awarding authority a statement of management as to whether the system of internal accounting controls of the Contractor and its subsidiaries reasonably assures that:
 - 4.3.1 Transactions are executed in accordance with management's general and specific authorization;
 - 4.3.2 Transactions are recorded as necessary:

- (i) to permit preparation of financial statements in conformity with generally accepted accounting principals, and
 - (ii) to maintain accountability for assets;
- 4 3.3 access to assets is permitted only in accordance with management's general or specific authorization; and
- 4.3.4 the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action was taken with respect to any difference.
- 4.4 Every Contractor awarded a contract shall also file with the awarding authority a statement prepared and signed by an independent certified public accountant, stating that he/she has examined the statement of management or internal accounting controls, and expressing an opinion as to
- 4.4.1 whether the representations of management in response to this paragraph and Paragraph 4.2 above are consistent with the result of management's evaluation of the system of internal accounting controls; and
- 4.4.2 whether such representations of management are, in addition, reasonable with respect to transactions and assets in amounts which would be material when measured in relation to the applicant's financial statements.
- 4.5 Every Contractor awarded a contract by the Commonwealth or by any political subdivision thereof shall annually file with the awarding authority during the term of the contract a financial statement prepared by an independent certified public accountant on the basis of an audit by such accountant. The final statement filed shall include the date of final payment. All statements shall be accompanied by an accountant's report.

ARTICLE 5 - MISCELLANEOUS

- 5.1 Foreign Corporations. This Paragraph applies to every contract with the Commonwealth, a county, city, City, district, board, commission, or other public body for the construction, reconstruction, alteration, remodeling, repair, or demolition of any public building or other public works.

The Contractor, if a foreign corporation, shall comply with M.G.L. c. 181, §§3 and 5, and c. 30, §39L.

- 5.2 Certification of Compliance with Tax Laws. (Statutory reference: M.G.L. c. 62c, §49A) This Paragraph 5.5 applies to contracts for goods or services furnished to any department, board, commission, division, authority, district or other agency of the Commonwealth or any subdivision of the Commonwealth, including a city, City or district.

By executing this contract, the Contractor certifies, under penalties of perjury, that to the best of his information, knowledge, and belief, he has complied with all laws of the Commonwealth relating to taxes.

SECTION L
PLANS AND SPECIFICATIONS

MERRIMAC POWER & LIGHT OFFICE RENOVATION



10 W MAIN STREET
MERRIMAC, MA 01860

BID AND PERMIT DRAWING SUBMISSION MAY 12, 2025

ABBREVIATIONS

ALUM	ALUMINUM
ARCH	ARCHITECTURAL
BM	BEAM
BOTT.	BOTTOM
C/C	CENTER TO CENTER
CIP	CAST-IN-PLACE
<	CENTER LINE
CJ	CONTROL JOINT
CONC	CONCRETE
CONT	CONTINUOUS
CMU	CONCRETE MASONRY UNITS
GF CMU	GROUND FACE CMU
SF CMU	SPLIT FACE CMU
~	DIAMETER
DS	DOWNSPOUT
EA	EACH
EIFS	EXTERIOR INSUL & FINISH SYSTEM
EF	EACH FACE
EL	ELEVATION
EQ	EQUAL
ETR	EXISTING TO REMAIN
EXIST	EXISTING
EXP	EXPANSION
FE	FIRE EXTINGUISHER
FG	FINISHED FLOOR GRADE
FIN.	FINISH(ED)
FD	FLOOR DRAIN
FF	FINISHED FLOOR
FL	FLOOR
FRP	FIBERGLASS REINF. PLASTIC
FRGWB	FIRE RESISTANT GWB
GWB	GYPSUM WALLBOARD
HM	HOLLOW METAL FRAME
HP	HIGH POINT
HB	HOSE BIB
HORIZ.	HORIZONTAL
ID	INSIDE DIAMETER
INSUL	INSULATION
LGS	LIGHT GAUGE STEEL
LP	LOW POINT
L's	ANGLES
MAX.	MAXIMUM
MIN.	MINIMUM
OH	OPPOSITE HAND
PLAM	PLASTIC LAMINATE
P&S	POLE AND SHELF
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PTD	PAINTED
SIM	SIMILAR
SS	STAINLESS STEEL
SQ.	SQUARE
STD.	STANDARD
STRUC.	STRUCTURAL
TBD	TO BE DETERMINED
TJI	TRUSS JOIST I-JOIST
T.O.W.	TOP OF WALL
TYP.	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VF	VERIFY IN FIELD
VERT	VERTICAL
WI	WITH

SYMBOLS

	REFERENCE BUILDING SECTION DRAWING SHEET
	REFERENCE DETAIL DRAWING SHEET
	REFERENCE DRAWING SHEET
	REFERENCE INTERIOR ELEVATION DRAWING SHEET
	WINDOW TAG
	DOOR TAG
	PARTITION TYPE TAG
	REVISION TAG
	COLUMN GRID
	CENTER LINE

GENERAL REQUIREMENTS

- THE CONTRACTOR SHALL STRICTLY CONFORM WITH ALL CODES HAVING JURISDICTION IN THE CONSTRUCTION OF THIS PROJECT, INCLUDING, BUT NOT LIMITED TO: FEDERAL, STATE, CITY, COUNTY, BUILDING, ZONING, ELECTRICAL, MECHANICAL, FIRE, LIFE SAFETY, AND HANDICAP CODES. ALL WORK MUST BE PERFORMED BY LICENSED AND INSURED CONTRACTORS AND SUBCONTRACTORS. INSURANCE CERTIFICATES, IN WRITING, WILL BE PRESENTED TO THE ARCHITECT PRIOR TO THE START OF CONSTRUCTION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE VERIFICATION OF ALL DIMENSIONS, EXISTING CONDITIONS, AND CODE COMPLIANCE. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS. IF THE CONTRACTOR FINDS ANY DISCREPANCIES IN THE DRAWINGS OR SPECIFICATIONS HE MUST CONTACT THE ARCHITECT FOR VERIFICATION. PITMAN AND WARDLEY ASSOCIATES LLC SHALL BE NOTIFIED IN WRITING OF ANY NON-CONFORMANCES IN THE SITE PLANS OR SPECIFICATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR BRINGING ANY ERRORS AND OMISSIONS TO THE ATTENTION OF PITMAN AND WARDLEY ASSOCIATES LLC IN WRITING AND SHALL AWAIT WRITTEN INSTRUCTIONS BEFORE PROCEEDING. THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS IF THEY FAIL TO NOTIFY PITMAN AND WARDLEY PRIOR TO THE CONSTRUCTION AND OR FABRICATION OF WORK.
- SCOPE: THE CONTRACTOR SHALL FURNISH AND INSTALL ALL MATERIALS AND LABOR TO COMPLETE THE WORK AS DESCRIBED ON THE DRAWINGS AND SPECIFICATIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PERMITS, COMPLIANCE STATEMENTS, CERTIFICATE OF OCCUPANCY OR OTHER DOCUMENTATION REQUIRED.
- WORK SHALL BE PERFORMED TO THE HIGHEST LEVEL OF STANDARDS OF EACH RESPECTIVE TRADE.
- DEMOLISH AS REQUIRED AND REMOVE ALL DEBRIS FROM THE SITE.
- THE CONTRACTOR SHALL KEEP THE PREMISES CLEAN AND IN A WORKMANLIKE FASHION. THE PROJECT SHALL BE READY FOR OCCUPANCY UPON THE COMPLETION OF WORK IN A "TURN-KEY" CONDITION.
- CONSTRUCTION SHALL BE BY DIMENSIONS DO NOT SCALE OFF OF THESE DRAWINGS.
- SHOP DRAWINGS MAY BE REQUIRED BY THE ARCHITECT FOR ALL STRUCTURAL, MECHANICAL, ELECTRICAL, LIFE SAFETY SYSTEMS, AND SPECIALIZED CONSTRUCTION FROM THE CONTRACTOR AND/OR ALL SUBCONTRACTORS AT NO ADDITIONAL COST. SHOP DRAWINGS SHALL BE SUBMITTED TO PITMAN AND WARDLEY ASSOCIATES LLC FOR REVIEW AND CONFORMANCE WITH THE SYSTEMS AND THEIR INTEGRATION WITH EXISTING SYSTEMS AND CONDITIONS. WORK DONE TO LIFE SAFETY SYSTEMS MAY REQUIRE SEPARATE PERMITS. THESE SHALL BE INCLUDED IN THE BASE BID.
- THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING THE STRUCTURAL INTEGRITY OF THE BUILDING AT ALL TIMES.
- THE CONTRACTOR SHALL NOTIFY PITMAN AND WARDLEY ASSOCIATES LLC IMMEDIATELY UPON THE DISCOVERY OF ANY ENVIRONMENTALLY HAZARDOUS MATERIALS AND OR CONDITIONS.
- THESE PLANS HAVE BEEN PRODUCED TO MASSACHUSETTS STATE BUILDING CODE ENERGY STANDARDS. ANY ADDITIONAL STRETCH CODE COMPLIANCE SHALL BE THE RESPONSIBILITY OF THE OWNER/CONTRACTOR.
- ALL DEMOLITION AND REMOVAL OF BUILDING COMPONENTS SHALL BE CARRIED OUT UNDER ACCORDANCE WITH THE EPA'S RENOVATE RIGHT LAWS.

PROJECT DATA

BUILDING:	780 CMR: MASSACHUSETTS BUILDING CODE (10TH EDITION) (2021 INTERNATIONAL BUILDING CODE, AMENDED) (2021 INTERNATIONAL EXISTING BUILDING CODE, AMENDED)
ENERGY:	2021 INTERNATIONAL ENERGY CONSERVATION CODE, AMENDED
FIRE:	527 CMR: MASSACHUSETTS FIRE PREVENTION REGULATIONS (2021 NFPA-1, AMENDED)
ELECTRICAL:	527 CMR 12.00: MASSACHUSETTS ELECTRICAL CODE (2023 NATIONAL ELECTRICAL CODE, AMENDED)
MECHANICAL:	2021 INTERNATIONAL MECHANICAL CODE
PLUMBING:	248 CMR 10.00: MASSACHUSETTS PLUMBING CODE (2023)

BUILDING CODE CRITERIA:	
BUILDING USE GROUP	B
CONSTRUCTION CLASSIFICATION	5B

BUILDING SQUARE FOOTAGE CALCULATIONS:	
NO CHANGE	

LIFE SAFETY SYSTEMS:
ALL LIFE SAFETY IS TO BE SUPPLIED AND INSTALLED BY THE GENERAL CONTRACTOR. THE SYSTEM SHALL BE APPROVED BY THE LOCAL FIRE DEPARTMENT AND CONNECTED TO THE LOCAL FIRE ALARM SYSTEM.

ELECTRICAL SYSTEMS:
ALL ELECTRICAL WORK INDICATED OR OTHERWISE REQUIRED SHALL BE PROVIDED AS SPECIFIED IN THE CONTRACT DOCUMENTS.

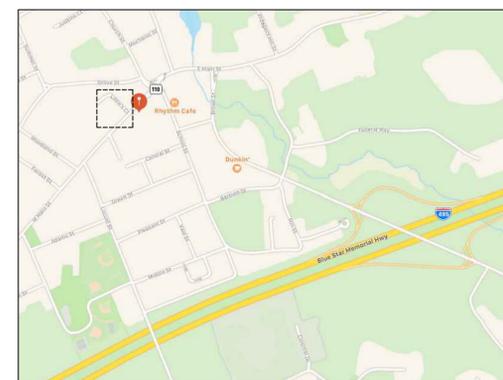
MECHANICAL SYSTEMS:
ALL MECHANICAL SYSTEMS SHALL BE SUPPLIED AND INSTALLED BY THE GENERAL CONTRACTOR

SCOPE OF WORK:
THE SCOPE OF WORK UNDER THIS PERMIT IS THE INTERIOR RENOVATION OF A COMMERCIAL OFFICE.

DRAWING INDEX

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A2.1	INTERIOR ELEVATIONS AND FINISH SCHEDULE
A3.1	TYPICAL WALL SECTIONS, PARTITION TYPES AND DETAILS
A4.1	DOOR AND WINDOW SCHEDULES
E1.1	PROPOSED REFLECTED CEILING PLAN
E1.2	PROPOSED LIFE SAFETY PLAN

VICINITY MAP



PROJECT OWNER

PROJECT TEAM

ARCHITECT
PITMAN & WARDLEY ASSOCIATES, LLC.
32 CHURCH STREET, 3RD FLOOR
SALEM, MA 01970
978-744-8982

MERRIMAC POWER & LIGHT OFFICE RENOVATION

10 W MAIN STREET,
MERRIMAC, MA 01860

SUBMISSION

**BID AND PERMIT DRAWINGS
DRAWINGS ISSUED FOR REVIEW
MAY 12, 2025**

THIS SET OF DRAWINGS IS FOR MUNICIPAL REVIEW ONLY AND IS NOT INTENDED FOR CONSTRUCTION. DO NOT START CONSTRUCTION WITHOUT A SEALED SET OF CONSTRUCTION DOCUMENTS.

REVISION	ISSUE	DATE
----------	-------	------

DRAWN BY
CHECKED BY

STAMP

DRAWING TITLE
COVER SHEET

SHEET NUMBER

A0.0

ARCHITECTURAL
All drawings and written material appearing herein constitute original unpublished work, and may not be distributed, used or disclosed without the written consent of Pitman & Wardley Associates, LLC.

PROJECT OWNER

PROJECT TEAM

ARCHITECT
PITMAN & WARDLEY ASSOCIATES, LLC.
32 CHURCH STREET, 3RD FLOOR
SALEM, MA 01970
978-744-8982

**MERRIMAC POWER & LIGHT
OFFICE RENOVATION**
10 W MAIN STREET,
MERRIMAC, MA 01860

SUBMISSION
**BID AND PERMIT DRAWINGS
DRAWINGS ISSUED FOR REVIEW
MAY 12, 2025**

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DRAWING TITLE
**DEMOLITION FLOOR PLAN
& REFLECTED CEILING PLAN**

SHEET NUMBER

AD1.1

ARCHITECTURAL
All drawings and written material appearing herein constitute original unpublished work, and may not be distributed, used or disclosed without the written consent of Pitman & Wardley Associates, LLC.

GENERAL NOTE:

GENERAL CONTRACTOR SHALL REVIEW ALL EXISTING ON-SITE FRAMING CONDITIONS AND BASEMENT EXCAVATION WORK WITH ARCHITECT AND STRUCTURAL ENGINEER BEFORE AND AFTER DEMOLITION. ALL BEARING WALLS AND FLOOR STRUCTURES SHALL BE PROPERLY SHORED UP AND SUPPORTED PRIOR TO START OF DEMOLITION. CONTRACTOR SHALL COORDINATE ALL DEMOLITION SEQUENCING WITH STRUCTURAL ENGINEER AND ARCHITECT.

GENERAL DEMOLITION NOTES:

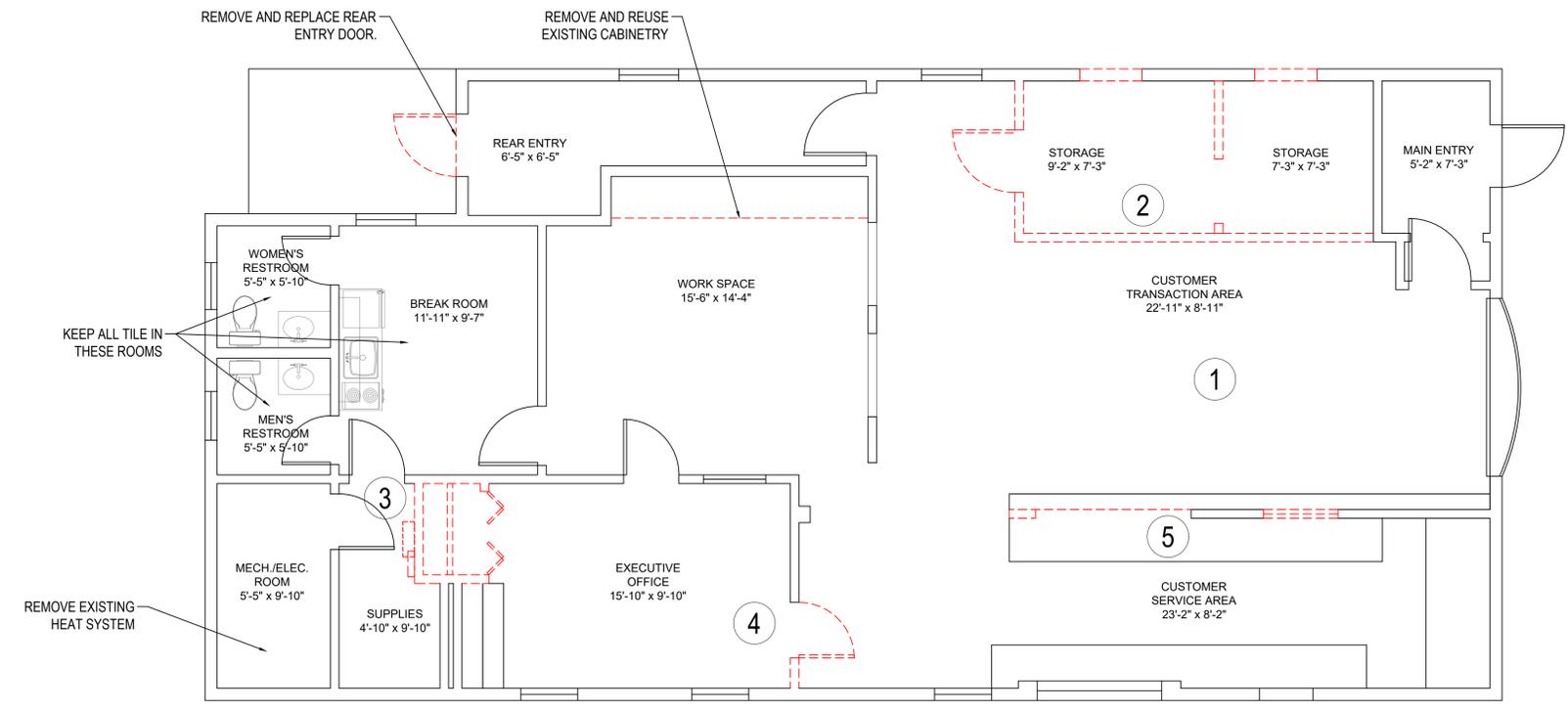
- ELEMENTS OR PORTIONS OF ELEMENTS TO BE REMOVED ARE SHOWN DASHED. REFER TO KEY NOTES FOR ADDITIONAL CLARIFICATION FOR PARTIALLY REMOVED OR REUSED ELEMENTS. RETURN UNUSED DOORS, HARDWARE, AND ACCESSORIES TO OWNER.
- VERIFY EXISTING CONDITIONS OF SPACE PRIOR TO DEMOLITION WORK.
- AREAS OF DEMOLITION ARE APPROXIMATE. GENERAL CONTRACTOR TO COORDINATE DEMOLITION WITH EXISTING CONDITIONS, NEW CONSTRUCTION, AND ADDITIONAL SCOPE OF WORK INCLUDED IN MECHANICAL, PLUMBING, AND ELECTRICAL DOCUMENTS.
- WALL DEMOLITION TO INCLUDE FRAMING, SHEATHING, FINISHES AND ALL APPURTENANCES.
- ANY HIDDEN STRUCTURAL COLUMNS OR SUPPORT IS TO BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO REMOVAL. ANY BUILDING SUPPORT WHICH DEVIATES FROM THAT SHOWN OR IS IN QUESTION IS TO BE BROUGHT TO ARCHITECT'S ATTENTION IMMEDIATELY.
- REFER TO MECHANICAL, PLUMBING, AND ELECTRICAL DOCUMENTS FOR REMOVAL AND CAPPING OF SERVICES FOR ITEMS SHOWN TO BE REMOVED.
- REMOVE ALL ABANDONED ACCESSORIES AND DEVICES NOT OTHERWISE NOTED. PATCH DRYWALL AND PREP FOR NEW FINISHES.
- CONTRACTOR SHALL BE RESPONSIBLE FOR SECURITY OF BUILDING CONTENTS AS WELL AS BUILDING MATERIALS STORED ON SITE DURING CONSTRUCTION.
- DEMOLISH EXISTING ELECTRICAL DEVICES, CONDUIT AND CONDUCTORS IN WALLS TO BE REMOVED. ALL FEEDER CIRCUIT CONDUCTORS SHALL BE DEMOLISHED BACK TO PANEL. CONDUIT ABOVE CEILING BACK TO PANEL MAY BE REUSED AS COORDINATED WITH WORK FROM OTHER TRADES.
- EXISTING CONSTRUCTION TO REMAIN SHALL BE PROTECTED DURING DEMOLITION AND NEW WORK CONSTRUCTION ACTIVITIES. PROTECT EXISTING FLOORING AND FINISHES TO REMAIN.
- THE EXTENT OF DEMOLITION INDICATED IS BASED ON AS BUILT DRAWINGS PROVIDED BY THE OWNER AND FIELD OBSERVATIONS. ANY DISCREPANCIES BETWEEN ACTUAL CONDITIONS AND THOSE INDICATED ARE TO BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AS SOON AS DISCREPANCIES ARE DISCOVERED.
- DEMOLITION PLANS AND ELEVATIONS SHOW THE INTENT OF DEMOLITION TO BE PERFORMED. ALL DASHED ITEMS ARE TO BE DEMOLISHED COMPLETE. CONTRACTOR SHALL INCLUDE ALL DEMOLITION, CUTTING AND PATCHING REQUIRED FOR NEW CONSTRUCTION. REFER TO OTHER DISCIPLINES (CIVIL STRUCTURAL, MECHANICAL, ELECTRICAL, PLUMBING AND FIRE PROTECTION) DEMOLITION DRAWINGS FOR ADDITIONAL ITEMS TO BE DEMOLISHED. THE CONTRACTOR SHALL REPORT ANY DISCREPANCIES BETWEEN DISCIPLINES DEMOLITION AND NEW WORK TO THE ARCHITECT. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO SHORE, BRACE AND/OR SECURE MATERIALS AND STRUCTURE TO REMAIN.
- WHERE EXISTING WALL, CEILING, ROOF OR FLOOR SYSTEMS ARE TO REMAIN AND ARE DISTURBED BY DEMOLITION, THEY SHALL BE REPAIRED AS REQUIRED TO MATCH ORIGINAL INTEGRITY AND ADJACENT CONSTRUCTION.
- CONTRACTOR TO REMOVE ALL ABANDONED OR UNNECESSARY PIPING, DUCT, WIRING CONDUIT AND/OR ANCHORS COMPLETE.
- CONTRACTOR SHALL FURNISH, INSTALL AND MAINTAIN IN SAFE CONDITIONS AT ALL TIMES TEMPORARY PROTECTION REQUIRED TO ENSURE SAFETY FOR PERSONS AND PROPERTY DURING DEMOLITION AND REMOVAL WORK.
- FURNISH, INSTALL AND MAINTAIN DUST COVERING TO PREVENT THE SPREAD OF DUST BEYOND THE IMMEDIATE AREA WHERE DEMOLITION IS BEING PERFORMED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND TEMPORARY RELOCATION OF ALL LIFE SAFETY SYSTEMS INCLUDING FIRE / SMOKE ALARM AS REQUIRED DURING DEMOLITION AND CONSTRUCTION PHASES.

DEMOLITION PLAN NOTES:

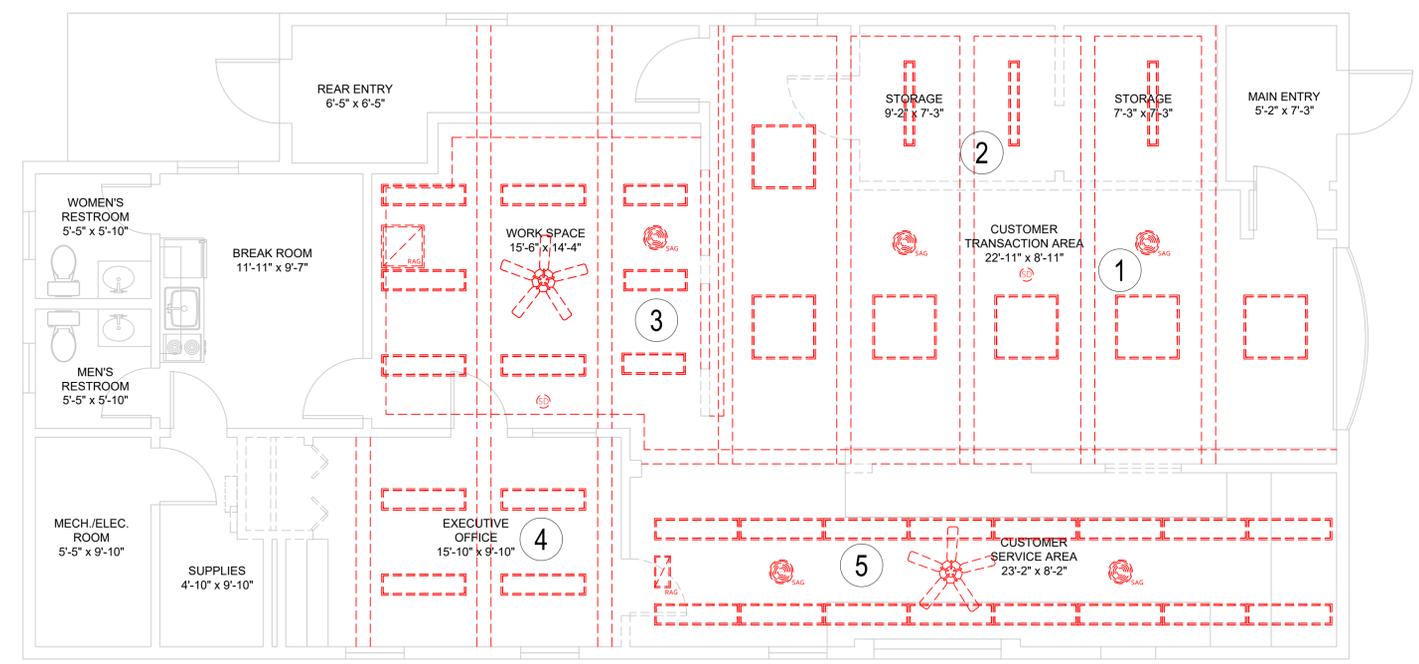
- REMOVE ALL CARPET AND FAKE WOOD THROUGHOUT. (LEAVE ALL BRICK THROUGHOUT)
- DEMO EXISTING WALLS AND DOOR IN STORAGE ROOMS AS SHOWN.
- DEMO EXISTING WALL, REMOVE AND RELOCATE FAP.
- DEMO EXISTING DOOR AND WALL BACK TO EXTERIOR WALL.
- CUT WALL DOWN TO COUNTER TOP HEIGHT, DEMO TRANSACTION WINDOW AND INFILL.

DEMOLITION RCP NOTES:

- DEMO EXISTING CEILING, FAUX BEAMS, DECORATIVE COVE LEDGE THROUGHOUT AND EXISTING LIGHTING IN TRANSACTION AREA.
- DEMO EXISTING CEILING & LIGHTING IN STORAGE ROOMS.
- DEMO EXISTING CEILING, LIGHTING, CEILING FAN AND DECORATIVE COVE LEDGE THROUGHOUT.
- DEMO EXISTING CEILING, LIGHTING, FAUX BEAMS & DECORATIVE COVE LEDGE IN EXECUTIVE OFFICE.
- DEMO EXISTING CEILING, LIGHTING & CEILING FAN IN CUSTOMER SERVICE AREA.



1 DEMO FLOOR PLAN
1/4" = 1'-0"



2 DEMO REFLECTED CEILING PLAN
1/4" = 1'-0"

PROJECT OWNER

PROJECT TEAM

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DRAWING TITLE
PROPOSED FLOOR PLAN

SHEET NUMBER

A1.1

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GENERAL ARCHITECTURAL PLAN NOTES

- WHEN SPECIFIC FEATURES OF CONSTRUCTION ARE NOT FULLY SHOWN ON THE DRAWINGS OR CALLED FOR IN THE GENERAL NOTES, THEIR CONSTRUCTION SHALL BE OF THE SAME CHARACTER AS SIMILAR CONDITIONS.
- ALL DIMENSIONS ARE TO BE TAKEN FROM NUMERIC DESIGNATIONS ONLY. DIMENSIONS ARE NOT TO BE SCALED OFF THE DRAWINGS.
- ALL INTERIOR DIMENSIONS ARE CENTER TO CENTER OF FRAMED 2X WALL, UNLESS OTHERWISE NOTED.
- ALL GYPSUM BOARD SURFACES ARE TO BE ½" THICK AT CEILINGS AND ½" AT INTERIOR WALLS UNLESS OTHERWISE NOTED.
- ALL GYPSUM AND PLASTER FINISHES SHOULD BE SMOOTH, CONTINUOUS, FREE OF IMPERFECTIONS, AND HAVE NO VISIBLE JOINTS.
- PROVIDE GAS, WATER SPOGOT, OUTLET AND LIGHTING AT ROOF DECK AND PATIO.
- ALL CLOSETS SHALL HAVE POLE AND SHELF OR SHELVES AS REQUIRED, UNLESS OTHERWISE NOTED.
- ALL REQUIRED LIFE SAFETY DEVICES, INCLUDING SMOKE AND CARBON MONOXIDE DETECTORS AND HEAT DETECTORS, SHALL BE INSTALLED BY THE CONTRACTOR IN COMPLIANCE WITH THE 2015 INTERNATIONAL BUILDING CODE.
- CONTRACTOR SHALL COORDINATE LIGHTING AND SPRINKLER REQUIREMENTS WITH ARCHITECT PRIOR TO INSTALLATION.
- ALL DOORS SHALL BE FRAMED 5" FROM PARTITION UNLESS OTHERWISE NOTED.
- CONTRACTOR SHALL REFER TO THE CABINET DESIGNER DRAWINGS FOR FINAL CABINET DESIGN AND LAYOUT LOCATIONS.
- ANY DISCREPANCIES BETWEEN ACTUAL CONDITIONS AND THOSE INDICATED ARE TO BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AS SOON AS DISCREPANCIES ARE DISCOVERED.
- UTILITY AND APPLIANCE REQUIREMENTS ARE TO BE CONFIRMED BY THE CONTRACTOR WITH THE MANUFACTURERS SPECIFICATIONS.

GENERAL WINDOW & HARDWARE NOTES:

- CONTRACTOR SHALL VERIFY WINDOW SCHEDULE WITH MANUFACTURER, OWNER AND ARCHITECT PRIOR TO CONSTRUCTION.
- VERIFY UNIT CLEAR OPENING WITH MANUFACTURER THAT THE OPENING SHALL COMPLY WITH CMR 3603.10.4
- PROVIDE TEMPERED GLASS AS REQUIRED BY CODE.
- ALL WINDOWS ARE TO HAVE UV PROTECTION WITH LOW-E GLASS.
- ALL HARDWARE TO BE BY SUBMITTAL W/ OWNER.
- SUBMIT WINDOW ORDER AND SAMPLE TO OWNER AND ARCHITECT FOR APPROVAL PRIOR TO PURCHASE.
- WINDOWS SHALL COMPLY WITH ALL SHORELINE WIND LOADING REQUIREMENTS AS NECESSARY.
- ALL OPERABLE WINDOWS MUST BE EQUIPPED WITH WINDOW OPENING LIMITING DEVICES THAT DO NOT INHIBIT EMERGENCY ESCAPE.
- PROVIDE BETTERVIEW MESH INSECT SCREENS WHERE INDICATED ON WINDOW SCHEDULE.

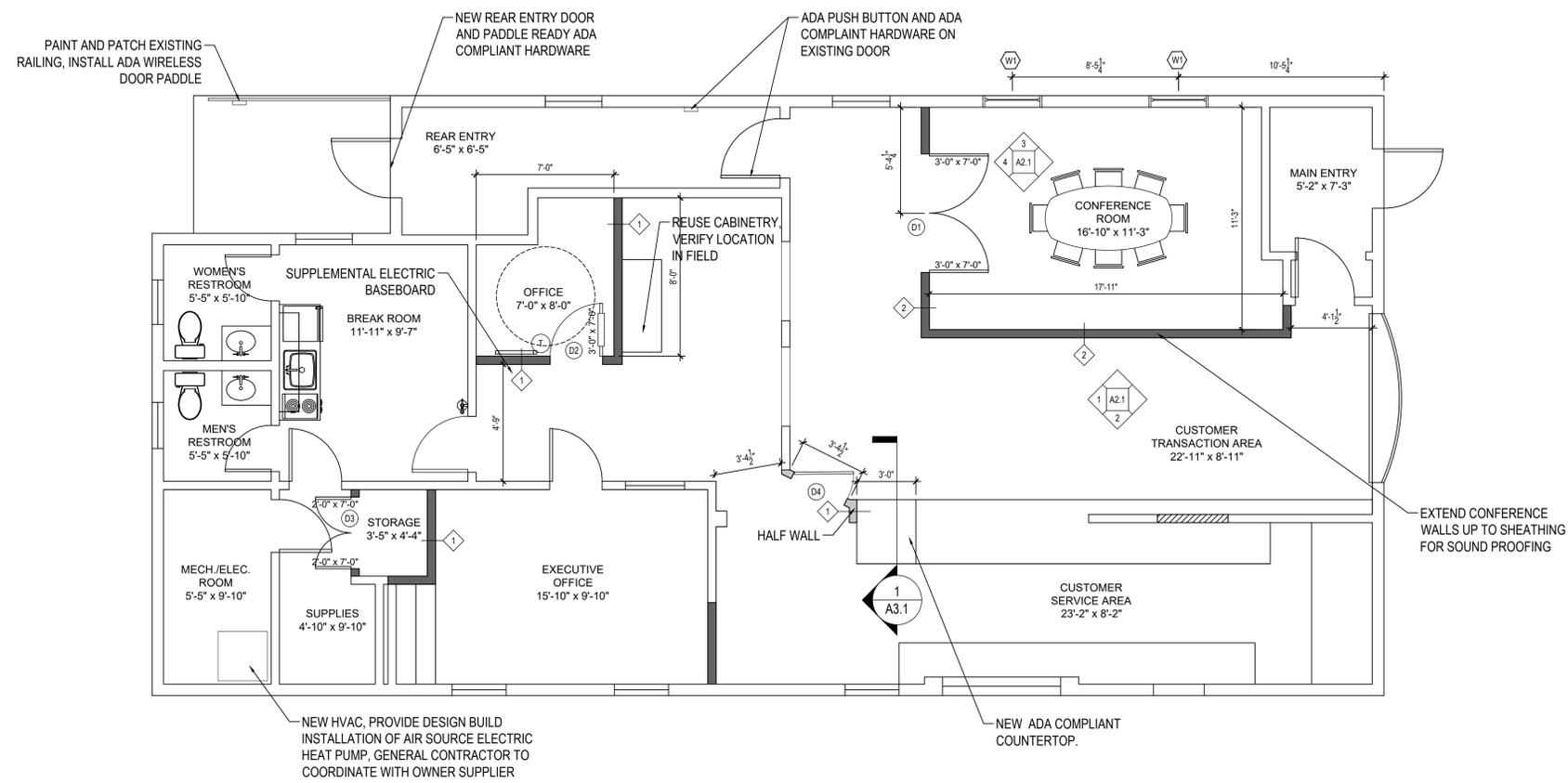
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- ALL DOOR HARDWARE SHALL MATCH THE BUILDING DESIGN STANDARDS.
- DOOR HARDWARE SHALL BE MOUNTED BETWEEN 30 INCHES AND 44 INCHES ABOVE FINISHED FLOOR SURFACE.

ALL GLAZING AND SIDELITES TO BE CLEAR TEMPERED GLAS

WALL LEGEND

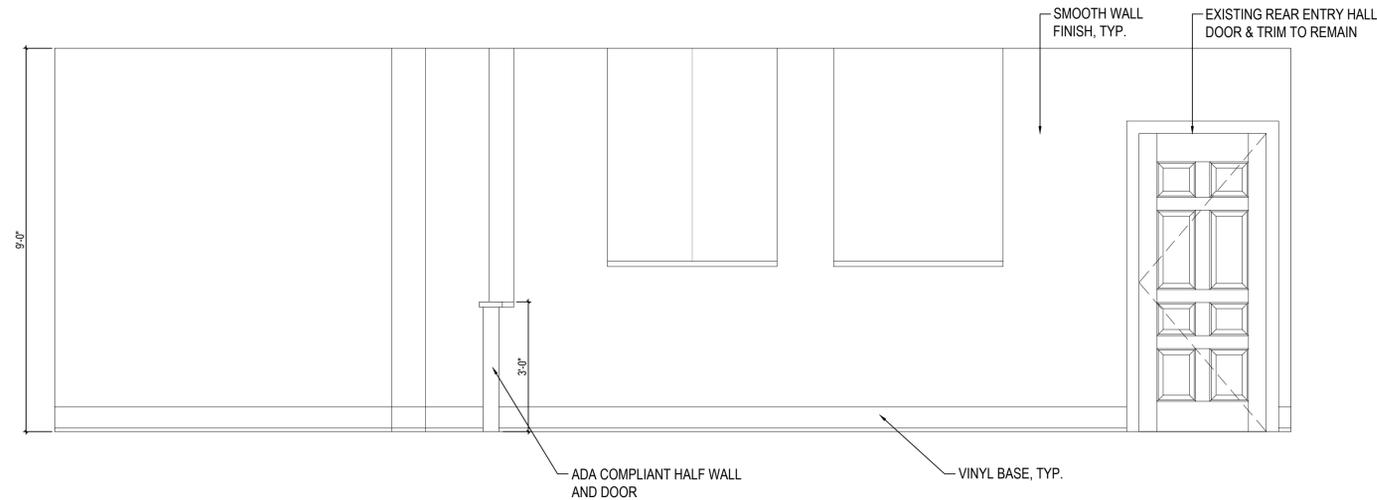
- NEW 2X WALL
- NEW HALF WALL
- INFILL WALL



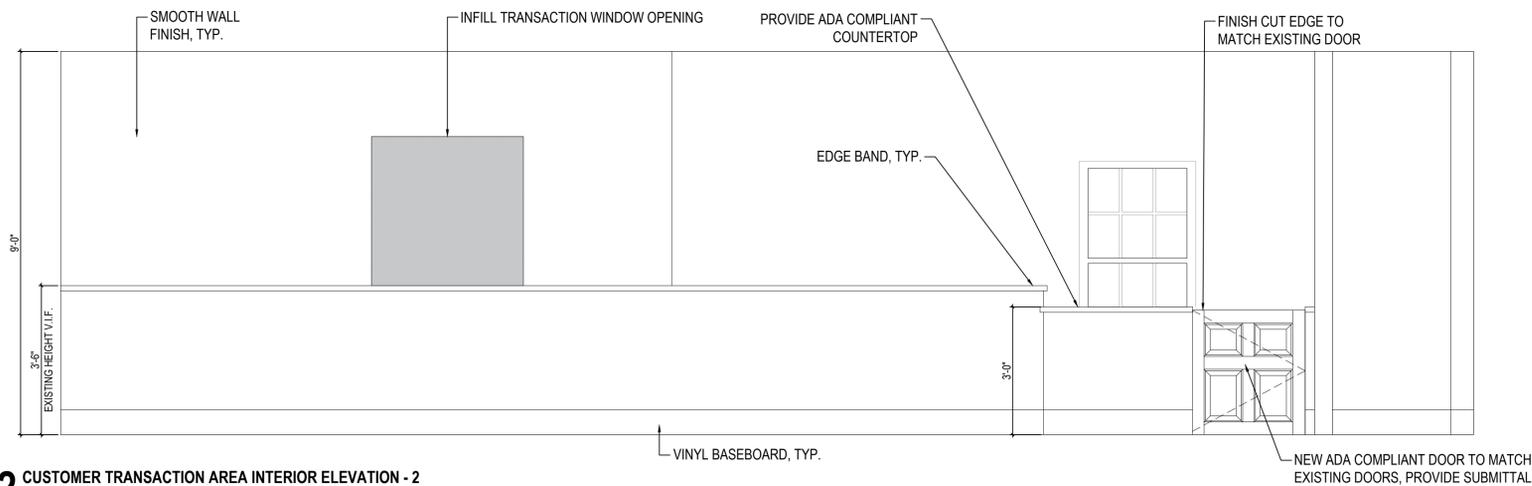
1 PROPOSED FLOOR PLAN
1/4" = 1'-0"

ROOM FINISH SCHEDULE					
ROOM NAME	FLOORING MATERIAL	CEILING MATERIAL	BASE BOARD MATERIAL	WALL FINISHES	COMMENTS
CONFERENCE ROOM	BRICK	FINELINE 2X2' ACT	VINYL	SMOOTH PAINTED GWB	ALL WALLS AND TRIM TO BE PAINTED.
CUSTOMER TRANSACTION AREA	BRICK	FINELINE 2X2' ACT	VINYL	SMOOTH PAINTED GWB	ALL WALLS AND TRIM TO BE PAINTED.
CUSTOMER SERVICE AREA	CARPET \$45/YD (ALLOWANCES ARE FOR MATERIAL COST ONLY, CONTRACTOR SHALL INCLUDE IN BASE BID)	FINELINE 2X2' ACT	VINYL	SMOOTH PAINTED GWB	ALL WALLS AND TRIM TO BE PAINTED.
OFFICE	CARPET \$45/YD (ALLOWANCES ARE FOR MATERIAL COST ONLY, CONTRACTOR SHALL INCLUDE IN BASE BID)	FINELINE 2X2' ACT	VINYL	SMOOTH PAINTED GWB	ALL WALLS AND TRIM TO BE PAINTED.
EXECUTIVE OFFICE	CARPET \$45/YD (ALLOWANCES ARE FOR MATERIAL COST ONLY, CONTRACTOR SHALL INCLUDE IN BASE BID)	FINELINE 2X2' ACT	VINYL	SMOOTH PAINTED GWB	ALL WALLS AND TRIM TO BE PAINTED.
SUPPLIES	CARPET \$45/YD (ALLOWANCES ARE FOR MATERIAL COST ONLY, CONTRACTOR SHALL INCLUDE IN BASE BID)	FINELINE 2X2' ACT	VINYL	SMOOTH PAINTED GWB	ALL WALLS AND TRIM TO BE PAINTED.

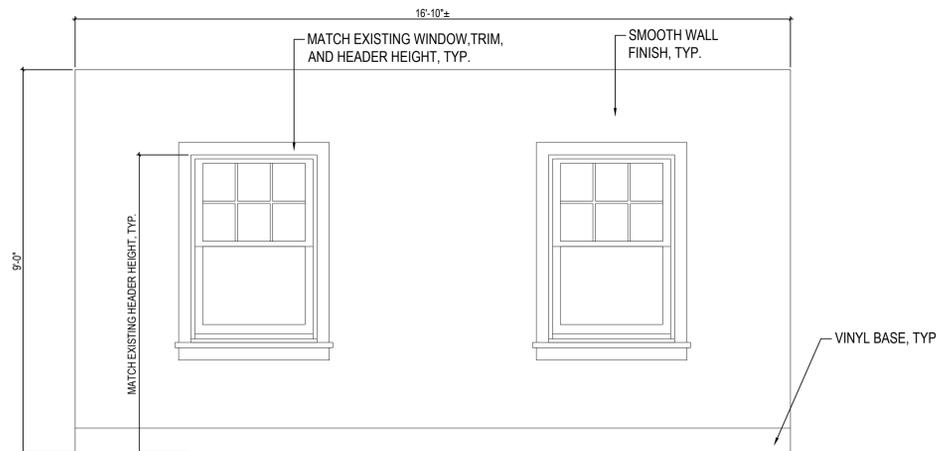
EXISTING BRICK TO REMAIN IN ALL AREAS, CLEAN AND SEAL ALL BRICK



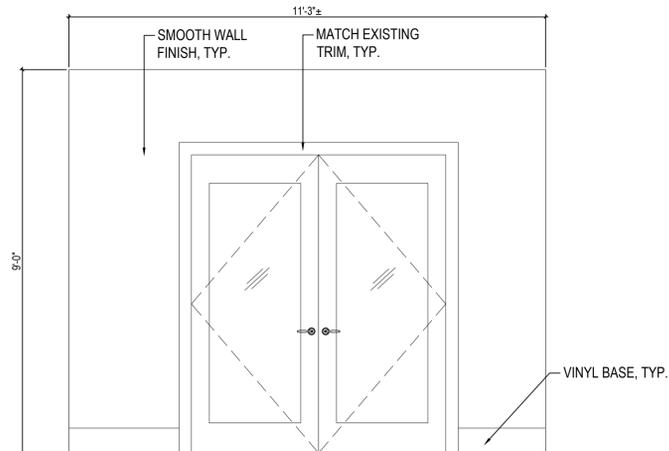
1 CUSTOMER TRANSACTION AREA INTERIOR ELEVATION - 1
1/2" = 1'-0"



2 CUSTOMER TRANSACTION AREA INTERIOR ELEVATION - 2
1/2" = 1'-0"



3 CONFERENCE ROOM INTERIOR ELEVATION - 1
1/2" = 1'-0"



4 CONFERENCE ROOM INTERIOR ELEVATION - 2
1/2" = 1'-0"

GENERAL INTERIOR FINISH NOTES:

- PROVIDE, STORE AND INSTALL ALL SPECIFIED FINISH MATERIALS IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS AND RECOMMENDATIONS.
- COMPLIANCE WITH THE MANUFACTURERS REQUIREMENTS FOR HANDLING, STORAGE, INSTALLATION AND PROTECTION IS THE EXCLUSIVE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND HIS RESPECTIVE INSTALLERS.
- ALL FINISH MATERIALS AND FINISH ASSEMBLIES SHALL CONFORM TO THE REQUIREMENTS OF ALL CODES AND REGULATIONS OF ALL GOVERNING AUTHORITIES HAVING JURISDICTION. ALL FINISHES MUST HAVE A FLAME SPREAD RATING, AND A SMOKE GENERATION RATING AS DETERMINED BY ASTM.
- ALL FINISH MATERIALS SHALL BE NEW, FIRST QUALITY MATERIALS NORMALLY AVAILABLE FROM THE MANUFACTURER.
- PREPARE ALL SURFACES SCHEDULED TO RECEIVE NEW FINISHES IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS AND RECOMMENDATIONS.
- ALL WALLS AND SURFACES RECEIVING PAINT AND WALL COVERINGS, ETC. SHALL BE PROPERLY PREPARED PRIOR TO FINISH INSTALLATION AS PER MANUFACTURERS SPECIFICATIONS. ALL JOISTS OR OTHER GYPSUM METAL TRIM SHALL BE SPACKLED AND BLENDED INTO ADJACENT SURFACE.
- ALL SEAMS AND JOINTS OF FINISH MATERIALS SHALL BE STRAIGHT, SMOOTH AND CLEAN.
- NON-MATCHING WALL COVERINGS SHALL BE HUNG SMOOTH BY APPLYING STRIPS TO THE WALL WITH OVERLAPPING EDGES AND DOUBLE CUTTING THROUGH BOTH THICKNESSES. REMOVE EXCESS PASTE FROM EACH SEAM AS IT IS MADE AND BEFORE PROCEEDING TO THE NEXT SEAM.
- THE RESPECTIVE INSTALLER SHALL ADVISE THE ARCHITECT AND OWNER OF LOCATIONS OF CHANGES IN DYE LOTS, BATCHES OR SIMILAR COLOR SHIFTS.
- BEFORE PROCEEDING WITH PROCUREMENT, THE RESPECTIVE INSTALLER SHALL FIELD VERIFY DIMENSIONS TO ASSURE SUFFICIENT QUANTITIES OF MATERIALS TO COMPLETE THE WORK.
- NON SUBSTITUTIONS OF SPECIFIED FINISH MATERIALS WILL BE ALLOWED WITHOUT PRIOR WRITTEN APPROVAL OF THE ARCHITECT AND OWNER.
- ONLY WHERE INDICATED 'EQUAL TO' OR 'SUBSTITUTIONS' FOR SPECIFIED MATERIALS, OR FOR LONG LEAD TIME CONSIDERATION SHALL SUBSTITUTIONS BE CONSIDERED BY THE ARCHITECT AND OWNER.
- FLASH PATCH ALL AREAS WHERE FLOOR SURFACES ARE NOT SMOOTH, LEVEL OR TRUE, PRIOR TO FINISH FLOOR INSTALLATION.
- ALL FINISH FLOOR TRANSITIONS SHALL OCCUR AT THE CENTERLINE OF DOORS OR CASED OPENINGS, UNLESS OTHERWISE NOTED.
- ALL RESILIENT BASE TO BE ROLLED GOODS. GC TO USE STRAIGHT BASE AT CARPETED AREAS AND COVER BASE AT RESILIENT FLOORS, UNLESS OTHERWISE NOTED.
- SUBMIT CARPET SEAMING DIAGRAM FOR ARCHITECTS APPROVAL. SHOW GRAIN DIRECTION, FILLS AND T SEAMS ARE NOT ALLOWED.
- FINISHES CALLED FOR SHALL EXTEND OVER, UNDER, AND OR BEHIND ANY ITEM OF BUILT IN MILLWORK, EQUIPMENT, MIRRORS, ETC. AS INDICATED ON THE DRAWINGS. WALLCOVERINGS SHALL NOT HAVE SEAMS WITHIN SIX INCHES OR A CORNER, CUT INSIDE CORNERS ARE NOT PERMITTED.

GENERAL ARCHITECTURAL PLAN NOTES

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- ALL GYPSUM BOARD SURFACES ARE TO BE 1/2" THICK AT CEILINGS AND 5/8" AT INTERIOR WALLS UNLESS OTHERWISE NOTED.
- ALL GYPSUM AND PLASTER FINISHES SHOULD BE SMOOTH, CONTINUOUS, FREE OF IMPERFECTIONS, AND HAVE NO VISIBLE JOINTS.
- PROVIDE GAS, WATER SPOGOT, OUTLET AND LIGHTING AT ROOF DECK AND PATIO
- ALL CLOSETS SHALL HAVE POLE AND SHELF OR SHELVES AS REQUIRED, UNLESS OTHERWISE NOTED.
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- SUBMIT WINDOW ORDER AND SAMPLE TO OWNER AND ARCHITECT FOR APPROVAL PRIOR TO PURCHASE.
- WINDOWS SHALL COMPLY WITH ALL SHORELINE WIND LOADING REQUIREMENTS AS NECESSARY.
- ALL OPERABLE WINDOWS MUST BE EQUIPPED WITH WINDOW OPENING LIMITING DEVICES THAT DO NOT INHIBIT EMERGENCY ESCAPE.
- PROVIDE BETTERVUE MESH INSECT SCREENS WHERE INDICATED ON WINDOW SCHEDULE.

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 - DOOR HARDWARE SHALL BE MOUNTED BETWEEN 30 INCHES AND 44 INCHES ABOVE FINISHED FLOOR SURFACE.
- ALL GLAZING AND SIDELITES TO BE CLEAR TEMPERED GLAS

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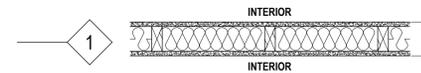


DRAWING TITLE
INTERIOR ELEVATIONS & FINISH SCHEDULE

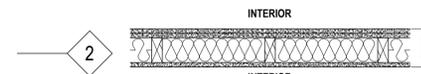
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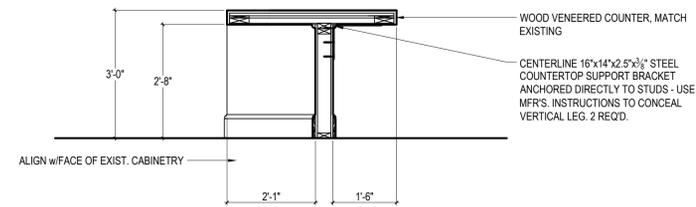
ARCHITECTURAL
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- TYPICAL 2X4 INTERIOR WALL PARTITION:**
- 2X4 WOOD STUDS @ 16" O.C.
 - (1) LAYER 5/8" TYPE X GWB W/ SMOOTH FINISH ON BOTH SIDES
 - DURAROCK AT ALL TILED WALLS
 - PROVIDE ACOUSTICAL PERIMETER SEALANT AT ALL WALL, CEILING, FLOOR CONNECTIONS



- TYPICAL 2X4 INTERIOR SOUND PROOFING WALL PARTITION:**
- (2) LAYERS 5/8" TYPE X GWB W/ SMOOTH FINISH ON ROOM SIDE
 - 2X4 WOOD STUDS @ 16" O.C.
 - (1) LAYER 5/8" TYPE X GWB W/ SMOOTH FINISH
 - PROVIDE ACOUSTICAL PERIMETER SEALANT AT ALL WALL, CEILING, FLOOR CONNECTIONS



1 ADA COUNTERTOP SECTION
1/2" = 1'-0"

GENERAL PARTITION NOTES

1. SEE FLOOR PLANS FOR PARTITION TAGS AND LOCATIONS.
2. SEE FLOOR PLANS FOR LOCATION OF SOUND ATTENUATION.
3. PARTITION TYPE DETAILS SHOW ONLY PRINCIPLE COMPONENTS AND REQUIREMENTS. RATED PARTITIONS WITH UL DESIGN NUMBERS MAY HAVE ADDITIONAL COMPONENTS.
4. RATED PARTITIONS SHALL HAVE UL HEAD DESIGNS, SEALANTS, AND FILL OF THE SAME RATING.
5. ALL THROUGH-WALL PENETRATIONS MUST BE COMPLETED TO PREVENT DIRECT CONTACT WITH FRAMING MEMBERS AND SHALL BE ACOUSTICALLY SEALED WITH A RESILIENT, NON-HARDENING CAULK IF THE PENETRATION IS THROUGH A FIRE-RATED PARTITION. AN ACOUSTICAL FIRE-RATED CAULK SHALL BE USED.
6. SEE STRUCTURAL DRAWINGS AND SPECIFICATIONS FOR REINFORCING, BRACING AND OTHER SPECIAL REQUIREMENTS.
7. PROVIDE FOR LATERAL BRACING AND CROSS-BRIDGING AS RECOMMENDED BY THE STUD MANUFACTURER FOR EACH CONDITION.
8. COORDINATE FINISHES APPLIED TO PARTITIONS WITH THE OWNER AND ARCHITECT.
9. PROVIDE BLOCKING AT LOCATIONS INCLUDING BUT NOT LIMITED TO CASEWORK, SHELVE, COUNTERTOPS, CABINETS, DOOR STOPS, HANDRAIL BRACKETS, TELEVISION LOCATIONS, BATHROOM ACCESSORIES, ETC. WHERE INDICATED, SPECIFIED OR REQUIRED TO PROVIDE A SOLID BASE.
10. SUBSTITUTE MOISTURE-RESISTANT GYPSUM BOARD AT ALL BATHROOM AND LAUNDRY ROOM LOCATIONS.
11. WHERE TWO OR MORE LAYERS OF GYPSUM BOARD ARE USED, BOTH HORIZONTAL AND VERTICAL JOINTS SHALL BE STAGGERED.
12. GLASS FIBER INSULATION SHOULD BE UN-FINISHED AND SECURED TO STRUCTURE TO PREVENT SAGGING.
13. MANY OF THE ASSEMBLIES RECOMMENDED HAVE FLOATING ELEMENTS. GAPS ARE DESIGNED INTO THE JUNCTION BETWEEN WALL AND CEILING PANELS, AND AT FLOOR AND WALL JUNCTIONS AND MOLDINGS. IT IS EXTREMELY IMPORTANT THAT THE FLOATING CEILING PANELS DO NOT CONTACT THE WALL PANELS AT THE WALL/CEILING CORNERS, AND THAT FLOATING WALL PANELS DO NOT CONTACT NON-FLOATING PANELS OR THE FLOOR. THE GAPS AT THE CORNERS MUST BE SEALED WITH ACOUSTICAL CAULK.
14. ELECTRICAL AND LOW VOLTAGE (TELEPHONE/CABLE) SERVICE BOXES INSTALLED ON OPPOSITE SIDES OF A WALL SHOULD BE PLACED IN SEPARATE STUD OR FURRING BAYS. SERVICE BOXES SHOULD NOT BE DIRECTLY ACROSS FROM EACH OTHER, BACK TO BACK.
15. ALL ELECTRICAL CONNECTIONS TO LIGHTING FIXTURES IN FLOATING (SPRING HUNG) CEILINGS OR MOUNTED ON WALLS SHOULD BE VIBRATION ISOLATED, BY USING COILED WIRE WITH ADEQUATE SLACK OR OTHER MEANS TO AVOID RIGID CONDUIT ATTACHMENT.
16. ALL MECHANICAL SERVICE PENETRATIONS (FOR EXAMPLE, FIRE SPRINKLER PIPES, IF NEEDED) IN CEILINGS SHOULD HAVE 1/2 INCH OF CLEAR SPACE BETWEEN THE DUCT OR PIPE AND THE CEILING STRUCTURE. THAT SPACE SHOULD BE SEALED BY PACKING WITH A LAYER OF GLASS FIBER INSULATION FOR THE FULL DEPTH OF PENETRATION. BOTH SIDES OF THE PENETRATION SHOULD BE SEALED AIR TIGHT USING NON-HARDENING RESILIENT (SILICONE) SEALANT PER ASTM D919. AN ANNULAR METAL SLEEVE, ATTACHED USING NON-HARDENING RESILIENT SEALANT, SHOULD BE USED FOR PENETRATION GAPS OVER 1 INCH.
17. IF SOUND ATTENUATION BLANKETS ARE INDICATED EXTEND THE GYPSUM BOARD UP TO THE UNDERSIDE OF THE DECK ABOVE AND SEAL THE GYPSUM BOARD TO THE DECK WITH ACOUSTICAL SEALANT.

NOTE: CONTRACTOR TO SUBMIT ALTERNATES THAT MEET REQUIRED STC RATINGS.

GENERAL INTERIOR FINISH NOTES:

1. PROVIDE, STORE AND INSTALL ALL SPECIFIED FINISH MATERIALS IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS AND RECOMMENDATIONS.
2. COMPLIANCE WITH THE MANUFACTURERS REQUIREMENTS FOR HANDLING, STORAGE, INSTALLATION AND PROTECTION IS THE EXCLUSIVE RESPONSIBILITY OF THE GENERAL CONTRACTOR AND HIS RESPECTIVE INSTALLERS.
3. ALL FINISH MATERIALS AND FINISH ASSEMBLIES SHALL CONFORM TO THE REQUIREMENTS OF ALL CODES AND REGULATIONS OF ALL GOVERNING AUTHORITIES HAVING JURISDICTION. ALL FINISHES MUST HAVE A FLAME SPREAD RATING, AND A SMOKE GENERATION RATING AS DETERMINED BY ASTM.
4. ALL FINISH MATERIALS SHALL BE NEW, FIRST QUALITY MATERIALS NORMALLY AVAILABLE FROM THE MANUFACTURER.
5. PREPARE ALL SURFACES SCHEDULED TO RECEIVE NEW FINISHES IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS AND RECOMMENDATIONS.
6. ALL WALLS AND SURFACES RECEIVING PAINT AND WALL COVERINGS, ETC. SHALL BE PROPERLY PREPARED PRIOR TO FINISH INSTALLATION AS PER MANUFACTURERS SPECIFICATIONS. ALL JOINTS AND OTHER GYPSUM METAL TRIM SHALL BE SPACKLED AND BLENDED INTO ADJACENT SURFACE.
7. ALL SEAMS AND JOINTS OF FINISH MATERIALS SHALL BE STRAIGHT, SMOOTH AND CLEAN.
8. NON-MATCHING WALL COVERING SHALL BE HUNG SMOOTH BY APPLYING STRIPS TO THE WALL WITH OVERLAPPING EDGES AND DOUBLE CUTTING THROUGH BOTH THICKNESSES. REMOVE EXCESS PASTE FROM EACH SEAM AS IT IS MADE AND BEFORE PROCEEDING TO THE NEXT SEAM.
9. THE RESPECTIVE INSTALLER SHALL ADVISE THE ARCHITECT AND OWNER OF LOCATIONS OF CHANGES IN DYE LOTS, BATCHES OR SIMILAR COLOR SHIFTS.
10. BEFORE PROCEEDING WITH PROCUREMENT, THE RESPECTIVE INSTALLER SHALL FIELD VERIFY DIMENSIONS TO ASSURE SUFFICIENT QUANTITIES OF MATERIALS TO COMPLETE THE WORK.
11. NON-SUBSTITUTIONS OF SPECIFIED FINISH MATERIALS WILL BE ALLOWED WITHOUT PRIOR WRITTEN APPROVAL OF THE ARCHITECT AND OWNER.
12. ONLY WHERE INDICATED "EQUAL TO" OR "SUBSTITUTIONS" FOR SPECIFIED MATERIALS, OR FOR LONG LEAD TIME CONSIDERATION SHALL SUBSTITUTIONS BE CONSIDERED BY THE ARCHITECT AND OWNER.
13. FLASH PATCH ALL AREAS WHERE FLOOR SURFACES ARE NOT SMOOTH, LEVEL OR TRUE, PRIOR TO FINISH FLOOR INSTALLATION.
14. ALL FINISH FLOOR TRANSITIONS SHALL OCCUR AT THE CENTERLINE OF DOORS OR CASED OPENINGS, UNLESS OTHERWISE NOTES.
15. ALL RESILIENT BASE TO BE ROLLED GOODS, GO TO USE STRAIGHT BASE AT CARPETED AREAS AND COVER BASE AT RESILIENT FLOORS, UNLESS OTHERWISE NOTED.
16. SUBMIT CARPET SEAMING DIAGRAM FOR ARCHITECTS APPROVAL. SHOW GRAIN DIRECTION, FILLS AND T SEAMS ARE NOT ALLOWED.
17. FINISHES CALLED FOR SHALL EXTEND OVER, UNDER, AND OR BEHIND ANY ITEM OF BUILT IN MILLWORK, EQUIPMENT, MIRRORS, ETC. AS INDICATED ON THE DRAWINGS. WALLCOVERINGS SHALL NOT HAVE SEAMS WITHIN SIX INCHES OR A CORNER, CUT INSIDE CORNERS ARE NOT PERMITTED.

PROJECT OWNER

PROJECT TEAM

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978-744-8982

MERRIMAC POWER & LIGHT OFFICE RENOVATION

10 W MAIN STREET,
MERRIMAC, MA 01860

SUBMISSION

**BID AND PERMIT DRAWINGS
DRAWINGS ISSUED FOR REVIEW
MAY 12, 2025**

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DRAWING TITLE
MISC. DETAILS AND PARTITION TYPES

SHEET NUMBER

A3.1

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DRAWING TITLE
WINDOW AND DOOR SCHEDULE

SHEET NUMBER

A4.1

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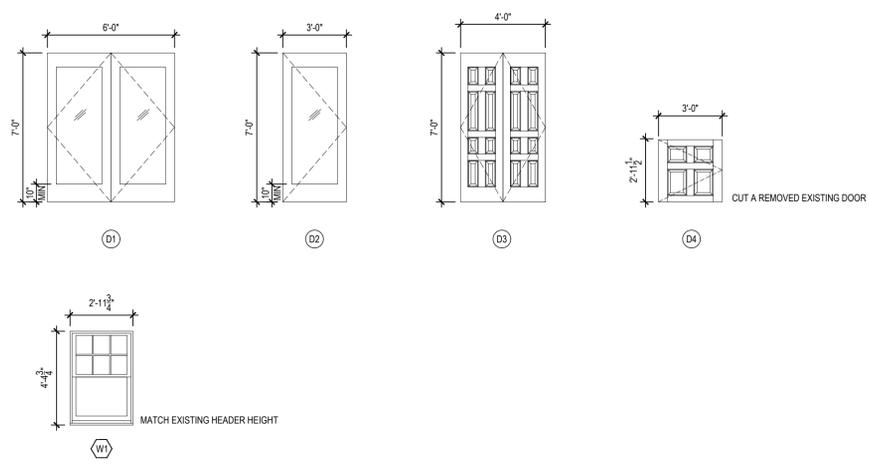
DOOR SCHEDULE

TYPE	DOOR								FRAME						COMMENTS
	MANUFACTURER	MODEL	QTY	DIMENSION D.O. (WxH)	THICKNESS	MATERIAL	FIRE RATING	STYLE	MATERIAL	FINISH	JAMB	HEADER	DOOR HARDWARE		
D1	--	--	1	6'-0" X 7'-0"	1 3/4"	WD	--	--	WD	PAINTED	--	--	MATCH EXISTING	MATCH EXISTING, PROVIDE SUBMITTAL FOR ARCHITECT AND OWNER APPROVAL.	
D2	--	--	1	3'-0" X 7'-0"	1 3/4"	WD	--	--	WD	PAINTED	--	--	MATCH EXISTING	MATCH EXISTING, PROVIDE SUBMITTAL FOR ARCHITECT AND OWNER APPROVAL.	
D3	--	--	1	4'-0" X 7'-0"	1 3/4"	WD	--	--	WD	PAINTED	--	--	MATCH EXISTING	MATCH EXISTING, PROVIDE SUBMITTAL FOR ARCHITECT AND OWNER APPROVAL.	
D4	--	--	1		1 3/4"	WD	--	--	WD	PAINTED	--	--	--	PROVIDE SUBMITTAL FOR ARCHITECT AND OWNER APPROVAL.	

EXTERIOR WINDOW SCHEDULE

TYPE	MANUFACTURER	MODEL	QTY	DIMENSION R.O. (WxH)	TYPE	HEADER HEIGHT	U-VALUE	SHG	COMMENTS
W1	ANDERSON 400 SERIES	TW21042	1	3'-0 1/8" X 4'-4 7/8"	DOUBLE HUNG	MATCH EXISTING			MATCH EXISTING, PROVIDE SUBMITTAL FOR ARCHITECT AND OWNER APPROVAL.

DIMENSIONS PROVIDED ARE FOR REFERENCE, MATCH EXISTING AND V.I.F.



GENERAL WINDOW & HARDWARE NOTES:

- CONTRACTOR SHALL VERIFY WINDOW SCHEDULE WITH MANUFACTURER, OWNER AND ARCHITECT PRIOR TO CONSTRUCTION.
- VERIFY UNIT CLEAR OPENING WITH MANUFACTURER THAT THE OPENING SHALL COMPLY WITH CMR 3603.10.4
- PROVIDE TEMPERED GLASS AS REQUIRED BY CODE.
- ALL WINDOWS ARE TO HAVE UV PROTECTION WITH LOW-E GLASS
- ALL HARDWARE TO BE BY SUBMITTAL W/ OWNER.
- SUBMIT WINDOW ORDER AND SAMPLE TO OWNER AND ARCHITECT FOR APPROVAL PRIOR TO PURCHASE.
- WINDOWS SHALL COMPLY WITH ALL SHORELINE WIND LOADING REQUIREMENTS AS NECESSARY.
- ALL OPERABLE WINDOWS MUST BE EQUIPPED WITH WINDOW OPENING LIMITING DEVICES THAT DO NOT INHIBIT EMERGENCY ESCAPE.
- PROVIDE BETTERVUE MESH INSECT SCREENS WHERE INDICATED ON WINDOW SCHEDULE.

GENERAL DOOR AND HARDWARE NOTES:

- CONTRACTOR SHALL VERIFY SCHEDULES WITH THE ARCHITECT AND MANUFACTURER PRIOR TO CONSTRUCTION. SHOP DRAWINGS FOR ALL DOORS SHALL BE SUBMITTED PRIOR TO FABRICATION.
 - ALL DOOR HARDWARE SHALL MATCH THE BUILDING DESIGN STANDARDS.
 - DOOR HARDWARE SHALL BE MOUNTED BETWEEN 30 INCHES AND 44 INCHES ABOVE FINISHED FLOOR SURFACE.
- ALL GLAZING AND SIDELITES TO BE CLEAR TEMPERED GLAS

PROJECT OWNER

PROJECT TEAM

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**PROPOSED
REFLECTED CEILING PLAN**

SHEET NUMBER

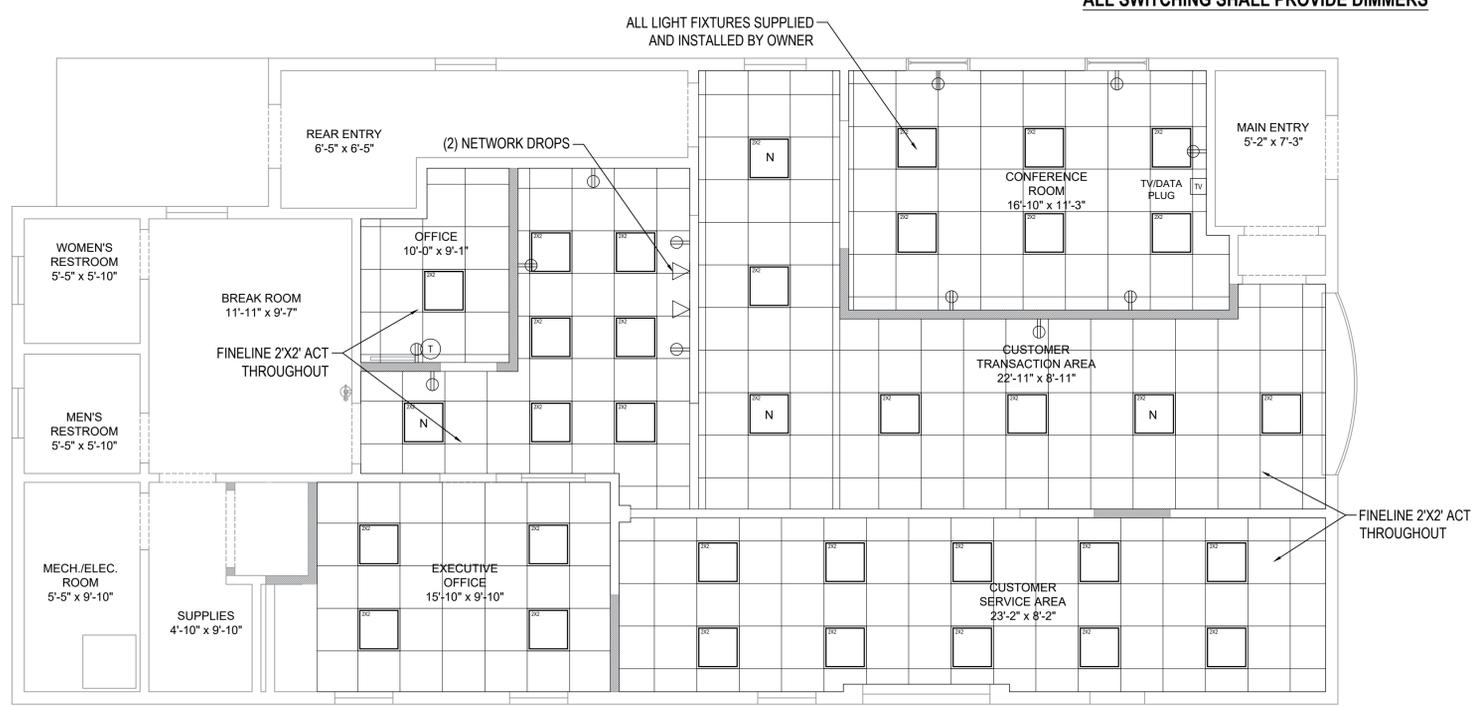
E1.1

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ELECTRICAL LEGEND	
TV	TV HOOK-UPS (LIST CABLING REQ: CAT6, STRUCTURED CABLING, ETC.)
K	KEYPAD
E	ETHERNET / PHONE (LIST JACK REQUIREMENTS)
S	SWITCH (DIMMING CIRCUIT)
J	JAMB SWITCH
DIS	DISH KITCHEN DISPOSER
S	SWITCH
DU	DUPLEX RECEPTACLE (USB INDICATES CHARGING OUTLET/STATION)
GFI	GROUND FAULT INTERRUPT OUTLET
Q	QUAD RECEPTACLE
WR	WATERPROOF DUPLEX RECEPTACLE
FDR	FLOOR DUPLEX RECEPTACLE (SPECIFY RECESSED OR SURFACE)
T	THERMOSTAT
EFT	EXHAUST FAN + TIMER SWITCH
SD	SMOKE/CO DETECTOR
HDS	HEAT DETECTOR (LOW-LOW TEMP SENSOR, LP = LP GAS DETECTOR)
RT	REMOTE TRANSFORMER
2X2	2X2 RECESSED LED LIGHT FIXTURE
N	2X2 RECESSED FLUORESCENT LIGHT FIXTURE (NIGHT LIGHT)
	FIXTURE TYPE, SEE SCHED.
	SURFACE MTD. LIGHT
	RECESSED LIGHT: 75 WATT LED OR EQ
	WALL MOUNTED LIGHT
	CEILING MOUNTED FIXTURE
	MONOPOINT
	PLUG-IN FIXTURE
	PENDANT FIXTURE
	CEILING MOUNTED SPEAKER
	IN-WALL SPEAKER
	LED STRIP LIGHT
	STEP LIGHT
	IN-GROUNDWELL LIGHT
	TRACK / HEADS
	WALL MOUNTED SWING-ARM LIGHT
ELEC	ELECTRICAL PANEL
	BATHROOM EXHAUST FAN
	CLOSET LIGHT
	SUSPENDED CEILING GRID

- GENERAL LIGHTING NOTES**
- IT IS THE INTENT THAT ALL RECEPTACLES, SWITCHES AND DEVICES BE CENTERED ON ALL FINISHED SURFACES, HORIZONTALLY AND VERTICALLY UNLESS NOTED OTHERWISE. IF FIELD CONDITIONS ARISE THAT MAKE CENTERING IMPOSSIBLE, CONSULT THE ARCHITECT FOR GUIDANCE ON FINAL PLACEMENT. CONTRACTOR SHALL COORDINATE ALL ROOF FRAMING TO ALLOW THE CENTERING SHOWN ON THIS PLAN FOR ALL RECESSED LIGHTING. IF ADDITIONAL FRAMING IS REQUIRED TO ACCOMMODATE THIS LAYOUT, THE CONTRACTOR SHALL INCL. SUCH FRAMING AS PART OF THE COST OF THE WORK. ANY COORDINATION SHALL TAKE PLACE DURING ROUGH FRAMING, PRIOR TO ROUGH-IN.
 - ALL CONDUIT, FIXTURES AND OUTLETS ARE SHOWN DIAGRAMMATICALLY. EXACT LOCATION AND METHOD OF SUPPORT SHALL BE DETERMINED IN THE FIELD, EXCEPT WHERE SPECIFIC DIMENSIONS AND DETAILS ARE SHOWN.
 - ALL LIGHTING FIXTURE SPACING DIMENSIONS AND MOUNTING HEIGHTS ARE RECOMMENDED LOCATIONS. SLIGHT VARIATIONS WHERE NECESSARY TO AVOID INTERFERENCE SHALL BE DETERMINED IN THE FIELD.
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 - MOUNT ALL SWITCHES AT 42" TO CENTERLINE ABOVE FINISH FLOOR UNLESS OTHERWISE NOTED.
 - VERTICALLY ALIGHT SWITCHES AND OUTLETS WHERE POSSIBLE.
 - WHERE REQUIRED, ADDITIONAL SUPPORT FOR THE LIGHTING INSTALLATION SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. SEISMIC RESTRAINTS SHALL BE INCLUDED AS PER STATE BUILDING CODE.
 - PROVIDE SEPARATE UN-SWITCHED NEUTRAL TO ALL EXIT SIGNS, EMERGENCY BATTERY UNITS AND EMERGENCY LIGHTING CONTAINING EMERGENCY BALLASTS.
 - ALL NEW ELECTRICAL ITEMS SHALL BE FIRE-RATED BOXES/ENCLOSURED FOR RECESSED LIGHTING FIXTURES SHALL BE PROVIDED AND INSTALLED IN FIRE-RATED ASSEMBLIES AS IN ACCORDANCE WITH BUILDING AND ELECTRICAL CODES. FIRE-RATED ASSEMBLIES INCLUDE: FIRE-RATED WALLS, FLOOR/CEILING ASSEMBLIES AND ROOF/CEILING ASSEMBLIES. REFER TO ARCHITECTURAL PLANS FOR LOCATIONS OF FIRE-RATED ASSEMBLIES.
 - ALL SWITCHES TO BE ON DIMMING CIRCUITS. NOTIFY ARCHITECT PRIOR TO ROUGH-IN OF ANY FIXTURE LOCATIONS THAT ARE NOT ABLE TO BE ON A DIMMING CIRCUIT SO ALTERNATE PLANS CAN BE MADE.
 - ALL OUTLETS IN BATHS, AT KITCHEN COUNTERS, AND WITHIN (INSERT CODE REQUIREMENTS) OF A SINK SHALL BE GFCI CIRCUITS.
 - INSTALLATION SHALL CONFORM TO CURRENT ADOPTED (INSERT YOUR REFERENCE NATIONAL ELECTRICAL CODE). IF THIS REQUIRES THE ADDITION OF RECEPTACLES, WIRING, DEVICES, SPECIAL CIRCUITING, BREAKERS, INTERRUPTERS, OR OTHER ITEMS NOT INDICATED ON THE PLANS, THE ELECTRICIAN SHALL MAKE THE CONTRACTOR AND ARCHITECT AWARE OF ANY OMISSIONS AND SHALL INCLUDE THEM AS PART OF THE COST OF THE WORK.
 - COORDINATE LOCATION OF ALL ELECTRICAL DEVICES WITH ANY INTERIOR ELEVATIONS.
 - NO DISTINCTION IS MADE ON THESE PLANS BETWEEN CIRCUITS REQUIRING SINGLE, THREE-WAY AND FOUR-WAY SWITCHES. THE ELECTRICAL SUBCONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL NECESSARY SYSTEM COMPONENTS TO ACHIEVE THE LIGHTING CONTROLS AS DRAWN.
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 - PROVIDE NEW ELECTRIC HEAT MATS BY NUHEAT OR SIMILAR IN ALL BATHROOMS UNLESS OTHERWISE NOTED.

ALL SWITCHING SHALL PROVIDE DIMMERS



1 PROPOSED REFLECTED CEILING PLAN
1/4" = 1'-0"

PROJECT OWNER

PROJECT TEAM

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**PROPOSED
LIFE SAFETY PLAN**

SHEET NUMBER

E1.2

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E	ETHERNET / PHONE (LIST JACK REQUIREMENTS)
S	SWITCH (DIMMING CIRCUIT)
S _J	JAMB SWITCH
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FD	FLOOR DUPLEX RECEPTACLE (SPECIFY RECESSED OR SURFACE)
T	THERMOSTAT
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HT	HEAT DETECTOR (LOW-TEMP SENSOR, LP = LP GAS DETECTOR)
RT	REMOTE TRANSFORMER
2X2	2X2 RECESSED LED LIGHT FIXTURE
N	2X2 RECESSED FLUORESCENT LIGHT FIXTURE (NIGHT LIGHT)
FX	FIXTURE TYPE, SEE SCHED.
SL	SURFACE MTD. LIGHT
RL	RECESSED LIGHT: 75 WATT LED OR EQ
WL	WALL MOUNTED LIGHT
CM	CEILING MOUNTED FIXTURE
MP	MONOPOINT
PF	PLUG-IN FIXTURE
P	PENDANT FIXTURE
CS	CEILING MOUNTED SPEAKER
IS	IN-WALL SPEAKER
LSL	LED STRIP LIGHT
SLP	STEP LIGHT
IGW	IN-GROUND WELL LIGHT
TH	TRACK / HEADS
WMSAL	WALL MOUNTED SWING-ARM LIGHT
ELEC	ELECTRICAL PANEL
BEF	BATHROOM EXHAUST FAN
CL	CLOSET LIGHT
SCG	SUSPENDED CEILING GRID

GENERAL LIGHTING NOTES

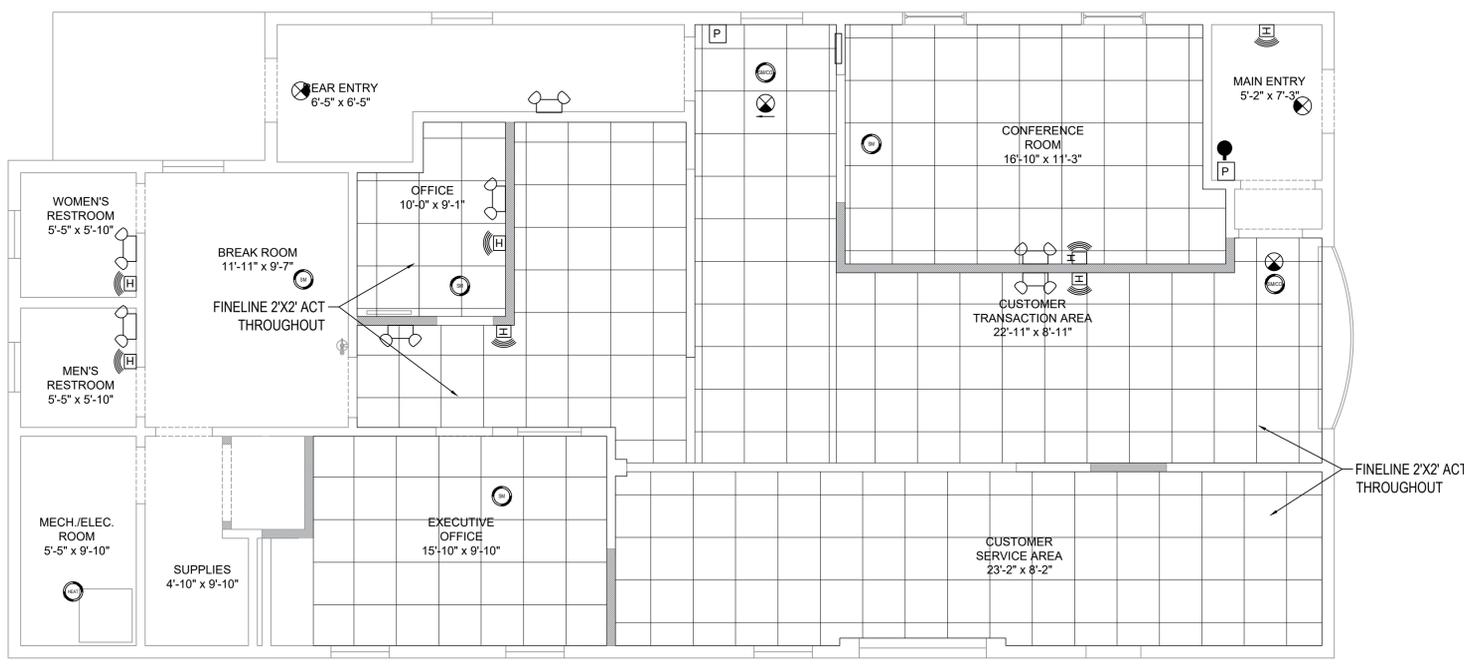
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LIFE SAFETY SYMBOLS

- EXIT DOOR
- ILLUMINATED EXIT SIGN
- PULL STATION
- FIRE ALARM / HORN & STROBE
- EMERGENCY LIGHTING
- FIRE EXTINGUISHERS

ALL SWITCHING SHALL PROVIDE DIMMERS



1 PROPOSED LIFE SAFETY PLAN
1/4" = 1'-0"

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APRIL 25, 2025

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1	HVAC REV	05/21/25

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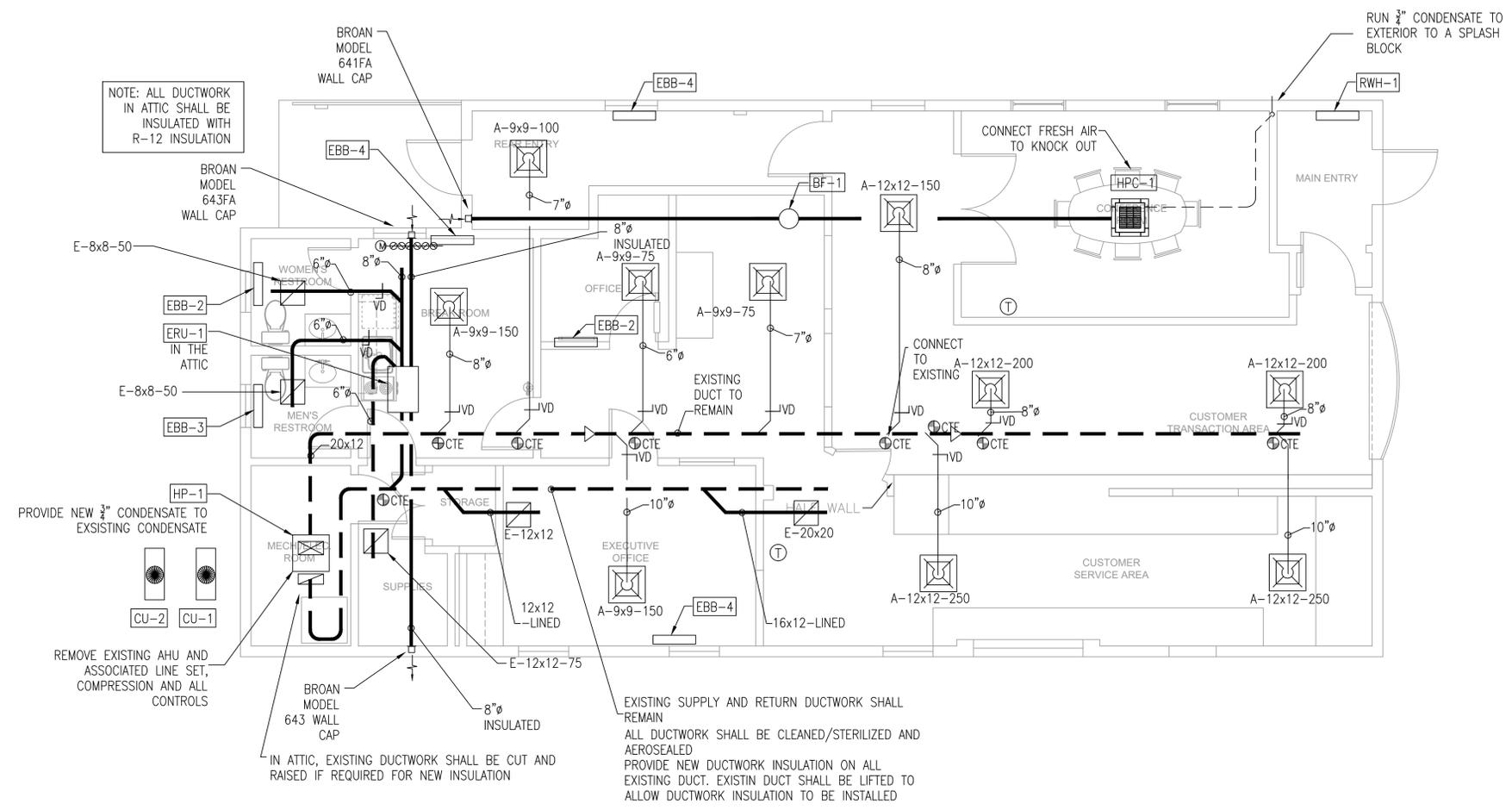
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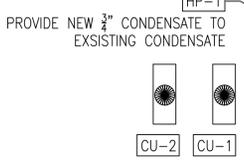
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HVAC FLOOR PLAN

SHEET NUMBER
H-1

ARCHITECTURAL
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NOTE: ALL DUCTWORK IN ATTIC SHALL BE INSULATED WITH R-12 INSULATION



REMOVE EXISTING AHU AND ASSOCIATED LINE SET, COMPRESSION AND ALL CONTROLS

IN ATTIC, EXISTING DUCTWORK SHALL BE CUT AND RAISED IF REQUIRED FOR NEW INSULATION

EXISTING SUPPLY AND RETURN DUCTWORK SHALL REMAIN
 ALL DUCTWORK SHALL BE CLEANED/STERILIZED AND AEROSEALED
 PROVIDE NEW DUCTWORK INSULATION ON ALL EXISTING DUCT. EXISTING DUCT SHALL BE LIFTED TO ALLOW DUCTWORK INSULATION TO BE INSTALLED

ENERGY RECOVERY UNITS

TAG #	EQUIPMENT PERFORMANCE				FLA (AMP)	MAKE/MODEL	DB	ESTAR	HVI	DESIGN	DIMENSIONS
	CFM	EFF. HEAT COOL (IN. WG)	VOLT	ESP (IN. WG)							
ERU-1	95	760	1260	0.40	120/1	1.4	PANASONIC-FV-20VEC2	-	YES	IN/OUT OPPOSITE SIDE	28"X23"W9-6" DUCT

--PROVIDE BOOST SWITCH IN BATHROOM
--PROVIDE MERV 8 FILTER FOR STANDARD DESIGN

SPLIT SYSTEM HEAT PUMP UNIT INDOOR SCHEDULE

TAG NO.	CFM	REFRIG	INDOOR UNIT		NOISE	MITSUBISHI MODEL#	DIMENSIONS		
			HEAT	COOL				VOLT/PHS	AMP
HP-4	1200	R454B	40,000	36,000	208/230/1	15	34/30/49 DBA	PFVY-P48NAMU-E1	38" X 27" X 10"
HFC-1	400	R454B	40,000	36,000	208/230/1	15	34/30/49 DBA	SLZ-AF12NL-U1	38" X 27" X 10"

PROVIDE ENERGY STAR THERMOSTAT - SECONDARY DRAIN PAN WITH LEAK SENSOR

SPLIT SYSTEM HEAT PUMP UNIT OUTDOOR SCHEDULE

TAG NO.	TON	OUTDOOR UNIT			MITSUBISHI MODEL#	DIMENSIONS	NOISE			
		HEAT	COOL	MCCP						
CU-1	1.0	R454B	14,000	12,000	208/1	14	20	SLZ-AA12NL-U1	34"Hx33"Wx12"H-200LBS	55 DBA
CU-2	4.0	R454B	50,000	46,000	208/1	35	50	PUZ-AA48NLUZ-U1	43"Hx33"Wx12"H-200LBS	55 DBA

WITH EACH UNIT PROVIDE PANASONIC SWITCH
--PROVIDE QUICK SLING STAND.
--PROVIDE RIPPER HEAT COMPRESSORS TO OPERATE TO -13 DEG. AT 85% CAPACITY

ELECTRIC HEATER SCHEDULE

TYPE	KW	VOLT/PH	DIMENSIONS	MODEL NUMBER-COLOR BY ARCH
RWH-1	1	120/1		0 MARK#EBA 1512-12
RWH-2	2	120/1	19"X16"WX4"D	0 MARK# M55ARWH1802/ATWIS1
RWH-4	4	208/1	19"X16"WX4"D	0 MARK# M55ARWH4808/ATWIS1
SRH-4	4	208/1	19"X16"WX4"D	0 MARK# M55ARWH4808/ATWISM
EBB-2	0.4	120/1		0 MARK#EMK-251.2W-W/1'STAT
EBB-3	0.75	120/1		0 MARK#EMK-251.3W-W/1'STAT
EBB-4	1	120/1		0 MARK#EMK-251.4W-W/1'STAT
EBB-6	1.5	120/1		0 MARK#EMK-251.6W-W/1'STAT
EUH-5	5	208/1		0 MARK#EMH-35-W/1'STAT
COH-4	4	208/1		0 MARK#CDP48-W/1'STAT

SOME HEATERS MAY NOT BE USED

ENERGY RECOVERY UNITS

TAG #	EQUIPMENT PERFORMANCE				FLA (AMP)	MODEL	DB	ESTAR	HVI	DESIGN	DIMENSIONS
	CFM	EFF. HEAT COOL (IN. WG)	VOLT	ESP (IN. WG)							
ERU-1	175	760	1260	0.40	120/1	1.4	PANASONIC-FV-20VEC2	-	YES	IN/OUT OPPOSITE SIDE	28"X23"W9-6" DUCT

PROVIDE CONTROLS AS FOLLOWS
--PROVIDE PANASONIC ERY CONTROLLER
--PROVIDE TIMECLOCK FOR ERY SHUT DOWN OVERIDE ON OFF HOURS
--PROVIDE MERV 8 FILTER FOR STANDARD DESIGN

LEGEND

	SUPPLY AIR DUCT UP		HOT WATER RETURN PIPE
	RETURN AIR DUCT UP		HOT WATER SUPPLY PIPE
	VOLUME DAMPER		CONDENSATE DRAIN PIPE
	MOTORIZED DAMPER		PIPE UP
	FIRE DAMPER		BALL VALVE
	1" LINED DUCTWORK		GATE VALVE
	SUPPLY AIR REGISTER		CHECK VALVE
	RETURN OR EXHAUST AIR REGISTER		STRAINER
	SUPPLY AIR DIFFUSER		3-WAY CONTROL VALVE
	CEILING TRANSFER GRILL		BALANCING VALVE
	ACCESS DOOR		THERMOMETER
	SELF-BALANCING AIR VALVE		PRESSURE GAUGE
	CEILING FIRE DAMPER		FLEXIBLE PIPE CONNECTION

EQUIPMENT TAG NUMBERS

	EXHAUST FAN
	CONDENSING UNIT
	SPLIT SYSTEM AC UNIT
	AIR HANDLER UNIT
	UNIT HEATER UNIT

	E = EXHAUST RISER
	# = REFERS TO RISER DIAGRAM
	VS = SUPPLY VENTILATION RISER
	# = REFERS TO RISER DIAGRAM
	VS = RETURN VENTILATION RISER
	# = REFERS TO RISER DIAGRAM
	R = CONDENSER WATER RISER
	# = REFERS TO RISER DIAGRAM

AIR OUTLET + INLET DESIGNATION

EXAMPLE: SEE SCHEDULE TYPE OF GRILLE, DIFFUSER, REGISTER, LAY-IN OR SURFACE MOUNTED, FOR SUPPLY, RETURN OR EXH. AIRFLOW + THIS OUTLET/INLET TYPE

EXAMPLE: SIZE OF GRILLE, DIFFUSER

EXAMPLE: AIRFLOW

EQUIPMENT SYMBOLS

	ROOFTOP UNIT
	ROOFTOP UPBLAST EXHAUST FAN
	EXHAUST CONTROL VALVE
	ROOFTOP EXHAUST FAN
	CONSTANT AIRFLOW REGULATOR DEVICE
	FIRE AND SMOKE DAMPER
	VOLUME DAMPERS
	CABINET UNIT HEATER IN CEILING
	HORIZONTAL HVAC UNIT
	VERTICAL HVAC UNIT
	ROOF MOUNTED CONDENSING UNIT

CONTROL SYMBOLS

	WALL MOUNTED THERMOSTAT/SENSOR
	HUMIDISTAT/SENSOR
	LOCAL CONTROL PANEL

PROJECT OWNER

PROJECT TEAM

ARCHITECT
PITMAN & WARDLEY ASSOCIATES, LLC.
 32 CHURCH STREET, 3RD FLOOR
 SALEM, MA 01970
 978-744-8982

**MERRIMAC POWER & LIGHT
 OFFICE RENOVATION**
 10 W MAIN STREET,
 MERRIMAC, MA 01860

SUBMISSION

**BID AND PERMIT DRAWINGS
 ISSUED FOR REVIEW
 APRIL 25, 2025**

THIS SET OF DRAWINGS IS FOR MUNICIPAL
 REVIEW ONLY AND IS NOT INTENDED FOR
 CONSTRUCTION. DO NOT START CONSTRUCTION
 WITHOUT A SEALED SET OF CONSTRUCTION
 DOCUMENTS.

REVISION	ISSUE	DATE
1	HVAC REV	05/21/25

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 CHECKED BY

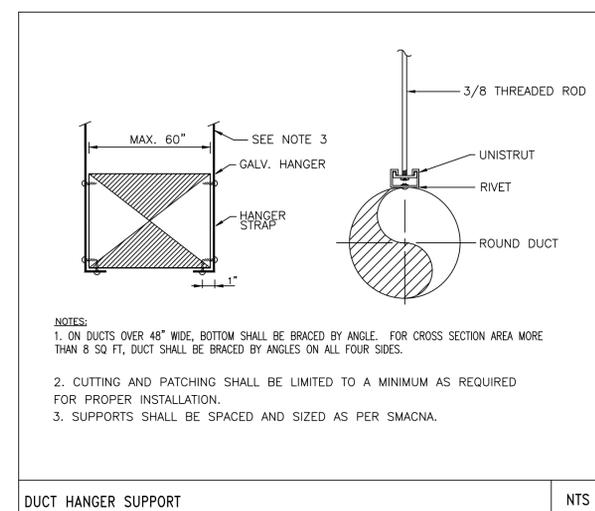
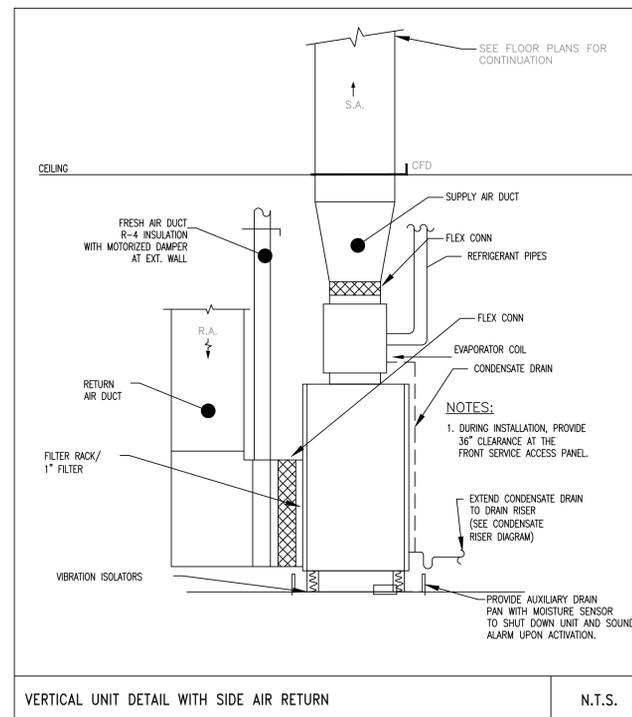
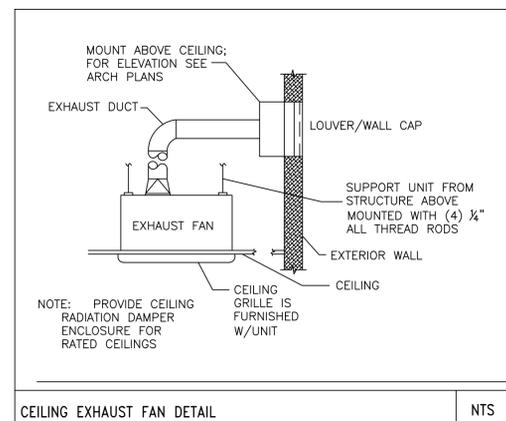
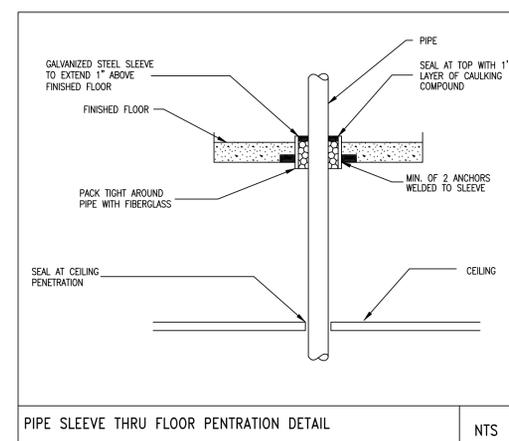
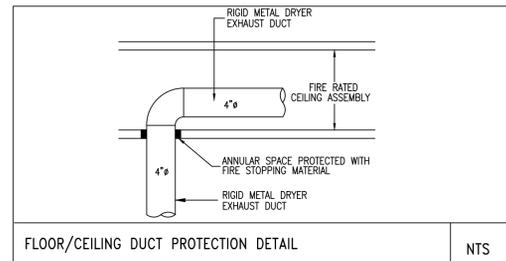
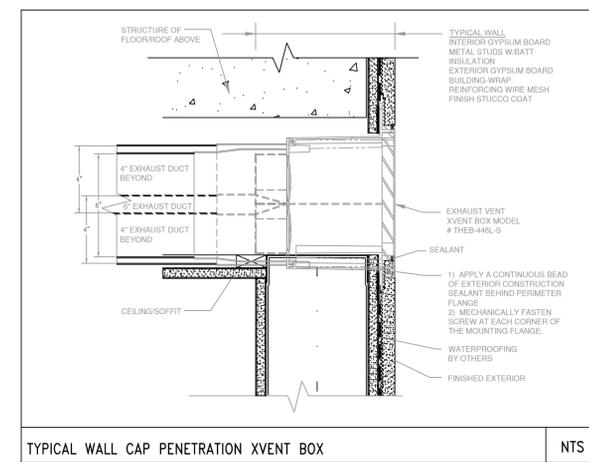
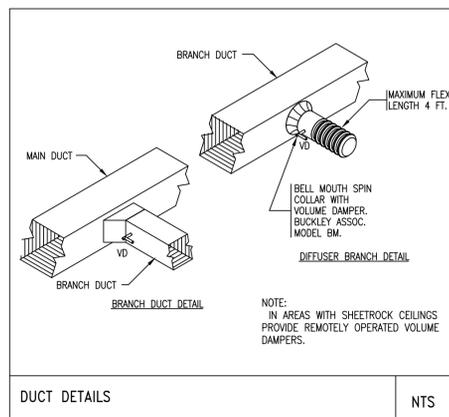
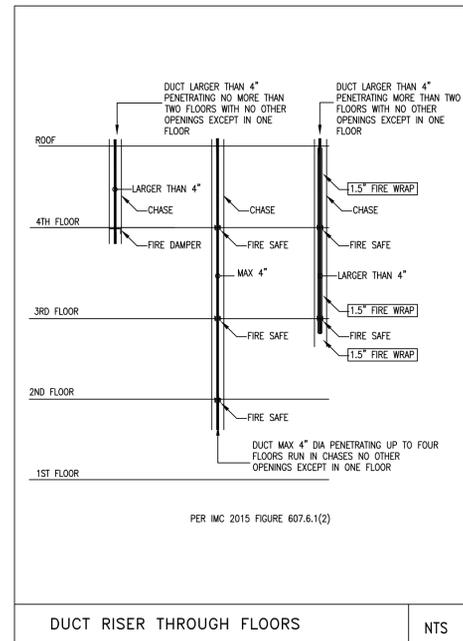
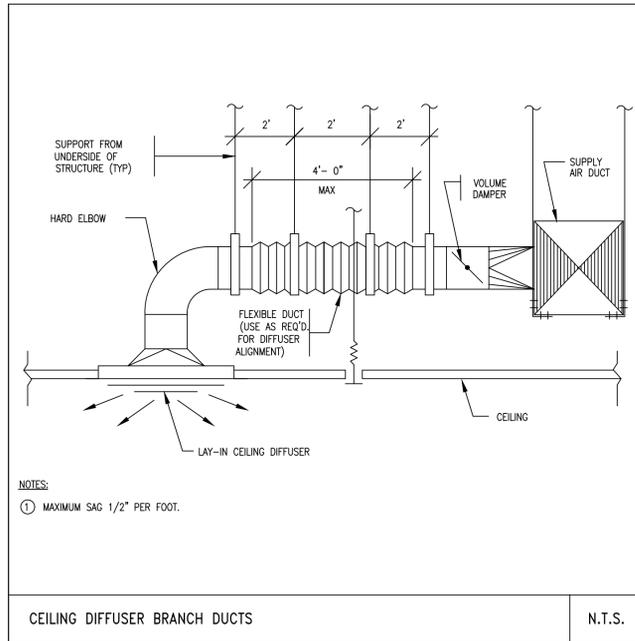
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 CONSULTING ENGINEERS
 1 BILDINGS ROAD STE 306, QUINCY, MA 02171
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 FAX. (617) 451-2540
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DRAWING TITLE
HVAC DETAILS

SHEET NUMBER
H-4

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PROJECT TEAM

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MERRIMAC POWER & LIGHT
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SUBMISSION

BID AND PERMIT DRAWINGS
DRAWINGS ISSUED FOR REVIEW
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REVISION	ISSUE	DATE
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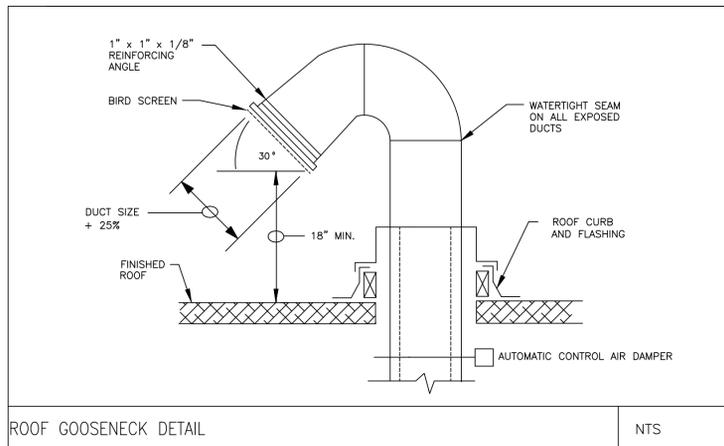
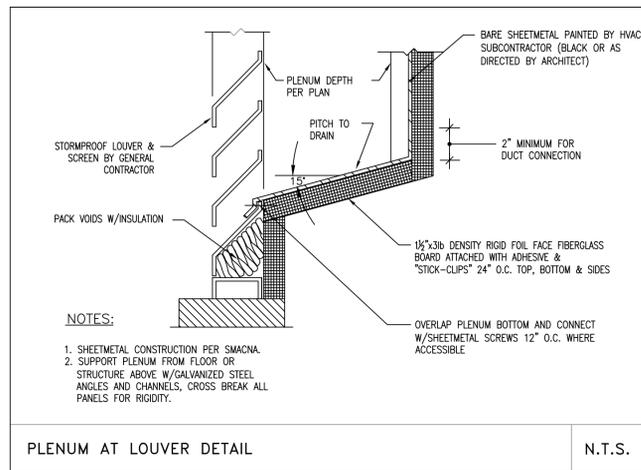
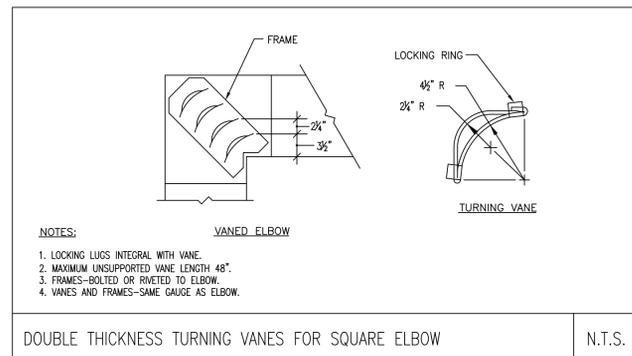
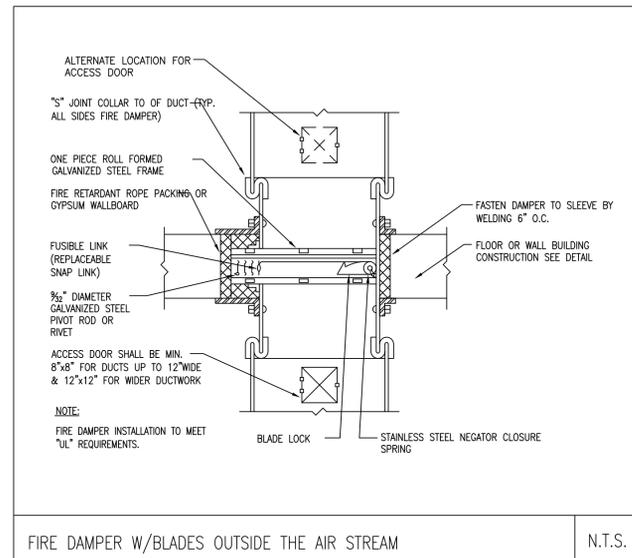
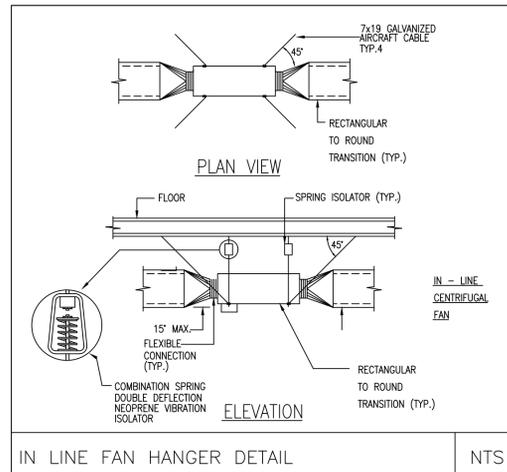
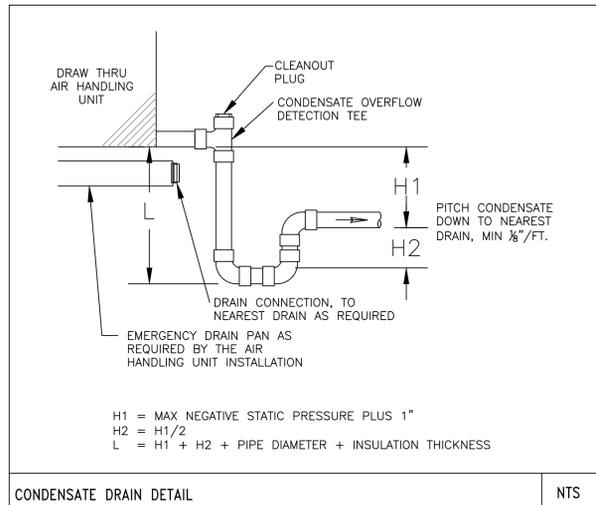
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SECTION 011000

GENERAL REQUIREMENTS

1.1	General Provisions	1.11	Submittals
1.2	Project Requirements	1.12	Warranties
1.3	Specification Information	1.13	Cutting and Patching
1.4	Definitions	1.14	Temporary Facilities and Utilities
1.5	Industry Standards	1.15	Products and Substitutions
1.6	Codes and Regulations	1.16	Delivery, Storage and Handling
1.7	Progress Schedule	1.17	Owner-Furnished (OFCL) Products
1.8	Schedule of Values	1.18	Labels
1.9	Payment Requests	1.19	Record Documents
1.10	Procedures and Controls	1.20	Project Close Out
		1.21	Final Cleaning and Repair

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the Specifications.

1.2 PROJECT REQUIREMENTS

- A. Project Identification: Merrimac Power & Light Office Renovation.
- B. Particular Project Requirements:
1. Coordinate with Owner separate contractors for HVAC upgrades and deferred maintenance work. Allow access to building, maintain safe passage and egress, coordinate utility interruptions, and coordinate scope items as required for new work under this contract.
- C. Project Requirements for Temporary Utilities and Facilities:
1. Utility Costs: The Owner will allow the use of existing utility systems and pay for cost of utility services consumed, including electricity, water and gas. Do not waste. The Contractor shall provide and pay for temporary heat prior to the complete enclosure of the building and availability of suitable permanent systems.
 2. Temporary Offices: A separate field office for the Architect and the Owner's Representative is not required.
 3. Toilet Facilities: The Owner will allow designated toilet facilities within the building to be used by Contractor's personnel.
- D. Permits and Fees: Apply for, obtain, and pay for permits, fees, and utility company backcharges required to perform the work. Submit copies to Architect.

- E. Codes: Comply with applicable codes and regulations of authorities having jurisdiction. Submit copies of inspection reports, notices and similar communications to Architect.
- F. Dimensions: Verify dimensions indicated on drawings with field dimensions before fabrication or ordering of materials. Do not scale drawings.
- G. Existing Conditions: Notify Architect of existing conditions differing from those indicated on the drawings.
- H. Contractor's Conduct on Premises: The Contractor and their employees shall behave in a respectful, courteous and safe manner. Abusive, harassing, and lewd behavior is prohibited. Music playing is prohibited. Alcohol, tobacco, and drug use is prohibited.
 - 1. Comply with Owner's security requirements.

1.3 SPECIFICATION INFORMATION

- A. These specifications are a specialized form of technical writing edited from master specifications and contain deviations from traditional writing formats. Capitalization, underlining and bold print is only used to assist reader in finding information and no other meaning is implied.
- B. Except where specifically indicated otherwise, the subject of all imperative statements is the Contractor.
- C. Sections are generally numbered in conformance with Construction Specifications Institute Masterformat System. Numbering sequence is not consecutive. Refer to the Table of Contents for names and numbers of sections included in this Project.
- D. Pages are numbered separately for each section. Each section is noted with "End of Section" to indicate the last page of a section.

1.4 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.
- C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "approved," "required," and "permitted" have the same meaning as "directed."
- D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

- F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- H. "Provide": Furnish and install, complete and ready for the intended use.
- I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.5 INDUSTRY STANDARDS

- A. Referenced standards are part of the Contract Documents and have the same force and effect as if bound with these specifications.
- B. Except where specifically indicated otherwise, comply with the current standard in effect as of the date of the Owner/Contractor Agreement. Obtain copies of industry standards directly from publisher.
- C. The titles of industry standard organizations are commonly abbreviated; full titles may be found in Encyclopedia of Associations or consult Architect.

1.6 CODES AND REGULATIONS

- A. Comply with all applicable codes, ordinances, regulations and requirements of authorities having jurisdiction.
- B. Submit copies of all permits, licenses, certifications, inspection reports, releases, notices, judgments, and communications from authorities having jurisdiction to the Architect.

1.7 PROGRESS SCHEDULE

- A. Provide comprehensive bar chart schedule showing all major and critical minor portions of the work, sequence of work and duration of each activity. Update and reissue regularly, but not less than monthly.

1.8 SCHEDULE OF VALUES

- A. Prepare Schedule of Values to coordinate with application for payment breakdown. Submit at least 10 days before first payment application. Update and reissue regularly, but not less than monthly.

1.9 PAYMENT REQUESTS

- A. Provide three copies of each request on completely filled out copies of AIA G702 and continuation sheet G703. Substantiate requests with complete documentation; include change orders to date. Provide partial lien waivers for work in progress and full lien waivers for completed work.

- B. As-Constructed Record Drawing Certification: Certify as a part of each application for payment that the project as-constructed record documents are current at the time of application is submitted. The Contractor shall require such drawings to be current as a condition of approving any payment to the trade Contractor and Subcontractor.

- C. Before first payment application, provide the following:
 - 1. List of subcontractors, suppliers and fabricators.
 - 2. Schedule of values.
 - 3. Progress schedule.
 - 4. Submittal schedule keyed to project schedule.
 - 5. List of Contractor's key project personnel.
 - 6. Copies of permits and other communications from authorities.
 - 7. Contractor's certificate of insurance.
 - 8. Performance and payment bonds if required.
 - 9. Unit price schedule.

- D. Before final payment application, provide and complete the following:
 - 1. Complete closeout requirements.
 - 2. Complete punch list items.
 - 3. Settle all claims.
 - 4. Transmit record documents to Architect. Include statement that Architect's Supplemental Instructions, Change Orders, Construction Change Directives and minor changes in the work have been incorporated in the as-constructed record drawings.
 - 5. Prove that all taxes, fees and similar obligations have been paid.
 - 6. Remove temporary facilities and surplus materials.
 - 7. Change lock cylinders or cores.
 - 8. Clean the work.
 - 9. Submit consent of surety, if any, for final payment.

1.10 PROCEDURES AND CONTROLS

- A. Project Meetings: Arrange for and attend meetings with the Architect and such other persons as the Architect requests to have present. The Contractor shall be represented by a principal, project manager, general superintendent or other authorized main office representative, as well as by the Contractor's field superintendent. An authorized representative of any subcontractor or sub-subcontractor shall attend such meetings if the representative's presence is requested by the Architect. Such representatives shall be empowered to make binding commitments on all matters to be discussed at such meetings, including costs, payments, change orders, time schedules and manpower. Any notices required under the Contract may be served on such representatives. Written reports of meeting minutes shall be prepared by the Contractor and distributed by the Contractor to attendees, the Architect, and Owner within three business days.
 - 1. Pre-Construction Conference: Attendance by Architect, Contractor, major subcontractors. Agenda shall include: Quality of workmanship, coordination, interpretations, job schedule, submittals, approvals, requisition procedures, testing, protection of construction, indoor air quality, and construction waste management.
 - 2. Interior Finishes Meeting: Attendance by Architect, Contractor, major subcontractors. Agenda shall include as applicable: Quality of workmanship, environmental conditions for application of finishes, drywall details, millwork details, condition of surfaces to receive

- finishes, tile work, painting work, samples and test areas and approvals, coordination with mechanical and electrical interfaces and penetrations, indoor air quality.
3. Progress Meetings: Hold regularly before preparation of payment requests and additional meetings as requested by the Architect. Attendance by Architect, Contractor, and others as determined by Contractor. Agenda shall include work in progress and payment requests.
 4. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction, as specified. Preinstallation Conferences may be part of Progress Meeting agenda. Attendance by Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow. Agenda shall include a review of progress of other construction activities and preparations for the particular activity under consideration.
- B. Emergency Contacts: Furnish the Owner and Architect, in writing, the names and telephone numbers of individuals to be contacted in the event of an out-of-hours emergency at the building site. Post a similar list readily visible from the outside of the field office or a location acceptable to the Architect.
- C. Layout: Layout work and be responsible for all lines, elevations, and measurements of the building, grading, utilities and other work executed under the contract. Retain a registered professional engineer or registered land surveyor, acceptable to the Architect, to initially establish exterior lines and required elevations of all buildings and structures to be erected on the site. The registered professional engineer or registered land surveyor shall certify the actual location of the constructed facilities in relation to property lines, building lines, easements, setbacks, and other restrictive boundaries.
- D. Field Measurements: Verify measurements at the building prior to ordering materials or commencing work. No extra charge or compensation will be allowed because of differences between actual dimensions and measurements indicated on the Drawings. Differences which may be found shall be submitted to the Architect for decision before proceeding with the work.
- E. Field Measurements for Fixed Equipment: Dimensions for fixed equipment to be supplied under this Contract or separate contracts shall be determined by field measurements taken jointly by the Contractor and the equipment supplier involved. A record of the field measurements shall be kept until time of substantial completion of the project, or until the equipment has been fully installed and accepted by the Owner, whichever is later. Responsibility for fixed equipment fabricated accurately to field measurements for proper fit and operation shall be that of the Contractor. Contractor shall pay all costs involved in correcting any misfitting fixed equipment as fabricated.
- F. Project Limit Line: The boundaries of the site do not limit the responsibility of the Contractor to perform the work in its entirety. Make utility connections as indicated.
- G. Matching: Where matching is indicated, the Architect shall be the sole and final judge of what is an acceptable match. Mockups and sample submissions are required.
- H. Observation: Notify the Architect and authorities having jurisdiction at least thirty-six hours in advance of concealing any work.
- I. Utilities: Prior to interrupting utilities, services or facilities, notify the utility owner and the Owner and obtain their written approval a minimum 48 hours in advance.

- J. Furnishings, Fixtures, and Equipment: Cooperate and permit the Owner to install their furnishings and equipment during the progress of the work. Owner's installation of furnishings or equipment does not signify Owner's acceptance of any portion of the work.
- K. Clean-Up: Frequently clean-up all waste, remove from site regularly, and legally dispose of off-site.
1. Comply with requirements of Section 017400 - CONSTRUCTION WASTE MANAGEMENT.
- L. Installer's Acceptance of Conditions: All installers shall inspect substrates and conditions under which work is to be executed and shall report in writing to the Contractor all conditions detrimental to the proper execution and completion of the work. Do not proceed with work until unsatisfactory conditions are corrected. Beginning work means installer accepts previous work and conditions.
- M. Coordination: The Contractor shall be fully responsible for coordinating all trades, coordinating construction sequences and schedules, and coordinating the actual installed location and interface of all work.
1. Prior to beginning mechanical, electrical and fire protection work, the Contractor shall prepare coordination drawings showing the exact alignment, physical location and configuration of the mechanical, electrical and fire protection installations and demonstrating to the Contractor's satisfaction that the installations will clear all obstructions, permit proper clearances for the Work of other trades, and present an orderly appearance where exposed. The Contractor shall be solely liable and responsible for any costs and delays resulting from the Contractor's failure to prepare such coordination drawings or from the negligent preparation of such coordination drawings.
 2. Exact locations and groupings of mechanical, electrical and fire protection fixtures, switches, heads and outlets shall be obtained from the Architect before the Work is roughed in. Work installed without such information from the Architect shall be relocated at the Contractor's expense if the Architect so requests.
- N. Request For Interpretation (RFIs):
1. Procedure: Immediately on discovery of the need for interpretation of the Contract Documents, and if not possible to request interpretation at Project meeting, prepare and submit an RFI in the form specified.
 - a. RFIs shall originate with Contractor. RFIs submitted by entities other than Contractor will be returned with no response.
 2. Content of the RFI: Include a detailed, legible description of item needing interpretation.
 3. Architect's Action: Architect will review each RFI, determine action required, and return it. Allow three working days for Architect's response for each RFI. RFIs received after 1:00 p.m. will be considered as received the following working day.
 4. The following RFIs will be returned without action:
 - a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.
 - c. Requests for coordination information already indicated in the Contract Documents.
 - d. Requests for adjustments in the Contract Time or the Contract Sum.
 - e. Requests for interpretation of Architect's actions on submittals.

f. Incomplete RFIs or RFIs with numerous errors.

- O. Existing Articles of Unusual Value: If during demolition, excavation, or disposal work articles of unusual value or of historical or archaeological significance are encountered, the ownership of such articles is retained by the Owner, and information regarding their discovery shall be immediately furnished to the Architect. If the nature of the article is such that work cannot proceed without danger of damage, work in the area shall be immediately discontinued until the Architect has determined the proper procedure to be followed. Delays in time thereby shall be a condition for which the time of the Contract may be extended. Costs incurred after discovery in the salvaging of such articles shall be borne by the Owner.

1.11 SUBMITTALS

- A. Required Submittals: Submit shop drawings, product data, initial selection samples, verification samples, calculations, coordination drawings, schedules, and all other submittals as specified in individual specification sections.
- B. Submittal Schedule: Within 30 days after award of contract and before first application for payment, prepare list of submittals in chronological sequence showing all submittals and proposed date first due at Architect's office and proposed date due to be returned to Contractor. Note relevant specification section number.
- C. Contractor's Preparation of Submittals: Modify and customize all submittals to show interface with adjacent work and attachment to building. Identify each submittal with name of project, date, Contractor's name, subcontractor's name, manufacturer's name, submittal name, relevant specification section numbers, and Submittal Schedule reference number. Stamp and sign each submittal to show the Contractor's review and approval of each submittal before delivery to Architect's office; unstamped and unsigned submittals will be returned without action by the Architect. Leave 4" x 6" open space for Architect's "action" stamp.
1. Electronic Submittals: Provide a copy of all submittals in electronic format to the Architect. Architect will return a file of reviewed submittal in electronic format to the Contractor for distribution to subcontractors, suppliers, fabricators, governing authorities and others as necessary for proper performance of the Work. Unless otherwise amenable to the Architect, additional hard copies of submittals will not be reviewed by the Architect (or Consultant) and will not be returned to the Contractor.
 2. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
 3. Name file with submittal number or other unique identifier, including revision identifier.
 4. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Architect and Construction Manager.
 5. Transmittal Form for Electronic Submittals: Use electronic form acceptable to Architect.
- D. Product Data: Provide manufacturer's preprinted literature including, without limitation, manufacturer's standard printed description of product, materials and construction, recommendations for application and use, certification of compliance with standards, instructions for installation, and special coordination requirements. Collect data into one submittal for each unit of work or system; mark each copy to show which choices and options are applicable to project.
1. Installer Copy: Verify that the Installer has a current copy of the relevant product data, including installation instructions, before permitting installation to begin.

- E. Shop Drawings: Provide accurately prepared, large scale and detailed shop drawings prepared specifically for this project. Show adjacent conditions and related work. Show accurate field dimensions and clearly note field conditions. Identify materials and products in the work shown. Note special coordination required.
 - 1. After Architect's action, follow specified distribution procedure.
- F. Samples: Provide units identical with final materials and products to be installed in the work. Where indicated, prepare samples to match Architect's sample. Label each sample with description, source, generic name or manufacturer's name and model number. Architect will review samples for confirmation of visual design intent, color, pattern, texture and type only; Architect will not test samples for compliance with other Contract requirements which shall remain the exclusive responsibility of the Contractor.
 - 1. Initial Selection Samples Submittal Quantities: For initial selection purposes, submit 1 set of samples showing the complete range of colors and finishes available.
 - 2. Verification Samples Submittal Quantities: For verification of an initial selection, submit 3 sets of samples; one set will be returned to Contractor to be maintained at project site for quality control comparisons.
- G. Timing of Submittals: Submit submittals in a timely fashion to allow at least 10 business days for each office's review and handling. This means that submittals which have to be reviewed by the Architect and one of their consultants require at least 20 business days for review and handling. Add ten business days for each additional consultant who must review a submission.
- H. Architect's Action on Submittals: Architect will review submittals, stamp with "action stamp", mark action, and return to Contractor. Architect will review submittals only for conformance with the design concept of the project. The Contractor is responsible for confirming compliance with other Contract requirements, including without limitation, performance requirements, field dimensions, fabrication methods, means, methods, techniques, sequences and procedures of construction, coordination with other work. The Architect's review and approval of submittals shall be held to the limitations stated in the Owner/Architect Agreement and the Conditions of the Contract. In no case shall approval or acceptance by the Architect be interpreted as a release of Contractor of their responsibilities to fulfill all of the requirements of the Contract Documents.
 - 1. Required Resubmittal: Unless submittal is noted "reviewed" or "reviewed except as noted, resubmission not required," make corrections or changes to original and resubmit to Architect.
 - 2. Distribution: When submittal is noted "reviewed" or "reviewed as noted, resubmittal not required," make prints or copies and distribute to Owner, Subcontractors involved, and to all other parties requiring information from the submittal for performance or coordination of related work.

1.12 WARRANTIES

- A. Warranties Required: Refer to individual trade sections for specific product warranty requirements.
- B. Procurement: Where a warranty is required, do not purchase or subcontract for materials or work until it has been determined that parties required to countersign warranties are willing to do so.

- C. **Warranty Forms:** Submit written warranty to Owner through Architect for approval prior to execution. Furnish two copies of executed warranty to Owner for their records; furnish two additional conformed copies where required for maintenance manual.
- D. **Work Covered:** Contractor shall remove and replace other work of project which has been damaged as a result of failure of warranted work or equipment, or which must be removed and replaced to provide access to work under warranty. Unless otherwise specified, warranty shall cover full cost of replacement or repair, and shall not be pro-rated on basis of useful service life.
- E. **Warranty Extensions:** Work repaired or replaced under warranty shall be warranted until the original warranty expiration date or for ninety days whichever is later in time.
- F. **Warranty Effective Starting Date:** Guarantee period for all work, material and equipment shall begin on the date of substantial completion of the Project, not when subcontractor has completed their work nor when equipment is turned on. In addition to the one year guarantees for the entire work covered by these Contract Documents, refer to the various sections of the specifications for extended guarantee or maintenance requirements for various material and equipment.
- G. **Warranties are Irrevocable:** Warranties issued to the Owner are irrevocable.
 - 1. **Non-Payment:** If warrantor refuses to issue warranty, or attempts to revoke warranty due to lack of payment by any party other than the Owner, the Contractor shall resolve the payment conflict, and cause the warranty to be issued or reinstated.
 - 2. **Incomplete or incorrect Installation:** If warrantor refuses to issue warranty, or attempts to revoke warranty due to improper installation or other deficiency, the Contractor shall correct the deficiency and cause the warranty to be issued or reinstated.
- H. **Transferable Warranties:** All warranties shall permit Owner to transfer or assign warranties to future owners or other assignors at no additional cost to the Owner for the full warranty period.

1.13 CUTTING AND PATCHING

- A. **Limitations:** Do not cut and patch any work in a manner that would result in a failure of the work to perform as intended, decreased energy performance, increased maintenance, decreased operational life, or decreased safety.
 - 1. **Structural Work:** Do not cut structural work or bearing walls without written approval from Architect. Where cutting and patching of structural work is necessary and approved by Architect, perform work in a manner which will not diminish structural capacity nor increase deflection of member. Provide temporary shoring and bracing as necessary. Ensure the safety of people and property at all times.
- B. **Cutting and Patching Materials:** Use materials identical to materials to be cut and patched. If identical materials are not available or cannot be used, use materials that match existing materials to the greatest extent possible. Provide finished work that will result in equal to or better than existing performance characteristics.
- C. **Inspection:** Before cutting and patching, examine surfaces and conditions under which work is to be performed and correct unsafe and unsatisfactory conditions prior to proceeding.
- D. **Protection:** Protect adjacent work from damage. Protect the work from adverse conditions.

- E. Cutting: Cut work using methods least likely to damage adjoining work. Use tools designed for sawing or grinding, not hammering or chopping. Use saws or drills to ensure neat, accurately formed holes to sizes required with minimum disturbance to adjacent work. Temporarily cover openings; maintain weathertightness and safety.
 - 1. Utilities: Locate utilities before cutting. Provide temporary utilities as needed. Cap, valve, or plug and seal ends of abandoned utilities to prevent entrance of moisture or other foreign matter.
- F. Patching: Patch with seams and joints which are durable and not visible. Comply with specified tolerances for similar new work; create true even planes with uniform continuous appearance. Restore finishes of patched areas and, if necessary, extend finish restoration onto adjoining unpatched area to eliminate evidence of patching and refinishing. Repaint entire assemblies, not just patched area. Remove and replace work which has been cut and patched in a visually unsatisfactory manner as determined by the Architect.
- G. Qualifications: Retain experienced and specialized firms, original installers if possible, to perform cutting and patching. Workmen shall be skilled in type of cutting and patching required.

1.14 TEMPORARY FACILITIES AND UTILITIES

- A. Scope of Temporary Work: This article is not intended to limit the scope of temporary work required under the Contract. Provide all temporary facilities and utilities needed.
- B. Permits and Fees: Obtain and pay for all permits, fees and charges related to temporary work.
- C. Codes and Authorities Having Jurisdiction for Temporary Facilities and Utilities: Comply with all requirements of authorities having jurisdiction, codes, utility companies, OSHA, and industry standards including, but not limited to the following:
 - 1. NFPA 241, Standard for Safeguarding Construction, Alteration, and Demolition Operations.
 - 2. ANSI-A10 Series, Safety Requirements for Construction and Demolition.
 - 3. NECA National Joint Guideline NJG-6, Temporary Job Utilities and Services.
 - 4. Electrical Service: NEMA, NECA, and UL.
- D. Field Offices: Provide Contractor's field offices as needed. Keep current copies of all Contract Documents and project paperwork neatly on file at jobsite. Permit Architect's unrestricted use of Contractor's field office facilities including copiers, telephones, plan tables, and other equipment. Furnish, maintain, and pay for light, power, phone, fax, and other field office services.
- E. Shops and Sheds: At Contractor's option, provide shops and sheds for Contractor's use as needed. Locate shops and sheds where acceptable to Owner and authorities having jurisdiction. Prior to completion of construction, temporary storage facilities and surplus stored materials shall be removed from the site.
- F. Weather Protection: It is the intent of these Specifications to require that the Contractor shall provide temporary enclosures and heat to permit construction work to be carried on during the months of November through March. Under no circumstances shall the Contractor suspend any work during the months of November through March because of their reluctance to provide and pay for temporary weather protection. These Specifications are not to be construed as

requiring enclosures or heat for operations that are not economically feasible to protect in the judgment of the Architect. Included in the preceding category, without limitation, are such items as site work, excavation, steel erection, erection of certain "exterior" wall panels, roofing, and similar operations.

1. 'Weather Protection' shall mean the temporary protection of that work adversely affected by moisture, wind, and cold, by covering, enclosing and/or heating. This protection shall provide adequate working areas during the months of November through March consistent with the approved construction schedule to permit the continuous progress of all work necessary to maintain an orderly and efficient sequence of construction operations. The Contractor shall furnish and install all "weather protection" material and be responsible for all costs, including heating required to maintain a minimum temperature of 55 degrees F. at the working surface. This provision does not supersede any specific requirements for methods of construction, curing of materials or the applicable general conditions set forth in the Contract with added regard to performance obligations of the Contractor.
2. Within 30 calendar days after his award of contract, the Contractor shall submit in writing to the Architect for approval, his proposed methods for "Weather Protection."
3. Installation of weather protection and heating devices shall comply with all safety regulations including provisions for adequate ventilation and fire protection devices. Heating devices which may cause damage to finish surfaces shall not be used.

G. Heating During Construction: Within 30 calendar days after the commencement of work under this Contract, the Contractor shall submit in writing to the Architect for approval, the Contractor's method and time schedule for heating during construction which shall concur with his general progress schedule.

1. After the building or portion thereof is completely enclosed by either permanent construction or substantial temporary materials having a comparable resistance as the specified permanent construction, The Contractor shall pay and provide heat therein of not less than 55 degrees F., nor more than 75 degrees F., which shall be continuously maintained in the enclosed area to the extent necessary to properly progress and protect the work until the project is accepted.
2. The Contractor shall furnish and install one accurate recording Fahrenheit thermometer at a place acceptable to the Architect, and one additional accurate thermometer for every 2,000 square feet of floor space, located as directed by the Architect in order to determine if the specified temperatures are maintained. The Contractor or his authorized agent shall furnish daily to the Architect a signed statement of temperatures recorded every three hours.
3. The Contractor, with the approval of the Architect, may use the permanent heating system as specified for the project once it has been tested, flushed out and chemically treated, thoroughly cleaned of all construction dust and dirt, and is ready to operate. The Contractor shall pay all energy costs for heating during construction and provide meters if required. The Contractor and the HVAC and/or Electrical subcontractor shall coordinate their work so that the permanent heating system for the building will be available and ready to provide heat as soon as the building is closed in. In case the Contract includes more than one building, the heating shall be provided for each building in accordance with the above provision. The guarantee period for equipment shall not start until the equipment is turned over to the Owner for their use. Do not invalidate existing warranty by any action or failure to act. Clean and change air filters frequently to prevent construction dust and debris from contaminating system.
4. Operating labor shall be provided for continuous direct attendance, for frequent inspection of the system, emergency repairs, and keeping of temperature records.

- Continuous direct attendance shall mean direct attendance for twenty-four hours each day, seven days per week, Saturdays, Sundays and holidays included, throughout the progress of the work.
5. It shall be the sole responsibility of the Contractor to arrange for and pay the HVAC and/or Electrical subcontractor to operate and to put in first-class condition all portions of the permanent heating system used for heating during construction.
 6. If the system is electric heat, the foregoing requirements shall equally apply to all the comparable components thereof.
 7. The installation and operation of heating devices shall comply with all safety regulations including provisions for adequate ventilation and fire protection. Heating devices which may cause damage to finish surfaces shall not be used.
- H. Pumping and Drainage: Protect excavations, trenches, buildings and materials from rain water, ground water, backup or leakage of sewers, drains and other piping, and from water of any other origin. Promptly remove any accumulation of water. Provide and operate all pumps, piping and other equipment necessary for pumping, drainage and protection from water.
- I. Equipment and Tools: Provide all equipment including, but not limited to, hoists, lifts, scaffolding, machines, tools and the like, as needed for execution of the work. Provide safe access to all parts of the work.
- J. Temporary Enclosures: Provide temporary enclosures to maintain proper temperatures and to prevent weather damage. Always maintain legal means of egress.
- K. Snow and Ice: Remove all snow and ice which interferes with work or safety.
- L. Streets, Walks and Grounds: Maintain public and private roads and walks clear of debris caused by construction operations. Repair all damage caused to streets, drives, curbs, sidewalks, fences, poles and similar items where disturbed or damaged by building construction and leave them in as good condition after completion of the work as before operations started.
- M. Protection: Protect nearby property and the public from construction activities. Provide and maintain barricades, warning signs and lights, railings, walkways and similar items. Immediately repair damaged property to its condition before being damaged.
- N. Public Services: Provide temporary public services such as, street lighting, night lighting, sidewalks, covered passages, signs, signals and the like, as requested by authorities having jurisdiction.
- O. Construction Fencing: Provide construction fencing and barriers as applicable to the project and as required by code to protect personnel, the public, and to control access.
- P. Security: Secure site against unauthorized entry at all times. Provide secure, locked temporary enclosures. Protect the work at all times. Provide watchman service, if necessary, to protect the work.
- Q. Signs: Erect project identification signs in compliance with details to be provided by Architect. Signs shall be minimum 4' x 8' exterior grade plywood and shall contain the names of the project, Owner, Architect, major Consultants, Contractor, and major financing institution. Except for safety and warning signs, no other signs are permitted. Location as acceptable to the Architect.

- R. Fire Prevention: Take every precaution to prevent fire. Provide and maintain in good operating condition suitable and adequate fire protection equipment and services, and comply with recommendations regarding fire protection made by the representative of the fire insurance company carrying insurance on the Work or by the local fire chief or fire marshal. The area within the site limits shall be kept orderly and clean, and all combustible rubbish shall be promptly removed from the site.
- S. Egress: Maintain safe and legal means of egress at all times. At all times, provide at least two separate means of egress.
- T. Mold Control and Remediation During Construction: The Contractor shall protect construction materials and building systems from moisture damage and from conditions which promote mold growth during and after construction. The Contractor shall be responsible for mold remediation and replacement of materials which cannot be successfully remediated in accordance with the following requirements:
 - 1. Materials which become wet prior to installation shall be cleaned, treated and dried in accordance with EPA Guidelines.
 - 2. Materials which exhibit mold growth prior to installation shall not be installed and shall be removed from the site.
 - 3. Materials which exhibit mold growth after installation shall be remediated in accordance with EPA Guidelines for Remediating Building Materials with Mold Growth Caused by Clean Water. The Contractor shall engage and pay for a qualified industrial hygienist acceptable to the Owner to determine the cause of the mold growth, and to certify in writing that materials have been successfully remediated. In the event that the industrial hygienist recommends methods of remediation in addition to those in the Guidelines, the Contractor shall also be responsible for the additional remediation. Materials which can not be successfully remediated shall be removed and replaced with new materials at no additional expense to the Owner.
 - 4. Prior to the start of construction, the Contractor shall submit the name of the person in the Contractor's organization responsible for ensuring compliance with these requirements for mold control and remediation.
- U. Existing Mold-Contaminated Materials: In the event that mold-contaminated materials are encountered during remodeling operations, the Contractor shall stop work in that area and notify the Owner and Architect in writing. The Owner will engage and pay for an industrial hygienist to evaluate the situation to advise the Contractor on the proper course of action.

1.15 PRODUCTS AND SUBSTITUTIONS

- A. Specified Products: In all cases in which a manufacturer's name, trade name or other proprietary designation is used in connection with materials or articles to be furnished under this Contract, whether or not the phrase "or equal" is used after such name, the Contractor shall provide the product of the named manufacturers without substitution, unless a written request for a substitution has been submitted by the Contractor and approved in writing by the Architect.
- B. Deviations from Detailed Requirements: If the Contractor proposes to use material which, while suitable for the intended use, deviates in any way from the detailed requirements of the Contract Documents, the Contractor shall inform the Architect in writing of the nature of such deviations at the time the materials is submitted for approval, and shall request written approval of the deviation from the requirements of the Contract Documents.

- C. Approval of Substitutions: In requesting approval of deviations or substitutions, the Contractor shall provide evidence, including, but not limited to manufacturer's data, leading to a reasonable certainty that the proposed substitution or deviation will provide a quality of result at least equal to that attainable if the detailed requirements of the Contract Documents were strictly followed. If, in the opinion of the Architect, the evidence presented by the Contractor does not provide a sufficient basis for such reasonable certainty, the Architect may reject such substitution or deviation without further investigation.
- D. Intent of Contract Documents: The Contract Documents are intended to produce a building of consistent character and quality of design. All components of the building including visible items of mechanical and electrical equipment have been selected to have a coordinated design in relation to the overall appearance of the building. The Architect shall judge the design and appearance of proposed substitutes on the basis of the suitability in relation to the overall design of the Project, as well as for their intrinsic merits. The Architect will not approve as equal to materials specified proposed substitutes which in the Architect's opinion, would be out of character, obtrusive, or otherwise inconsistent with the character or quality of design of the Project. In order to permit coordinated design of color and finishes the Contractor shall furnish the substituted material in any color, finish texture, or pattern which would have been available from the manufacturer originally specified, at no additional cost to the Owner.
- E. Additional Costs or Impact: Any additional cost, or any loss or damage arising from the substitution of any material or any method for those originally specified shall be borne by the contractor, notwithstanding approval or acceptance of such substitution by the Owner or the Architect, unless such substitution was made at the written request or direction of the Owner and the Architect. Any decrease in the cost of the substitution shall be returned to the Owner.
- F. Manufacturers: To the greatest degree possible, provide primary materials and products from one manufacturer for each type or kind. Provide secondary materials as recommended by manufacturers of primary materials.
- G. Substitution Requests: Refer to Section 016200 - SUBSTITUTION REQUEST FORM. Submit 3 copies. Identify product to be replaced by substitute by reference to specification sections and drawing numbers. Provide Contractor's certification and evidence to prove compliance with Contract Document requirements as acceptable to Architect.
- H. Substitution Conditions: Substitution requests will be returned without action unless one of the following conditions is satisfied. The Contractor shall state which of the following conditions applies to the requested substitution:
 - 1. Request is due to an "or equal" clause.
 - 2. Specified material or product cannot be coordinated with other work.
 - 3. Specified material or product is not acceptable to authorities having jurisdiction.
 - 4. Substantial advantage is offered Owner in terms of cost, time, or other valuable consideration.
 - 5. Specified material or product is not available.
- I. Invalid Substitutions: Contractor's submittal and Architect's acceptance of shop drawings, samples, product data or other submittal is not a valid request for, nor an approval of a substitution unless the Contractor presents the information when first submitted as a Request for Substitution.
- J. Compatibility of Materials Used in the Work:

1. Ensure complete compatibility between materials.
2. Compatibility shall include adhesion, erosion, solubility, differential thermal response, and galvanic action.
3. Provide evidence of compatibility.
4. Provide custom testing where evidence is not available.
5. Where materials are not compatible, provide necessary isolation or transition materials and provide details of same.
6. Correct defects resulting from incompatibility including de-construction and re-construction of assemblies – whether materials are part of a submittal and substitution process or not.
7. Proposed substitutions may be rejected where compatibility information is not provided; or where compatibility is not adequately addressed, according to the Architect's judgment; or where incompatible materials would negatively impact the project's success.

1.16 DELIVERY, STORAGE AND HANDLING

- A. Manufacturer's Instructions: Strictly comply with manufacturer's instructions and recommendations and prevent damage, deterioration and loss, including theft. Minimize long-term storage at the site. Maintain environmental conditions, temperature, ventilation, and humidity within range permitted by manufacturers of materials and products used.

1.17 OWNER-FURNISHED CONTRACTOR-INSTALLED (OFCI) PRODUCTS

- A. Owner will furnish products indicated. The Contractor's Work includes providing support systems to receive Owner's equipment and making plumbing, mechanical, and electrical connections.
1. Owner will arrange for and deliver Shop Drawings, Product Data, and Samples to Contractor.
 2. Owner will arrange and pay for delivery of Owner-furnished items according to Contractor's Construction Schedule.
 3. After delivery, Owner will inspect delivered items for damage. Contractor shall be present for and assist in Owner's inspection.
 4. If Owner-furnished items are damaged, defective, or missing, Owner will arrange for replacement.
 5. Owner will arrange for manufacturer's field services and for delivery of manufacturer's warranties to Contractor.
 6. Owner will furnish Contractor the earliest possible delivery date for Owner-furnished products. Using Owner-furnished earliest possible delivery dates, Contractor shall designate delivery dates of Owner-furnished items in Contractor's Construction Schedule.
 7. Contractor shall review Shop Drawings, Product Data, and Samples and return them to Architect noting discrepancies or anticipated problems in use of product.
 8. Contractor is responsible for receiving, unloading, and handling Owner-furnished items at Project site.
 9. Contractor is responsible for protecting Owner-furnished items from damage during storage and handling, including damage from exposure to the elements.
 10. If Owner-furnished items are damaged as a result of Contractor's operations, Contractor shall repair or replace them.
 11. Contractor shall install and otherwise incorporate Owner-furnished items into the Work.
- B. Owner-Furnished Products: As directed by the Architect.

1.18 LABELS

- A. Labels, Trademarks, & Tradenames: Locate required labels on inconspicuous surfaces. Do not provide labels, nameplates, or trademarks which are not required. Provide permanent data plate on each item of equipment stating manufacturer, model, serial number, capacity, ratings and all other essential data.

1.19 RECORD DOCUMENTS

- A. Definition of As-Constructed Record Drawings: (commonly called “as-builts”) are the record of the Project as constructed based on information the Contractor provides to the Owner under the contract for construction. Because the As-constructed Record Drawings will be based on the Contractor’s mark-ups, the Architect is not responsible for the accuracy or completeness of the As-constructed Record Drawings.
- B. Definition of As-Designed Record Drawings: The record of everything the Architect designed for the Project, and including the original Construction Documents plus all addenda, Architect’s Supplemental Instructions, Change Orders, Construction Change Directives and minor changes in the work.
- C. General: Keep as-constructed record documents neatly and accurately. Record information as the work progresses and deliver to Architect at time of final acceptance. Include in record documents all field changes made, all relevant dimensions, and all relevant details of the work. Keep record documents up to date with all Architect’s Supplemental Instructions, Change Orders, Construction Change Directives and minor changes in the work clearly indicated.
- D. Drawings: Keep four separate sets of blackline prints at the site, one set each for mechanical, electrical, plumbing, and architectural/structural disciplines. Neatly and accurately note all deviations from the Contract Documents and the exact actual location of the work as installed. Marked-up and colored prints will be used as a guide to determine the progress of the work installed. Requisitions for payment will not be approved until the record documents are accurate and up-to-date.
 - 1. Work Outside Building: Record data outside of building to an accuracy of plus or minus 1 inch and determine and record the invert elevation of all drain lines.
 - 2. At completion of the work, submit one complete set of marked-up as-built prints for review. After acceptance, these marked-up as-built prints shall be used in the preparation of the as-built drawings.
 - 3. Architect shall furnish Contractor with AutoCAD or BIM Design Intent Model or both files for originals of the Contract Drawings. The Contractor shall make modifications to these files as shown on the marked-up prints. Remove superseded data to show the completed installation.
 - 4. The Contractor shall deliver the completed AutoCAD or BIM Design Intent Model or both as-constructed record drawings, in the same version as Contract Drawings, properly titled and dated to the Architect. Indicate preparer of as-built drawings. These as-built drawings shall become the property of the Owner.
- E. Specifications: Maintain one clean copy of complete specifications including addenda, modifications, and bulletins with changes, substitutions, and selected options clearly noted. Circle or otherwise clearly indicate which manufacturer and products are actually used.
- F. Operating and Maintenance Manuals: Manuals shall be submitted which contain the following:

1. Description of the system provided.
 2. Handling, storage, and installation instructions.
 3. Detailed description of the function of each principal component of the systems or equipment.
 4. Operating procedures, including prestartup, startup, normal operation, emergency shutdown, normal shutdown and troubleshooting.
 5. Maintenance procedures including lubrication requirements, intervals between lubrication, preventative and repair procedures, and complete spare parts list with cross reference to original equipment manufacturer's part numbers.
 6. Control and alarm features including schematic of control systems, control loop electric ladder diagrams, controller operating set points, settings for alarms and shutdown systems, pump curves and fan curves.
 7. Safety and environmental considerations.
- G. Copies of Operating and Maintenance Manuals: Three copies of the manuals shall be provided within sufficient time to allow for training of Owner's personnel. Submit one copy of the manuals to the Architect for review no later than 90 calendar days prior to substantial completion, or building turn over, whichever comes first. Submit the remaining five copies within 15 days after first review set is returned to contractor. Progress payment may be withheld if this requirement is not met.
- H. Additional Requirements for Operating and Maintenance Manuals: The requirements for manuals applies to each packaged and field-fabricated operating system. The manuals shall be provided in three-ring side binders with durable plastic covers. The manuals shall contain a detailed table of contents and have tab dividers for major sections and special equipment.
- I. Instructions for Owner's Personnel: Prior to final inspection, instruct the Owner's personnel in operation, adjustment and maintenance of products, equipment and systems. Provide instruction at mutually agreed upon times. Video all instruction sessions and deliver videos to Owner on thumb drive or other suitable media.
1. For equipment that requires seasonal operation provide similar instruction during other seasons.
 2. Use operation and maintenance manuals for each piece of equipment or system as the basis of instruction. Review contents in detail to explain all aspects of operation and maintenance.
- J. Framed Data: Provide charts and lists of all valves, circuits, switches, controls and equipment. Install on walls under glass at locations directed by Architect.
- 1.20 PROJECT CLOSE OUT
- A. Complete the following prior to Substantial Completion:
1. Provide Contractor's Punch List of incomplete items stating reason for incompleteness and value of incompleteness.
 2. Advise Owner of insurance change over requirements.
 3. Submit all warranties, maintenance contracts, final certificates and similar documents.
 4. Obtain Certificate of Occupancy and similar releases which permit the Owner's full and unrestricted use of the areas claimed "Substantially Complete".
 5. Submit record documents.
 6. Deliver maintenance stocks of materials where specified.

7. Make final change over of lock cylinders or cores and advise Owner of change of security responsibility.
 8. Complete startup of all systems and instruct Owner's personnel in proper operation and routine maintenance of systems and equipment.
 9. Complete clean up and restoration of damaged finishes.
 10. Remove all temporary facilities and utilities that are no longer needed.
 11. Request Architect's inspection for Substantial Completion.
- B. Architect will either issue a Certificate of Substantial Completion or notify Contractor of work which must be performed prior to issue of certificate.
- C. Complete the following prior to Final Acceptance and payment:
1. Obtain Certificate of Substantial Completion.
 2. Submit final application for payment, showing final accounting of changes in the work.
 3. Provide final releases and lien waivers not previously submitted.
 4. Submit certified copy of final punch list stating that Contractor has completed or corrected each item.
 5. Submit final meter readings, record of stored fuel and similar information.
 6. Submit Consent of Surety for final payment.
 7. Submit evidence of Contractor's continuing insurance coverage (if required by Contract Documents).

1.21 FINAL CLEANING AND REPAIR

- A. Clean Up: Immediately prior to the Architect's inspection for Substantial Completion, the Contractor shall completely clean the premises and clean and prepare the completed work in order for it to be used for its intended purpose in accordance with the Contract Documents. Such work shall include, but not be limited to the following:
1. Concrete and ceramic surfaces shall be cleaned and washed.
 2. Resilient coverings shall be cleaned, waxed and buffed as applicable.
 3. Woodwork shall be dusted and cleaned.
 4. Sash, fixtures and equipment shall be thoroughly cleaned.
 5. Stains, spots, dust, marks and smears shall be removed from all surfaces.
 6. Hardware and metal surfaces shall be cleaned and polished.
 7. Glass and plastic surfaces shall be thoroughly cleaned by professional window cleaners.
 8. Damaged, broken or scratched glass or plastic shall be replaced by the Contractor at the Contractor's expense.
 9. Vacuum carpeted and soft surfaces with high efficiency particulate arrestor (HEPA) vacuum.
 10. Use low-emitting, environmentally friendly cleaning agents and procedures. Do not use ammonia-, chlorine bleach-, or solvent-based cleaners, unless authorized in writing by Architect.
- B. Pest Control: Engage a licensed exterminator, who practices integrated pest management (IPM), to inspect the project and eliminate rodents, termites and all other insects and pests. Coordinate pest control plan with Owner. Owner's written approval is required prior to application. Submit proposed program to Owner and Architect. Program shall clearly indicate the following:
1. Area or areas to be treated.
 2. Manufacturer's printed instructions and MSDS for each chemical to be used.

3. Pollution preventive measures to be employed.

C. Repairs: Repair and touch-up all damaged and deteriorated products and surfaces.

PART 2 - PRODUCTS [Not Used]

PART 3 - EXECUTION [Not Used]

END OF SECTION

SECTION 016200

SUBSTITUTION REQUEST FORM

No substitutions will be considered without this completed substitution request form and supporting documentation. Substitutions made without completion of this form will be considered defective work as stated in AIA A201.

Date: _____

Number: _____

Re: Request for Substitution

The Contractor proposes the following substitution in accordance with the requirements of the Contract Documents:

Scope of Substitution _____

Specification Reference _____

Drawing Reference _____

Reason for Proposed Substitution _____

Benefit to Owner _____

Impact on Project Cost _____

Impact on Project Schedule _____

Impact on Guarantees and Warranties _____

Coordination and Compatibility Required with Adjacent Materials and System _____

List Deviations
From Specified
Requirements

Building Energy Performance: For substitutions of materials and products used for backstop and de-rated calculations, provide an updated envelope backstop and de-rating calculations based on the product being proposed for substitution and demonstrate the equivalence or difference with the original product[s]. Substitutions which, in the opinion of the architect, modify the energy design, and which are submitted without the required evidence of compliance with the code and the original design will be returned without review and are by definition not permitted.

Attachments: Attach supporting documentation sufficient for Architect to evaluate substitution. Substitution Request Forms submitted without adequate documentation will be returned without review.

Attachments

Response Date: List date by which response by Architect is requested to maintain project schedule and allow sufficient time for inclusion of proposed substitution.

Response Date

Submitted By

Firm and Address

Signature below signifies acceptance of responsibility for accuracy and completeness of information included in this Substitution Request Form.

Authorized Signature

ARCHITECT'S RESPONSE

Notations listed below shall have same meaning as on Architect's approval stamp. Clarifications to or changes in project schedule or time shall be processed using standard project forms.

- Architect's Response _____ Approved
- _____ Approved as Corrected
- _____ Revise and Resubmit
- _____ Rejected
- _____ Returned Without Review

Remarks

Date

Signed

END OF FORM

SECTION 017400

CONSTRUCTION WASTE MANAGEMENT

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the Specifications.

1.2 SUMMARY

- A. This Section includes requirements for the Contractor's implementation of waste management controls and systems for the duration of the Work.
- B. Develop a waste management plan, quantifying material diversion by either weight or volume to recycle and/or salvage non-hazardous construction and demolition debris.

1.3 INTENT

- A. The Owner and Architect have established that this Project shall generate the least amount of waste practical and that processes that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors shall be employed.
- B. With regard to these goals the Contractor shall develop, for the Architect's review, a Construction Waste Management Plan (CWMP) for this Project.
- C. Each Subcontractor shall be responsible for segregating his own waste into different dumpsters as directed by the Contractor.
- D. Contractor shall be responsible for ensuring that debris will be disposed of at appropriately designated licensed solid waste disposal facilities, as defined by MGL Chapter 111, Section 150A.

1.4 SUBMITTALS

- A. Waste Management Plan (WMP): Submit within 21 calendar days after receipt of Notice to Proceed, in a format acceptable to the Owner.
 - 1. Analysis of the proposed jobsite waste to be generated, including types and rough quantities.
 - 2. Landfill Options: The name of the landfills where trash and building debris will be disposed of, the applicable landfill tipping fees, and the projected cost of disposing of all Project waste in the landfills.
 - 3. Landfill Certification: Contractor's statement of verification that landfills proposed for use are licensed for types of waste to be deposited and have sufficient capacity to receive waste from this project.

4. Alternatives to Landfilling: A list of each material proposed to be salvaged or recycled during the course of the Project. Include the following and any additional items proposed:
 - a. Cardboard and paper products.
 - b. Clean dimensional wood.
 - c. Beverage containers.
 - d. Concrete.
 - e. Slurry wall materials.
 - f. Bricks and masonry.
 - g. Asphalt.
 - h. Metals from framing, banding, stud trim, ductwork, piping, rebar, roofing, other trim, steel, iron, galvanized sheet steel, stainless steel, aluminum, copper, zinc, lead, brass, and bronze.
 - i. Mechanical and electrical equipment.
 - j. Building components which can be removed relatively intact from existing construction.
 - k. Packaging materials, including cardboard, boxes, plastic sheet and film, polystyrene packaging, wood crates, plastic pails.
 - l. Glass.
 - m. Scraps from new gypsum wall board.
 - n. Carpet and pad.
 - o. Acoustical ceiling panels.
 - p. Plastics.
 5. Meetings: A description of the regular meetings to be held to address waste management.
 6. Materials Handling Procedures: A description of the means by which any waste materials identified above will be protected from contamination, and a description of the means to be employed in recycling the above materials consistent with requirements for acceptance by designated facilities.
 7. Transportation: A description of the means of transportation of the recyclable materials (whether materials will be site-separated and self-hauled to designated centers, or whether mixed materials will be collected by a waste hauler and removed from the site) and destination of materials.
- B. Waste Management Progress Reports: Concurrent with each Application for Payment, submit a written Waste Management Progress Report in the same format as required for Final Report.
- C. Waste Management Final Report: Prior to Substantial Completion, submit a written Waste Management Final Report summarizing the types and quantities of materials recycled and disposed of under the Waste Management Plan. Include the name and location of disposal facilities.
1. Material category.
 2. Generation point of waste.
 3. Total quantity of waste, by weight.
- D. Other Submittals:
1. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.
 2. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.

3. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, and/or receipts.
4. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, and/or receipts.
5. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

1.5 CONTRACTORS

- A. Contractor may subcontract work of this Section to a sub-contractor specializing in recycling and salvaging of construction waste.
- B. Gypsum Wallboard Recycling: New, paper-faced gypsum wallboard scrap (cuts from construction - not demolition waste) generated at project shall be recycled. Keep scrap dry.
- C. Acoustical Ceiling Panel Recycling: Demolition and construction waste pulpable mineral fiber ceiling panels may be recycled by Armstrong World Industries and US Gypsum. Contact Armstrong at 1-877-ARMSTRONG (1-877-276-7876) or www.armstrong.com or contact USG at 1-800-USG-4YOU or www.usg.com, to coordinate recycling efforts, apply for product approvals, and receive reclamation procedure requirements.
- D. Carpet Recycling: Demolition and construction waste carpet and carpet padding may be recycled by Carpet America Recovery Effort (CARE). Visit www.carpetrecovery.org to locate carpet reclaimers in local project area and reclamation procedure requirements.

PART 2 - PRODUCTS [Not Used]

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

- A. General: Implement Waste Management Plan as approved by the Architect. Provide containers, storage, signage, transportation, and other items as required to implement WMP for the entire duration of the Contract.

3.2 WASTE MANAGEMENT PLAN IMPLEMENTATION

- A. Manager: The Contractor shall designate an on-site person responsible for instructing workers and overseeing and documenting results of the Waste Management Plan for the Project.
- B. Distribution: The Contractor shall distribute copies of the Waste Management Plan to the Job Site Foreman, each Subcontractor, the Owner and the Architect.
- C. Instruction: The Contractor shall provide on-site instruction of appropriate separation, handling, and recycling, salvage, reuse, and return methods to be used by all parties at the appropriate stages of the Project.

- D. Separation Facilities: The Contractor shall lay out and label a specific area to facilitate separation of materials for recycling, salvage, reuse, and return. Recycling and waste bin areas are to be kept neat and clean and clearly marked in order to avoid contamination of materials. Location shall be acceptable to the Architect.

- E. Hazardous Wastes: Any unforeseen hazardous wastes shall be separated, stored, and disposed of according to local regulations and as directed by the Owner.

END OF SECTION

SECTION 024100

DEMOLITION

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the Specifications.

1.2 DESCRIPTION OF WORK

A. Work Included:

1. Selective Demolition to be coordinated with the phasing of the Work.
2. Demolition and removal of selected portions of buildings and structures and as required for new work. Refer to the Drawings for additional requirements.
3. Salvage of existing items to be reused or turned over to the facility.
4. Removal and legal disposal of demolished materials off site. Except those items specifically designated to be relocated, reused, or turned over to the facility, all existing removed materials, items, trash and debris shall become property of the Contractor and shall be completely removed from the site and legally disposed of at their expense. Salvage value belongs to the Contractor. On-site sale of materials is not permitted.
5. Demolition and removal work shall properly prepare for alteration work and new construction to be provided under the Contract.
6. Scheduling and sequencing operations without interruption to utilities serving occupied areas. If interruption is required, obtain written permission from the utility company and the Owner.

- B. Related Work: The following items are not included in this Section and are specified under the designated Sections:

1. Section 011000 - GENERAL REQUIREMENTS for temporary facilities and controls, for maintenance of access, for cleaning during construction, and for dust and noise control.
2. Section 017400 - CONSTRUCTION WASTE MANAGEMENT for waste management and recycling.

1.3 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Salvage: Detach items from existing construction and deliver them to the Owner ready for reuse, at a location designated by the Owner. Protect from weather until accepted by Owner.
- C. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated. Protect from weather until reinstallation.

- D. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.4 MATERIALS OWNERSHIP

- A. Historic items, relics, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques, antiques, and other items of interest or value to Owner that may be encountered during selective demolition remain property of the Owner as applicable. Carefully remove each item or object in a manner to prevent damage and deliver promptly to a location acceptable to the Owner.

1.5 SUBMITTALS

- A. Schedule of Selective Demolition Activities: Indicate the following:
 - 1. Detailed sequence of selective demolition and removal work, with early and late starting and finishing dates for each activity. Ensure Owner's on-site operations are uninterrupted if applicable.
 - 2. Interruption of utility services. Indicate how long utility services will be interrupted.
 - 3. Coordination for shutoff, capping, and continuation of utility services.
 - 4. Use of elevator and stairs.
 - 5. Locations of proposed dust- and noise-control temporary partitions and means of egress, including for other occupants affected by selective demolition operations.
 - 6. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.
 - 7. Means of protection for items to remain and items in path of waste removal from building.
- B. Inventory: After selective demolition is complete, submit a list of items that have been removed and salvaged, and turned over the Owner.
- C. Predemolition Video and Pictures: Show existing conditions of adjoining construction and site improvements, including finish surfaces, that might be misconstrued as damage caused by selective demolition operations. Comply with Division 01 requirements. Submit before Work begins.

1.6 QUALITY ASSURANCE

- A. Examination of Existing Conditions: The Contractor shall examine the Contract Drawings for demolition and removal requirements and provisions for new work. Verify all existing conditions and dimensions before commencing work. The Contractor shall visit the site and examine the existing conditions as he finds them and shall inform herself/himself of the character, extent and type of demolition and removal work to be performed. Submit any questions regarding the extent and character of the demolition and removal work in the manner and within the time period established for receipt of such questions during the bidding period.
- B. Demolition Firm Qualifications: An experienced firm that has specialized in demolition work similar in material and extent to that indicated for this Project.
- C. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

- D. Standards: Comply with ANSI A10.6 and NFPA 241.
- E. Predemolition Conference: Conduct conference at Project site to comply with requirements in Section 011000 - GENERAL REQUIREMENTS, Project Meetings. Review methods and procedures related to selective demolition including, but not limited to, the following:
 - 1. Inspect and discuss condition of construction to be selectively demolished.
 - 2. Review structural load limitations of existing structure.
 - 3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
 - 4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
 - 5. Review areas where existing construction is to remain and requires protection.

1.7 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 SALVAGING

- A. Salvaged for Reinstallation: Materials indicated on the Drawings to be salvaged and reinstalled shall be carefully removed and stored at a location acceptable to the Architect and Owner.
- B. Salvaged for Storage: Materials indicated on the Drawings or designated in the field by the Owner to be salvaged and stored shall be carefully removed and delivered to the Owner at locations determined by Owner.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped.
- B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.
- D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.
- E. Engage a professional engineer registered in the state that the project is located to survey condition of building to determine whether removing any element might result in structural

deficiency or unplanned collapse of any portion of structure or adjacent structures during selective demolition operations.

- F. Survey of Existing Conditions: Record existing conditions by use of preconstruction videotapes.
 - 1. Before selective demolition or removal of existing building elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.
- G. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Service/System Requirements: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.
 - 1. Arrange to shut off indicated utilities with utility companies and Owner.
 - 2. If services/systems are required to be removed, relocated, or abandoned, before proceeding with selective demolition provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
 - 3. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing. Where entire wall is to be removed, existing services/systems may be removed with removal of the wall.
 - 4. Prior to commencing cutting work in existing surfaces, take all precautionary measures to assure that mechanical and electrical services to the particular area have been made inactive. Coordinate with Fire Suppression, Plumbing, HVAC, and Electrical subcontractors. Only licensed tradesmen of that particular trade shall disconnect and cap existing mechanical and electrical items that are to be removed, abandoned and/or relocated.
 - 5. If, during the process of cutting work, existing utility lines are encountered which are not indicated on the Drawings, regardless of their condition, immediately report such items to the Architect. Do not proceed with work in such areas until instructions are issued by the Architect. Continue work in other areas.

3.3 PREPARATION

- A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
 - 1. Comply with requirements for access and protection specified in Section 011000 - GENERAL REQUIREMENTS, Temporary Facilities and Controls.
 - 2. Maintain adequate passage to and from all exits at all times. Before any work is done which significantly alters access or egress patterns, consult with the Architect and obtain approval of code required egress. Under no condition block or interfere with the free flow of people at legally required exits, or in any way alter the required condition of such exits.
- B. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

1. Strengthen or add new supports when required during progress of selective demolition.
2. Remove temporary shoring, bracing and structural supports when no longer required.
3. Post warning signs and place barricades as applicable during placement and removal of temporary shoring.

C. Conduct demolition operations to prevent injury to people and damage to adjacent buildings and facilities to remain. Ensure safe passage of people around demolition area(s).

1. Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction. Provide temporary barricades as required to limit access to demolition areas.
2. Protect existing site improvements, appurtenances, and landscaping to remain.

3.4 SELECTIVE DEMOLITION, GENERAL

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.
5. Maintain adequate ventilation when using cutting torches.
6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
7. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
9. Maintain clear unimpeded passage through the work area for safety and emergency egress.
10. Saw cut overruns in concrete and masonry for new door, window and other finish openings is not permitted. Core drill corners and finish square to match required opening.
11. Dispose of demolished items and materials promptly.
 - a. Comply with requirements in Section 017400 - CONSTRUCTION WASTE MANAGEMENT.

B. Removed and Salvaged Items:

1. Clean salvaged items.
 2. Pack or crate items after cleaning. Identify contents of containers.
 3. Store items in a secure area until delivery to Owner.
 4. Transport items to storage area designated by the Owner.
 5. Protect items from damage during transport and storage.
- C. Removed Items for Reinstallation by the Respective Trade.
1. Clean salvaged items.
 2. Pack or crate items after cleaning. Identify contents of containers.
 3. Store items in a secure area until delivery to Owner.
 4. Transport items to storage area designated by the Owner.
 5. Protect items from damage during transport and storage.
- D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.
- E. Items for Re-use and Preservation of Existing Surfaces to Remain:
1. The Contractor shall inspect closely each item specifically designated to be relocated, re-used, or turned over to the Owner prior to its removal, and immediately report damages and defects to the Architect and the Owner. The Contractor shall be responsible for any subsequent damage to the same other than latent defects not readily apparent from close inspection, and shall bear responsibility for its repair or same replacement as directed by the Architect, to the satisfaction of the Owner.
 2. Unless special surface preparation is specified under other Specification Sections, leave existing surfaces that are to remain in a condition suitable to receive new materials and/or finishes.

3.5 PROTECTION OF PUBLIC AND PROPERTY

- A. Provide all measures required by federal, state and municipal laws, regulations, and ordinances for the protection of surrounding property, the public, workmen, and Owner's employees during all demolition and removal operations. Measures are to be taken, but not limited to installation of sidewalks, sheds, barricades, fences, warning lights and signs, trash chutes and temporary lighting.
- B. Protect all walks, roads, streets, curbs, pavements, trees and plantings, on and off premises, and bear all costs for correcting such damage as directed by the Architect, and to the satisfaction of the Owner.
- C. Demolition shall be performed in such a manner that will insure the safety of adjacent property. Protect adjacent property from damage and protect persons occupying adjacent property from injuries which might occur from falling debris or other cause and so as not to cause interference with the use of other portions of the building, of adjacent buildings or the free access and safe passage to and from the same.
- D. Every precaution shall be taken to protect against movement or settlement of the building, of adjacent buildings, sidewalks, roads, streets, curbs and pavements. Provide and place at the

Contractor's own expense, all necessary bracing and shoring in connection with demolition and removal work.

- E. Remove portions of structures with care by using tools and methods that will not transfer heavy shocks to existing and adjacent building structures, both internal and external of the particular work area.
- F. Provide and maintain in proper condition, suitable fire resistive dust barriers around areas where interior demolition and removal work is in progress. Dust barriers shall prevent the dust migration to adjacent areas. Remove dust barriers upon completion of major demolition and removal in the particular work area.

3.6 DISCOVERY OF HAZARDOUS MATERIALS

- A. If hazardous materials, such as chemicals, asbestos-containing materials, or other hazardous materials are discovered during the course of the work, cease work in affected area only and immediately notify the Architect and the Owner of such discovery. Do not proceed with work in such areas until instructions are issued by the Architect. Continue work in other areas.
- B. If unmarked containers are discovered during the course of the work, cease work in the affected area only and immediately notify the Architect and the Owner of such discovery. Do not proceed with work in such areas until instructions are issued by the Architect. Take immediate precautions to prohibit endangering the containers integrity. Continue work in other areas.

3.7 CUTTING

- A. Perform all cutting of existing surfaces in a manner which will ensure a minimal difference between the cut area and new materials when patched. Use extreme care when cutting existing surfaces containing concealed utility lines which are indicated to remain and bear full responsibility for repairing or replacement of all such utilities that are accidentally damaged.
- B. Provide a flush saw cut edge where pavement, curb and concrete removals abut new construction work or existing surfaces to remain undisturbed.
- C. All slurry and water shall be contained and managed to avoid damage to existing conditions when using a wet saw or wet core driller.
- D. Obtain and pay for a hot work permit and arrange to have on-site a Fire Watch when using a cutting torch or similar item.

3.8 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Comply with requirements of Section 017400 - CONSTRUCTION WASTE MANAGEMENT and the following:
 - 1. Do not allow demolished materials to accumulate on-site.
 - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
 - 3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
- B. Burning: Do not burn demolished materials.

3.9 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Premises shall be left in a clean condition and ready to accept alteration work and new construction.

END OF SECTION

SECTION 061000
ROUGH CARPENTRY

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.2 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
1. Wood blocking, cants, and nailers.
 2. Plywood backing panels.
- B. Related Work: The following items are not included in this Section and are specified under the designated Sections:
1. Section 064020 - INTERIOR ARCHITECTURAL WOODWORK for interior woodwork not specified in this Section.
 2. Section 092110 - GYPSUM BOARD ASSEMBLIES for sheet metal backing.

1.3 SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product.
1. Indicate component materials and dimensions and include construction and application details.
 2. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used, net amount of preservative retained, and chemical treatment manufacturer's written instructions for handling, storing, installing, and finishing treated material.
 3. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials, both before and after exposure to elevated temperatures when tested according to ASTM D 5516 and ASTM D 5664.
 4. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
 5. Include copies of warranties from chemical treatment manufacturers for each type of treatment.
- B. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Stack lumber, plywood, and other panels; place spacers between each bundle to provide air circulation. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

- A. Lumber: DOC PS 20 and applicable rules of lumber grading agencies certified by the American Lumber Standards Committee Board of Review.
 - 1. Factory mark each piece of lumber with grade stamp of grading agency.
 - 2. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
 - 3. Provide dressed lumber, S4S, unless otherwise indicated.
 - 4. Provide dry lumber with 15 percent maximum moisture content at time of dressing for 2-inch nominal thickness or less, unless otherwise indicated.
- B. Plywood Panels:
 - 1. Plywood: Either DOC PS 1 or DOC PS 2, unless otherwise indicated.
 - 2. Thickness: As needed to comply with requirements specified but not less than thickness indicated.
 - 3. Factory mark panels according to indicated standard.

2.2 WOOD-PRESERVATIVE-TREATED MATERIALS

- A. Preservative Treatment by Pressure Process: AWWA U1; Use Category UC2 for interior construction not in contact with the ground, Use Category UC3b for exterior construction not in contact with the ground, and Use Category UC4a for items in contact with the ground.
 - 1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium. Do not use inorganic boron (SBX) for sill plates.
 - a. Use Borate or Copper Azole treatments. Product shall not contain creosote, arsenic or pentachlorophenol.
 - 2. For exposed items indicated to receive a stained or natural finish, use chemical formulations that do not require incising, contain colorants, bleed through, or otherwise adversely affect finishes.
- B. Kiln-dry material after treatment to a maximum moisture content of 19 percent for lumber and 18 percent for plywood. Do not use material that is warped or does not comply with requirements for untreated material.
- C. Mark each treated item with the treatment quality mark of an inspection agency approved by the American Lumber Standards Committee Board of Review.
- D. Application: Treat items indicated on Drawings, and the following:

1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
 2. Wood sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete in exterior walls.
- E. Available Products: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Hoover Treated Wood Products; PyroGuard.
 2. Koppers Performance Chemicals; LifeWood MicroPro Treatment.
 3. Sustainable Northwest Wood; Pressure Treated Wood with Copper Azule.

2.3 FIRE-RETARDANT-TREATED MATERIALS

- A. General: For all interior use materials, and where fire-retardant-treated materials are indicated, materials shall comply with requirements in this article, that are acceptable to authorities having jurisdiction, and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.
- B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flame-spread index of 25 or less when tested according to ASTM E 84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet (3.2 m) beyond the centerline of the burners at any time during the test.
1. Treatment shall not promote corrosion of metal fasteners.
 2. Exterior Type: Treated materials shall comply with requirements specified above for fire-retardant-treated lumber and plywood by pressure process after being subjected to accelerated weathering according to ASTM D 2898. Use for exterior locations and where indicated.
 3. Interior Type A: Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D 3201 at 92 percent relative humidity. Use where exterior type is not indicated.
 4. Design Value Adjustment Factors: Treated lumber shall be tested according to ASTM D 5664 and design value adjustment factors shall be calculated according to ASTM D 6841.
 5. Product shall not contain creosote, arsenic or pentachlorophenol.
- C. Kiln-dry lumber after treatment to maximum moisture content of 19 percent. Kiln-dry plywood after treatment to maximum moisture content of 15 percent.
- D. Identify fire-retardant-treated wood with appropriate classification marking of qualified testing agency.
- E. Available Products: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Technologies Boralife Inc.; Boraflame.

2.4 MISCELLANEOUS LUMBER

- A. General: Provide FRTW lumber for support or attachment of other construction, including, but not limited to, the following: Rooftop equipment bases and support curbs, blocking, cants, nailers, furring and grounds.
- B. For items of dimension lumber size, provide Construction, Stud, or No. 2 grade lumber with 15 percent moisture content.

2.5 PANEL PRODUCTS

- A. Miscellaneous Concealed Plywood: Exposure 1 sheathing, span rating to suit framing in each location, and thickness as indicated but not less than 1/2 inch.
- B. Telephone and Electrical Equipment Backing Panels: DOC PS 1, Exposure 1, C-D Plugged, fire-retardant treated, in thickness indicated or, if not indicated, not less than 1/2 inch thick.

2.6 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.
 - 1. Where carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners of Type 304 stainless steel.
- B. Nails, Wire, Brads, and Staples: ASTM F 1667.
- C. Power-Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.
- D. Wood Screws: ASME B18.6.1.
- E. Screws for Fastening to Cold-Formed Metal Framing: ASTM C 954, except with wafer heads and reamer wings, length as recommended by screw manufacturer for material being fastened.
- F. Bolts: Steel bolts complying with ASTM A 307, Grade A with ASTM A 563 hex nuts and, where indicated, flat washers.
- G. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry assemblies and equal to 4 times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.
 - 1. Material: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5; except provide stainless steel complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2, where in contact with pressure-preservative treated wood or when exposed to exterior conditions.

2.7 MISCELLANEOUS MATERIALS

- A. Adhesive, Including Gluing Furring and Sleepers to Concrete or Masonry: Formulation complying with ASTM D 3498 that is approved for use indicated by adhesive manufacturer.
1. Available Products: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Henkel Corp.; Loctite PL Premium Polyurethane Construction Adhesive.
 - b. Henkel Corp.; OSI SF450 Heavy Duty Subfloor Construction Adhesive.
 2. Low-Emitting Materials: Provide adhesives in compliance with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."
 3. VOC Content: 70 g/L or less.
 4. Do not use adhesives that contain urea formaldehyde.
 5. Methylene chloride and perchloroethylene may not be intentionally added to adhesives.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Discard units of material with defects that impair quality of carpentry and that are too small to use with minimum number of joints or optimum joint arrangement.
- B. Set carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.
- C. Apply field treatment complying with AWWA M4 to cut surfaces of preservative-treated lumber and plywood.
- D. Securely attach carpentry work as indicated and according to applicable codes and the following:
 1. Table 2304.10.1, "Fastening Schedule," in ICC's International Building Code (IBC).
 2. ICC-ES evaluation report for fastener.
- E. Countersink fastener heads on exposed carpentry work and fill holes with wood filler.
- F. Use fasteners of appropriate type and length. Pre-drill members when necessary to avoid splitting wood.

3.2 WOOD BLOCKING, AND NAILER INSTALLATION

- A. Install as required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.

- B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated.

END OF SECTION

SECTION 064020

INTERIOR ARCHITECTURAL WOODWORK

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.2 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
 - 1. Interior standing and running trim.
 - 2. Wood countertops with brackets.
- B. Related Work: The following items are not included in this Section and are specified under the designated Sections:
 - 1. Section 061000 - ROUGH CARPENTRY for wood furring, blocking, shims, and hanging strips required for installing woodwork and concealed within other construction before woodwork installation.

1.3 SUBMITTALS

- A. Product Data: For each type of product specified, including casework hardware and accessories, and finishing materials and processes.
 - 1. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements.
- B. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.
 - 1. Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.
 - a. Provide schedule of blocking required to support the Work of this Section.
 - 2. Show locations and sizes of cutouts and holes for plumbing fixtures, electrical components and other items installed in architectural woodwork.
 - 3. Show veneer leaves with dimensions, grain direction, exposed face, and identification numbers indicating the flitch and sequence within the flitch for each leaf.
- C. Samples for Verification:

1. Lumber and panel products with shop-applied opaque finish, 5 inches wide by 12 inches long for lumber and 8 by 10 inches for panels, for each finish system and color, with 1/2 of exposed surface finished.

D. Qualification Data: For Installer and fabricator.

1.4 QUALITY ASSURANCE

- A. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate products similar to those required for this Project and whose products have a record of successful in-service performance.
- B. Source Limitations: Engage a qualified woodworking firm to assume undivided responsibility for production of interior architectural woodwork with blueprint-matched wood veneers and components.
- C. Quality Standard: Unless otherwise indicated, comply with AWI/AWMAC/WI's "Architectural Woodwork Standards," latest edition, including errata, for grades of interior architectural woodwork indicated for construction, finishes, installation, and other requirements.
- D. Fire-Test-Response Characteristics: Where fire-retardant materials or products are indicated, provide materials and products with specified fire-test-response characteristics as determined by testing identical products per test method indicated by UL, ITS, or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify with appropriate markings of applicable testing and inspecting agency in the form of separable paper label or, where required by authorities having jurisdiction, imprint on surfaces of materials that will be concealed from view after installation.
- E. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Do not deliver woodwork until painting and similar operations that could damage woodwork have been completed in installation areas. If woodwork must be stored in other than installation areas, store only in areas where environmental conditions comply with requirements specified in "Project Conditions" Article.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.
 1. The HVAC systems as specified elsewhere may not provide for humidity controls. The expected ranges of relative humidity are expected to be as high as 55% to a low of uncontrolled during the heating system. Comply with AWS Section 2, Care and Storage.
- B. Field Measurements: Where woodwork is indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication, and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1. Locate concealed framing, blocking, and reinforcements that support woodwork by field measurements before being enclosed, and indicate measurements on Shop Drawings.
2. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating woodwork without field measurements. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

1.7 COORDINATION

- A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that interior architectural woodwork can be supported and installed as indicated.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Provide materials that comply with requirements of AWI/AWMAC/WI's "Architectural Woodwork Standards" for each type of woodwork and quality grade specified, unless otherwise indicated.
- B. Wood Veneers and Lumber: Provide AWI Custom Grade materials and workmanship, unless otherwise indicated. For species not listed in the AWS comply with the following:
 1. Provide AWI Lumber Grade 1 and AWI Grade A Veneer, book-matched, minimum 6 inch face veneer width. Kiln dry to 6-8 percent moisture content. Components shall be free of defects and sapwood. Match adjacent pieces for color and grain pattern.
 2. Single-Source Requirement for Wood Veneers and Solids: Intent is to provide wood which matches as closely as possible throughout the project. Provide wood veneers and solids from the same distributor, and from the same flitches and solids sources to the greatest extent possible.
- C. Wood Species for Opaque Finish: Any closed-grain hardwood.
- D. Composite Wood Products: Comply with the following:
 1. Composite Wood, General: CARB II compliant or made with binder containing no added formaldehyde (NAF).
 2. Medium-Density Fiberboard (MDF): ANSI A208.2, Grade MD.
 3. Particleboard: ANSI A208.1, Grade M-2-Exterior Glue.
 4. Softwood Plywood: DOC PS 1, Medium Density Overlay (MDO).
 5. Veneer-Faced Panel Products (Hardwood Plywood): HPVA HP-1.
 - a. Resin impregnated paper backs are not permitted. Backs shall be of compatible hardwood species and cut. Contact adhesive is not permitted.

2.2 FIRE-RETARDANT-TREATED MATERIALS

- A. General: Where fire-retardant-treated materials are indicated, use materials complying with requirements in this Article, that are acceptable to authorities having jurisdiction, and with fire-test-response characteristics specified.

1. Do not use treated materials that do not comply with requirements of referenced woodworking standard or that are warped, discolored, or otherwise defective.
 2. Use fire-retardant-treatment formulations that do not bleed through or otherwise adversely affect finishes. Do not use colorants to distinguish treated materials from untreated materials.
 3. Identify fire-retardant-treated materials with appropriate classification marking of UL, U.S. Testing, Timber Products Inspection, or another testing and inspecting agency acceptable to authorities having jurisdiction.
- B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Comply with performance requirements of AWPA C20 (lumber) and AWPA C27 (plywood). Use the following treatment type:
1. Exterior Type: Organic-resin-based formulation thermally set in wood by kiln drying.
 2. Mill lumber before treatment and implement special procedures during treatment and drying processes that prevent lumber from warping and developing discolorations from drying sticks or other causes, marring, and other defects affecting appearance of treated woodwork.
 3. Kiln-dry materials before and after treatment to levels required for untreated materials.
- C. Fire-Retardant Particleboard: Panels complying with the following requirements, made from softwood particles and fire-retardant chemicals mixed together at time of panel manufacture to achieve flame-spread index of 25 or less and smoke-developed index of 25 or less per ASTM E 84.
1. Fire-Retardant Fiberboard and Particleboard: Provide five ply construction with crossbands to prevent any ammonia fuming from the core to the face veneers.

2.3 MISCELLANEOUS MATERIALS

- A. Furring, Blocking, Shims, and Hanging Strips: Fire-retardant-treated softwood lumber, kiln dried to less than 15 percent moisture content.
- B. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide nonferrous-metal or hot-dip galvanized anchors and inserts on inside face of exterior walls and elsewhere as required for corrosion resistance. Provide toothed-steel or lead expansion sleeves for drilled-in-place anchors.
- C. Counter Supports: Provide counter support brackets to support weight of counter, plus an additional 500 lbs. concentrated load located to create greatest stress. Drill brackets for anchor bolts and fasteners.
1. Basis of Design: Rakks EH Series support brackets, or approved equal.
 2. Material: Extruded aluminum, 2" x 2" x 1/4" angle with welded mitered corners and edges ground and deburred.
 3. Refer to architectural drawings for details.
 4. Finish: Manufacturer's standard powder coated finish in color as selected by Architect.
- D. Installation Adhesives and Wood Glues: Formulations approved for use indicated by adhesive manufacturer.

1. Low-Emitting Materials: Provide adhesives in compliance with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."
2. VOC Limits: Use installation adhesives that comply with the following limits for VOC content:
 - a. Wood Glues: 30 g/L.
 - b. Contact Adhesives: Not permitted on the Project without Architect's prior approval.
3. Do not use adhesives that contain urea formaldehyde.
4. Methylene chloride and perchloroethylene may not be intentionally added to adhesives.

2.4 FABRICATION, GENERAL

- A. Wood Moisture Content: Comply with requirements of referenced quality standard for wood moisture content in relation to ambient relative humidity during fabrication and in installation areas.
- B. Sand fire-retardant-treated wood lightly to remove raised grain on exposed surfaces before fabrication.
- C. Fabricate woodwork to dimensions, profiles, and details indicated. Ease edges to radius indicated for the following:
 1. Corners of Casework and Edges of Solid-Wood (Lumber) Members and Rails: 1/16 inch.
- D. Complete fabrication, including assembly, finishing, and hardware application, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
- E. Shop-cut openings to maximum extent possible to receive hardware, appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.
 1. Seal edges of openings in countertops with a coat of varnish.

2.5 INTERIOR STANDING AND RUNNING TRIM FOR OPAQUE FINISH

- A. Grade: Custom.
- B. Wood Species: Any closed-grain hardwood.
- C. Backout or groove backs of flat trim members and kerf backs of other wide, flat members, except for members with ends exposed in finished work.
- D. Assemble casings in plant except where limitations of access to place of installation require field assembly.

2.6 INTERIOR FRAMES AND JAMBS FOR OPAQUE FINISH

- A. Grade: Custom.
- B. Wood Species: Any closed-grain hardwood.

2.7 WOOD COUNTERTOPS

- A. Grade: Custom.
- B. Type of Top: Solid wood for transparent finish, edge glued, with crown direction reversed in adjacent boards, to produce widths indicated. Select boards for similarity of color and grain and arrange boards for optimum match between adjacent boards. Species and cut as follows:
 - 1. Wood Species and Cut: As specified hereinabove.
- C. Type of Top: Panel product for transparent finish (wood veneer laminated over core) as follows:
 - 1. Wood Species and Cut: As specified hereinabove
 - 2. Matching of Adjacent Veneer Leaves: Book match.
 - 3. Matching of Adjacent Veneer Leaves: End match.
 - 4. Veneer Matching within Panel Face: Running match.
 - 5. Edge Treatment: Solid wood matching face for species and cut.
 - 6. Core Material: Exterior-grade plywood.

2.8 SHOP FINISHING

- A. General: Comply with AWI/AWMAC/WI's "Architectural Woodwork Standards" for factory finishing.
 - 1. Finish architectural woodwork at fabrication shop as specified in this Section. Defer only final touchup, cleaning, and polishing until after installation.
- B. Preparation for Finishing: Comply with referenced quality standard for sanding, filling countersunk fasteners, sealing concealed surfaces, and similar preparations for finishing architectural woodwork, as applicable to each unit of work.
 - 1. Backpriming: Apply one coat of sealer or primer, compatible with finish coats, to concealed surfaces of woodwork. Apply two coats to back of paneling and to end-grain surfaces. Concealed surfaces of plastic-laminate-clad woodwork do not require backpriming when surfaced with plastic laminate, backing paper, or thermoset decorative panels.
- C. Shop Priming: Shop apply the prime coat including backpriming, if any, for opaque-finished items specified to be field finished. Refer to Section 099000 - PAINTING AND COATING for material and application requirements.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Before installation, condition woodwork to average prevailing humidity conditions in installation areas.
- B. Before installing architectural woodwork, examine shop-fabricated work for completion and complete work as required, including removal of packing and backpriming.

3.2 INSTALLATION

- A. Grade: Install woodwork to comply with requirements for the same grade specified in Part 2 for fabrication of type of woodwork involved.
- B. Assemble woodwork and complete fabrication at Project site to comply with requirements for fabrication in Part 2, to extent that it was not completed in the shop.
- C. Install woodwork level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb (including tops) to a tolerance of 1/8 inch in 96 inches.
- D. Scribe and cut woodwork to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.
- E. Fire-Retardant-Treated Wood: Handle, store, and install fire-retardant-treated wood to comply with chemical treatment manufacturer's written instructions, including those for adhesives used to install woodwork.
- F. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing as required for complete installation. Use fine finishing nails or finishing screws for exposed fastening, countersunk and filled flush with woodwork and matching final finish if transparent finish is indicated.
- G. Standing and Running Trim: Install with minimum number of joints possible, using full-length pieces (from maximum length of lumber available) to greatest extent possible. Do not use pieces less than 60 inches long, except where shorter single-length pieces are necessary. Scarf running joints and stagger in adjacent and related members.
 - 1. Fill gaps, if any, between top of base and wall with plastic wood filler, sand smooth, and finish same as wood base if finished.
 - 2. Install standing and running trim with no more variation from a straight line than 1/8 inch in 96 inches.
- H. Countertops: Anchor securely by screwing through corner blocks of base casework or other supports into underside of countertop.
 - 1. Align adjacent countertops and form seams to comply with manufacturer's written recommendations using adhesive in color to match countertop. Carefully dress joints smooth, remove surface scratches, and clean entire surface.
 - 2. Install countertops with no more than 1/8 inch in 96-inch sag, bow, or other variation from a straight line.

3. Secure backsplashes to tops with concealed metal brackets at 16 inches and to walls with adhesive.
 4. Calk space between backsplash and wall with sealant specified in Section 079200 - JOINT SEALANTS.
- I. Touch up finishing work specified in this Section after installation of woodwork. Fill nail holes with matching filler where exposed.

3.3 ADJUSTING AND CLEANING

- A. Repair damaged and defective woodwork, where possible, to eliminate functional and visual defects; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.
- B. Clean, lubricate, and adjust hardware.
- C. Clean woodwork on exposed and semiexposed surfaces. Touch up shop-applied finishes to restore damaged or soiled areas.

END OF SECTION

SECTION 072100
THERMAL INSULATION

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.2 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
 - 1. Spray polyurethane foam insulation for gaps only.

1.3 SUBMITTALS

- A. Product Data: Manufacturer product data, installation instructions, performance criteria, and product limitations for each type of product indicated.

1.4 QUALITY ASSURANCE

- A. Source Limitations: Obtain each type of building insulation through one source from a single manufacturer.
- B. Surface-Burning Characteristics: As determined by testing identical products according to ASTM E 84 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Protect insulation materials from physical damage and from deterioration by moisture, soiling, and other sources. Store in a dry and secure location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.
- B. Protect spray polyurethane foam insulation as follows:
 - 1. Do not expose to sunlight, except to extent necessary for period of installation and concealment.
 - 2. Protect against ignition at all times. Do not deliver materials to Project site before installation time.
 - 3. Complete installation and concealment of materials as rapidly as possible in each area of construction.

PART 2 - PRODUCTS

2.1 SPRAYED-FOAM INSULATION, AT GAPS AND VOIDS

- A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Dow Chemical; GreatStuff Pro.
 - 2. ICP Adhesives and Sealants (formerly Fomo Products): Handi-Foam products.
 - 3. Approved equal.

- B. Sprayed-Foam Insulation: Water-cure closed cell polyurethane containing no urea-formaldehyde and no CFCs.
 - 1. Minimum density of 0.4 lb/cu. ft., thermal resistivity of 4.0 deg F x h x sq. ft./Btu x in. at 75 deg F.
 - 2. Fire Resistance: UL 723, Flame Spread 25 max., and Smoke Developed 50 max.
 - 3. Building Product Disclosure and Optimization, Environmental Product Declarations (EPD): Industry-wide EPD.
 - 4. Low-Emitting Materials, General Emissions Evaluation: GreenGuard Gold certification.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements of Sections in which substrates and related work are specified and for other conditions affecting performance.
 - 1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean substrates of substances harmful to insulation including removing projections capable of interfering with insulation attachment.

3.3 INSTALLATION, GENERAL

- A. Comply with insulation manufacturer's written instructions applicable to products and application indicated.

- B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed at any time to ice, rain, and snow.

- C. Extend insulation in thickness indicated to envelop entire area to be insulated. Cut and fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.

- D. Miscellaneous Voids: Install spray polyurethane foam insulation in miscellaneous voids and cavity spaces where required to prevent gaps in insulation.

1. Cure insulation with continuous natural or mechanical ventilation.
2. Remove and dispose of over-spray.

3.4 PROTECTION

- A. Protect installed insulation from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

END OF SECTION

SECTION 072500

WEATHER BARRIERS

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.2 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
 - 1. Building wrap and transition materials for new window openings.
- B. Related Work: The following items are not included in this Section and are specified under the designated Sections:
 - 1. Section 061600 - SHEATHING for sheathing joint and penetration treatment.

1.3 SUBMITTALS

- A. Product Data: For each type of product.
 - 1. For building wrap, include data on air and water-vapor permeance based on testing according to referenced standards.
- B. Evaluation Reports: For water-resistive barrier, from ICC-ES.

PART 2 - PRODUCTS

2.1 WATER-RESISTIVE BARRIER

- A. Building Wrap: ASTM E 1677, Type I air barrier; with flame-spread and smoke-developed indexes of less than 25 and 450, respectively, when tested according to ASTM E 84; UV stabilized; and acceptable to authorities having jurisdiction.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. DuPont; Styrofoam Weathermate Plus Brand Housewrap.
 - b. DuPont (E. I. du Pont de Nemours and Company); Tyvek CommercialWrap.
 - c. Reemay, Inc.; Typar HouseWrap.
 - 2. Water-Vapor Permeance: Not less than 75 g through 1 sq. m of surface in 24 hours per ASTM E 96/E 96M, Desiccant Method (Procedure A).

3. Air Permeance: Not more than 0.004 cfm/sq. ft. at 0.3-inch wg when tested according to ASTM E 2178.
 4. Allowable UV Exposure Time: Not less than three months.
- B. Building-Wrap Tape: Pressure-sensitive plastic tape recommended by building-wrap manufacturer for sealing joints and penetrations in building wrap.
- C. Sill Sealer: Provide 1/4 inch uncompressed thickness, closed cell polyethylene foam plastic, with compressive strength of 1.0 psi, 1 .5 to 2.2 pcf density. Provide widths to coordinate with width of sill members used. Provide in continuous long rolls to minimize joints.
1. Acceptable Product: DuPont “Styrofoam Brand Sill Seal” or equal.

2.2 FLEXIBLE FLASHING AND RELATED MATERIALS

- A. Acceptable Manufacturers:
1. Carlisle Coatings and Waterproofing; Miradri TWF.
 2. Carlisle Coatings and Waterproofing; CCW 705 TWF.
 3. GCP Applied Technologies (formerly W.R. Grace); Perm-A-Barrier.
 4. GCP Applied Technologies (formerly W.R. Grace); VycorV40.
- B. Provide composite membrane of minimum 32 mils of rubberized asphalt bonded to 8 mils of high density, cross-laminated polyethylene film to form a self-adhering membrane sheet flashing. Provide minimum 12 inch wide strips of flashing if not indicated otherwise.
- C. Associated Materials: Provide all primers, sealers, surface conditioners, edge sealants, fillers, adhesives, cants, mastics, and other miscellaneous materials and accessories recommended by the flashing manufacturer. To ensure compatibility, provide only associated materials that are either supplied or approved in writing by the flexible flashing manufacturer.
- D. Use Limitations and Metal Flashing Substitution: At the following locations and conditions, do not use specified membrane flexible flashing but provide break formed sheet metal flashing with fully soldered seams:
1. Wherever flashing would be exposed to sunlight.
 2. Wherever flashing is not fully supported such as when spanning a cavity wall or unsupported open space.
 3. At locations where sealant is adhered directly to the flashing.
 4. Where flashing cannot be properly installed due to its self-adhesive properties. Window jambs may such a condition.
 5. Wherever flashing is indicated or noted to be metal.
 6. Wherever flashing would be in contact with creosote, coal tar, or polysulfide joint sealants.
 7. Wherever substrate surface or ambient air temperature is below 25 degrees F.
- E. Metal Flashing Supplements: Provide sheet metal flashing supplements at the following locations and elsewhere indicated:
1. Gaps: Provide minimum 6 inch wide strip of sheet metal under flexible membrane flashing to help support flexible flashing at gaps between continuous lintels and shelf angles.

2. Drips: Provide minimum 4 inch wide strip of sheet metal where the flexible flashing is indicated to protrude from the construction assembly and would be exposed to sunlight. Overlap the membrane flashing at least 2.5 inches onto the sheet metal and extend the sheet metal out of the construction assembly and form a drip. Provide butt joints between metal flashing membranes. Use longest practical lengths of metal flashing drip edges.
- F. Sheet Metal Material - Copper: Minimum 16 ounce, ASTM B370 cold rolled copper.
1. Solder: ASTM B32, 50/50 tin/lead solder with rosin flux.

PART 3 - EXECUTION

3.1 WATER-RESISTIVE BARRIER INSTALLATION

- A. Cover exposed exterior surface of sheathing with water-resistive barrier securely fastened to framing immediately after sheathing is installed.
- B. Cover sheathing with water-resistive barrier as follows:
1. Cut back barrier 1/2 inch on each side of the break in supporting members at expansion- or control-joint locations.
 2. Apply barrier to cover vertical flashing with a minimum 4-inch overlap unless otherwise indicated.
- C. Building Wrap: Comply with manufacturer's written instructions.
1. Seal seams, edges, fasteners, and penetrations with tape.
 2. Extend into jambs of openings and seal corners with tape.

END OF SECTION

SECTION 079200

JOINT SEALANTS

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.2 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
 - 1. Joint sealants and fillers.
- B. Related Work: The following items are not included in this Section and are specified under the designated Sections:
 - 1. Section 092110 - GYPSUM BOARD ASSEMBLIES for sealing perimeter joints of gypsum board partitions to reduce sound transmission.
 - 2. Section 095100 - ACOUSTICAL CEILINGS for sealing edge moldings at perimeters of acoustical ceilings.

1.3 PERFORMANCE REQUIREMENTS

- A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.
- B. Provide joint sealants for interior applications that establish and maintain airtight and water-resistant continuous joint seals without staining or deteriorating joint substrates.

1.4 SUBMITTALS

- A. Product Data: For each product indicated.
- B. Samples for Verification: For each type and color of joint sealant required, provide Samples with joint sealants in 1/2-inch- wide joints formed between two 6-inch-long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.
- C. Joint-Sealant Schedule: Include the following information:
 - 1. Joint-sealant application, joint location, and designation.
 - 2. Joint-sealant manufacturer and product name.
 - 3. Joint-sealant formulation.
 - 4. Joint-sealant color.
- D. Qualification Data: For Installer and qualified testing agency.

- E. Product Test Reports: Based on comprehensive testing of product formulations performed by a qualified testing agency, indicating that sealants comply with requirements.
- F. Preconstruction Field Test Reports: Indicate which sealants and joint preparation methods resulted in optimum adhesion to joint substrates based on preconstruction testing specified in "Quality Assurance" Article.
- G. Compatibility and Adhesion Test Reports: From sealant manufacturer, indicating the following:
 - 1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.
 - 2. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.
- H. Field Test Report Log: For each elastomeric sealant application.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized Installer who is approved or licensed for installation of elastomeric sealants required for this Project.
- B. Product Testing: Test joint sealants using a qualified testing agency.
 - 1. Testing Agency Qualifications: Qualified according to ASTM C 1021 to conduct the testing indicated.
- C. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.
- D. Preconstruction Compatibility and Adhesion Testing: Submit to joint-sealant manufacturers, for testing indicated below, samples of materials that will contact or affect joint sealants.
 - 1. Use manufacturer's standard test method to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
 - a. Adhesion Testing: Use ASTM C 794 to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
 - b. Compatibility Testing: Use ASTM C 1087 to determine sealant compatibility when in contact with joint sealant backing and glazing and gasket materials.
 - 2. Schedule sufficient time for testing and analyzing results to prevent delaying the Work.
 - 3. For materials failing tests, obtain joint-sealant manufacturer's written instructions for corrective measures including use of specially formulated primers.
 - 4. Testing will not be required if joint-sealant manufacturers submit joint preparation data that are based on previous testing of current sealant products for adhesion to, and compatibility with, joint substrates and other materials matching those submitted.
- E. Preconstruction Field-Adhesion Testing: Before installing elastomeric sealants, field test their adhesion to Project joint substrates as follows:

1. Locate test joints where indicated on Project or, if not indicated, as directed by Architect.
2. Conduct field tests for each application indicated below:
 - a. Each type of elastomeric sealant and joint substrate indicated.
 - b. Each type of nonelastomeric sealant and joint substrate indicated.
3. Notify Architect seven days in advance of dates and times when test joints will be erected.
 - a. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C 1193.
 - 1) For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.
4. Report whether sealant in joint connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate. For sealants that fail adhesively, retest until satisfactory adhesion is obtained.
5. Evaluation of Preconstruction Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory. Do not use sealants that fail to adhere to joint substrates during testing.

- F. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01.

1.6 PROJECT CONDITIONS

- A. Do not proceed with installation of joint sealants under the following conditions:
1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.
 2. When joint substrates are wet.
 3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
 4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.7 WARRANTY

- A. Special Installer's Warranty: Installer's standard form in which Installer agrees to repair or replace elastomeric joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
1. Warranty Period: Two years from date of Substantial Completion.
- B. Special Manufacturer's Warranty: Manufacturer's standard form in which elastomeric sealant manufacturer agrees to furnish elastomeric joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion.
- C. Special warranties specified in this Article exclude deterioration or failure of joint sealants from the following:
1. Movement of the structure caused by stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.
 2. Disintegration of joint substrates from natural causes exceeding design specifications.
 3. Mechanical damage caused by individuals, tools, or other outside agents.
 4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer, based on testing and field experience.
- B. Low-Emitting Materials: Interior sealants shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- C. VOC Content: Provide interior sealants and sealant primers that comply with the following limits for VOC content:
1. Architectural Sealants: 250 g/L.
 2. Sealant Primers for Nonporous Substrates: 250 g/L.
 3. Sealant Primers for Porous Substrates: 775 g/L.
 4. Methylene chloride and perchloroethylene may not be intentionally added to sealants.
- D. Colors of Exposed Joint Sealants: Provide colors as selected by the Architect from manufacturer's full range of standard and custom colors; maximum of five colors, three standard colors and two custom colors.

2.2 JOINT SEALANTS

- A. Elastomeric Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.
- B. Stain-Test-Response Characteristics: Elastomeric sealants shall be nonstaining to porous substrates. Provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.
- C. Suitability for Contact with Food: Where elastomeric sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.2600 or ANSI/NSF Standard 51.
- D. Exterior Silicone Sealant, Single-Component Neutral-Curing Type:

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Dow Corning Corporation; 790.
 - b. GE Silicones; SilPruf LM SCS2700.
 - c. Pecora Corporation; 864.
 - d. Tremco Inc.; Spectrem 1.
 2. Extent of Use: Exterior joints in vertical and soffit surfaces.
- E. Exterior Urethane Sealant, Multicomponent Pourable (Self-Leveling) Type for Pedestrian Traffic: ASTM C 920, Type M, Grade P, Class 25, Use T, M, & O.
1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Meadows, W. R., Inc.; POURTHANE.
 - b. Pecora Corporation; Urexpan NR-200.
 - c. Sika; Sikaflex-2c SL.
 - d. Tremco Inc.; THC-901.
 2. Extent of Use: Exterior joints in horizontal surfaces.
- F. Interior Sanitary Silicone Sealant, Single-Component Mildew-Resistant, Acid-Curing (Acetoxo) Type: ASTM C 920, Type S, Grade NS, Class 25, Use NT, G, A, and O.
1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Bostik; Pure Silicone.
 - b. Dow Corning Corporation; 786 Mildew Resistant.
 - c. GE Silicones; Sanitary SCS1700.
 - d. Pecora; 898NST.
 - e. Sika; Sikasil GP.
 - f. Tremco; Tremsil 200.
 2. Extent of Use: Interior sanitary joints at toilet rooms, kitchens, and other wet areas.
- G. Interior Acrylic Latex Sealant: Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.
1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Henkel Corp.; Loctite Polyseamseal Acrylic Caulk with Silicone.
 - b. Pecora Corporation; AC-20+.
 - c. Tremco Inc.; Tremflex 834.
 2. Extent of Use: Interior non-moving joints.

2.3 JOINT-SEALANT BACKING

- A. Sealant Backing Material, General: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Cylindrical Sealant Backings: ASTM C 1330, Type B (bicellular material with a surface skin) or other type, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
 - 1. Availavle Products: Armacell Canada Inc.; ITP Standard Backer Rod; or approved equal.
- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

2.4 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
 - 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.

2. Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include concrete, masonry, unglazed surfaces of ceramic tile, and exterior insulation and finish systems.
 3. Remove laitance and form-release agents from concrete.
 4. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following metal, glass, porcelain enamel, and glazed surfaces of ceramic tile.
- B. Joint Priming: Prime joint substrates, where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
1. Do not leave gaps between ends of sealant backings.
 2. Do not stretch, twist, puncture, or tear sealant backings.
 3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
- D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
- E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
1. Place sealants so they directly contact and fully wet joint substrates.
 2. Completely fill recesses in each joint configuration.
 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads

of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
3. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.

3.4 FIELD QUALITY CONTROL

A. Field-Adhesion Testing: Field test joint-sealant adhesion to joint substrates as follows:

1. Extent of Testing: Test completed and cured sealant joints as follows:
 - a. Perform one test for each 1000 feet of joint length thereafter or one test per each floor per elevation.
2. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C1193 or Method A, Tail Procedure, in ASTM C1521.
 - a. For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.
3. Inspect tested joints and report on the following:
 - a. Whether sealants filled joint cavities and are free of voids.
 - b. Whether sealant dimensions and configurations comply with specified requirements.
 - c. Whether sealants in joints connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each kind of product and joint substrate. Compare these results to determine if adhesion complies with sealant manufacturer's field-adhesion hand-pull test criteria.
4. Record test results in a field-adhesion-test log. Include dates when sealants were installed, names of persons who installed sealants, test dates, test locations, whether joints were primed, adhesion results and percent elongations, sealant material, sealant configuration, and sealant dimensions.
5. Repair sealants pulled from test area by applying new sealants following same procedures used originally to seal joints. Ensure that original sealant surfaces are clean and that new sealant contacts original sealant.

B. Evaluation of Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

3.5 CLEANING

- A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.6 PROTECTION

- A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

END OF SECTION

SECTION 081400

WOOD DOORS

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.2 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
 - 1. Solid-core wood doors for opaque finishes to match existing.
 - 2. Louvers and glass lites for flush wood doors.

1.3 SUBMITTALS

- A. Product Data: For each type of product, including the following:
 - 1. Door core and edge construction, face type, louvers, and trim for openings.
 - 2. Factory-finishing specifications.
- B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each type of door; construction details not covered in Product Data; and the following:
 - 1. Door schedule indicating door and frame location, type, size, fire protection rating, and swing.
 - 2. Door elevations, dimension and locations of hardware, lite and louver cutouts, and glazing thicknesses.
 - 3. Details of frame for each frame type, including dimensions and profile.
 - 4. Details of electrical raceway and preparation for electrified hardware, access control systems, and security systems.
 - 5. Dimensions and locations of blocking for hardware attachment.
 - 6. Dimensions and locations of mortises and holes for hardware.
 - 7. Clearances and undercuts.
 - 8. Requirements for veneer matching.
 - 9. Doors to be factory primed or finished and application requirements.
- C. Samples for Verification:
 - 1. Factory finishes applied to actual door face materials, approximately 8 by 10 inches for each material and finish. For each wood species and transparent finish, provide set of three samples showing typical range of finish color, sheen, and grain to be expected in finished work.
 - 2. Frames for light openings, 6 inches long, for each material, type, and finish required.

- D. Field quality-control reports.

1.4 QUALITY ASSURANCE

- A. Source Limitations: Obtain flush wood doors through one source from a single manufacturer.
- B. Quality Standard: In addition to requirements specified, comply with WDMA I.S.1-A, "Architectural Wood Flush Doors."
 - 1. WDMA I.S.1-A Performance Grade: Extra Heavy Duty.
- C. Fire-Rated Door Inspector Qualifications: Inspector for field quality-control inspections of fire-rated door assemblies shall comply with qualifications set forth in NFPA 80, Section 5.2.3.1 and the following:
- D. Egress Door Inspector Qualifications: Inspector for field quality-control inspections of egress door assemblies shall comply with qualifications set forth in NFPA 101, Section 7.2.1.15.4 and the following:
- E. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Comply with requirements of referenced standard and manufacturer's written instructions.
- B. Package doors individually in plastic bags or cardboard cartons.
- C. Mark each door on top rail with opening number used on Shop Drawings.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install doors until spaces are enclosed and weathertight, wet-work in spaces is complete and dry, and HVAC system is operating and maintaining temperature and relative humidity at levels designed for building occupants for the remainder of construction period.

1.7 WARRANTY

- A. Special Warranty: Manufacturer's standard form, signed by manufacturer, Installer, and Contractor, in which manufacturer agrees to repair or replace doors that are defective in materials or workmanship, have warped (bow, cup, or twist) more than 1/4 inch in a 42-by-84-inch section, or show telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch span.
 - 1. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.
 - 2. Warranty shall include hardware installation and replacement of glass and glazing.
 - 3. Warranty shall be in effect during the following period of time from date of Substantial Completion:
 - a. Solid-Core Interior Doors: Life of installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Lambton Doors; EnviroDesign Series.
 2. Masonite Architectural; Aspiro and Graham Series (formerly Algoma and Marshfield). Cendura Series is not acceptable.
 3. Oregon Doors; Architectural Series.
 4. VT Industries Inc.; Eggers and Heritage collections.

2.2 DOOR CONSTRUCTION, GENERAL

- A. Doors for Opaque Finish:
1. Grade: Premium.
 2. Faces for Interior Doors: Either medium-density overlay (MDO) or high-density fiberboard (HDF).
 3. Stiles: Match face.
 4. Cross-Banding: 1/8 in. high density fiberboard, no added formaldehyde (NAF).
 5. Adhesives: WDMA T.M.-6, Type I.
 6. Factory Primer: Manufacturer's standard water-based low VOC primer.

2.3 SOLID-CORE DOORS

- A. Cores: Comply with the following requirements:
1. Composite Wood, General: CARB II compliant or made with binder containing no added formaldehyde (NAF).
 2. Particle Core: ANSI A 208.1, Grade 1-LD-2.
 3. Agrifiber Core: ANSI A 208.1, Grade 1-LD-2.
 4. Structural Composite Lumber Core: WDMA I.S.10, Timberstrand LSL.
 5. Provide doors with structural composite lumber cores instead of particleboard cores at locations where exit devices are indicated or where light or louver cutouts exceed 40% of the door area.
- B. Interior Veneer-Faced Doors:
1. Construction: Five plies, hot-pressed, with stiles and rails bonded to core, then entire unit abrasive planed before veneering.

2.4 LIGHT FRAMES

- A. Wood Louvers: Door manufacturer's standard solid-wood louvers, unless otherwise indicated.
1. Wood Species: Same species as door faces.
 2. Profile: Flat.

- B. Wood Beads for Light Openings in Wood Doors: Provide manufacturer's standard wood beads unless otherwise indicated.
 - 1. Wood Species: Same species as door faces.
 - 2. Profile: Manufacturer's standard shape.
 - 3. At wood-core doors with 20-minute fire-protection ratings, provide wood beads and metal glazing clips approved for such use.

- C. Wood-Veneered Beads for Light Openings in Fire Doors: Manufacturer's standard wood-veneered noncombustible beads matching veneer species of door faces and approved for use in doors of fire rating indicated. Include concealed metal glazing clips where required for opening size and fire rating indicated.

2.5 GLAZING SYSTEMS

- A. Glazing: Provide factory installed glass lites, tempered.

2.6 FABRICATION

- A. Factory fit doors to suit frame-opening sizes indicated, with the following uniform clearances and bevels, unless otherwise indicated:
 - 1. Comply with clearance requirements of referenced quality standard for fitting. Comply with requirements in NFPA 80 for fire-rated doors.

- B. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3. Comply with final hardware schedules, door frame Shop Drawings, ANSI/BHMA/DHI A115-W series standards, and hardware templates.
 - 1. Coordinate measurements of hardware mortises in metal frames to verify dimensions and alignment before factory machining. Drill pilot holes for screws for butt hinges and lock fronts at the factory.
 - 2. Metal Astragals: Factory prime and premachine astragals and formed-steel edges for hardware for pairs of fire-rated doors to receive concealed vertical rod exit devices.

- C. Transom and Side Panels: Fabricate matching panels with same construction, exposed surfaces, and finish as specified for associated doors. Finish bottom edges of transoms and top edges of rabbeted doors same as door stiles.
 - 1. Fabricate door and transom panels with full-width, solid-lumber meeting rails. Provide factory-installed spring bolts for concealed attachment into jambs of metal doorframes.

- D. Openings: Cut and trim openings through doors to comply with applicable requirements of referenced standards for kind(s) of door(s) required.
 - 1. Light Openings: Trim openings with moldings of material and profile indicated.
 - 2. Louvers: Factory install louvers in prepared openings.
 - 3. Glazing: Factory install glazing in doors indicated to be factory finished.

2.7 FACTORY FINISHING

- A. Doors for Opaque Finish: Factory prime faces and edges of doors, including cutouts, with one coat of wood primer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine doors and installed door frames, with Installer present, before hanging doors.
 - 1. Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs.
 - 2. Reject doors with defects.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install doors to comply with manufacturer's written instructions, referenced quality standard, and as indicated.
 - 1. Install fire-rated doors in corresponding fire-rated frames according to NFPA 80.
 - 2. Install smoke- and draft-control doors according to NFPA 105.
- B. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.
- C. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

3.3 FIELD QUALITY CONTROL

- A. Inspection Agency: Engage a qualified inspector to perform inspections and to furnish reports to Architect.
- B. Inspections:
 - 1. Egress Door Inspections: Inspect each door equipped with panic hardware, each door equipped with fire exit hardware, each door located in an exit enclosure, each electrically controlled egress door, and each door equipped with special locking arrangements in accordance with NFPA 101, Section 7.2.1.15.
- C. Repair or remove and replace installations where inspections indicate that they do not comply with specified requirements.
- D. Reinspect repaired or replaced installations to determine if replaced or repaired door assembly installations comply with specified requirements.
- E. Prepare and submit separate inspection report for each fire-rated door assembly indicating compliance with each item listed in NFPA 80 and NFPA 101.

3.4 ADJUSTING

- A. Operation: Rehang or replace doors that do not swing or operate freely.
- B. Protection: Provide temporary protection to ensure work being without damage or deterioration at time of final acceptance. Remove protections and reclean as necessary immediately before final acceptance.
- C. Finished Doors: Replace doors that are damaged or do not comply with requirements. Doors may be repaired or refinished if work complies with requirements and shows no evidence of repair or refinishing.

END OF SECTION

SECTION 085200

WOOD WINDOWS

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.2 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
 - 1. Fixed and operable PVC-clad wood-framed windows with factory-installed glass and glazing, and with primed wood interior finish.

1.3 PERFORMANCE REQUIREMENTS

- A. General: Provide wood windows capable of complying with performance requirements indicated, based on testing manufacturer's windows that are representative of those specified and that are of test size indicated below:
 - 1. Minimum size required by AAMA/NWWDA 101/I.S.2.
- B. AAMA/NWWDA Performance Requirements: Provide wood windows of the performance class and grade indicated that comply with AAMA/NWWDA 101/I.S.2.
 - 1. Performance Class: C - Commercial.
 - 2. Performance Grade: Minimum for performance class indicated.
 - 3. Exception to AAMA/NWWDA 101/I.S.2: In addition to requirements for performance class and performance grade, design glass framing system to limit lateral deflections of glass edges to less than 1/175 of glass-edge length or 3/4 inch, whichever is less, at design pressure based on Code requirements.
- C. Structural Performance: Provide wood windows capable of withstanding the following, including wind loads based on passing AAMA/NWWDA 101/I.S.2, Uniform Load Structural Test, at basic wind speed indicated:
 - 1. Deflection: Based on passing AAMA/NWWDA 101/I.S.2, Uniform Load Deflection Test.
 - 2. Deflection: Design glass framing system to limit lateral deflections of glass edges to less than 1/175 of glass-edge length or 3/4 inch, whichever is less, at design pressure based on structural computations.
 - 3. Wind Speed: As required by Code.
- D. Air Infiltration: Maximum rate not more than indicated when tested according to AAMA/NWWDA 101/I.S.2, Air Infiltration Test.

1. Maximum Rate: As required by Code.
 - E. Water Resistance: No water leakage as defined in AAMA/NWWDA referenced test methods at a water test pressure equaling that indicated, when tested according to AAMA/NWWDA 101/I.S.2, Water Resistance Test.
 1. Test Pressure: 15 percent of positive design pressure, but not less than 2.86 lbf/sq. ft. or more than 12 lbf/sq. ft..
 - F. Thermal Transmittance: Provide wood windows with a whole-window U-value maximum indicated at 15-mph exterior wind velocity and winter condition temperatures when tested according to AAMA 1503.
 1. U-Value: As required by Code.
 - G. Solar Heat-Gain Coefficient: Provide wood windows with a whole-window SHGC maximum as required by Code determined according to NFRC 200 procedures. Submit proof of compliance with submittals as specified.
- 1.4 SUBMITTALS
- A. Product Data: Include construction details, material descriptions, fabrication methods, dimensions of individual components and profiles, hardware, finishes, and operating instructions for each type of wood window indicated.
 - B. Shop Drawings: Include plans, elevations, sections, details, hardware, attachments to other Work, operational clearances, and the following:
 1. Mullion details, including reinforcement and stiffeners.
 2. Joinery details.
 3. Expansion provisions.
 4. Flashing and drainage details.
 5. Weather-stripping details.
 6. Glazing details.
 7. Window cleaning provisions.
 8. For installed products indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation and used to determine the following:
 - a. Structural test pressures and design pressures from basic wind speeds indicated.
 - b. Deflection limitations of glass framing systems.
 - C. Samples for Verification: For wood window components required, prepared on Samples of size indicated below.
 1. Main Framing Member: 12-inch-long, full-size sections of extrusions with factory-applied color finish.
 2. Hardware: Full-size units with factory-applied finish.
 3. Weather Stripping: 12-inch-long sections.
 - D. Qualification Data: For Installer and professional engineer.

- E. Product Test Reports: Based on evaluation of comprehensive tests performed within the last four years by a qualified testing agency, for each type, grade, and size of wood window. Test results based on use of downsized test units will not be accepted.
- F. Maintenance Data: For operable window sash, operating hardware, weather-stripping and finishes to include in maintenance manuals.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: An installer acceptable to wood window manufacturer for installation of units required for this Project.
- B. Testing Agency Qualifications: An independent testing agency, acceptable to authorities having jurisdiction, with the experience and capability to conduct the testing indicated, as documented according to ASTM E 548.
- C. Source Limitations: Obtain wood windows through one source from a single manufacturer.
- D. Product Options: Information on Drawings and in Specifications establishes requirements for wood windows' aesthetic effects and performance characteristics. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction. Performance characteristics are indicated by criteria subject to verification by one or more methods including preconstruction testing, field testing, and in-service performance.
- E. Fenestration Standard: Comply with AAMA/NWWDA 101/I.S.2, "Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood Windows and Glass Doors," for minimum standards of performance, materials, components, accessories, and fabrication unless more stringent requirements are indicated.
 - 1. Provide AAMA-certified wood windows with an attached label.
- F. Glazing Publications: Comply with published recommendations of glass manufacturers and GANA's "Glazing Manual" unless more stringent requirements are indicated.

1.6 PROJECT CONDITIONS

- A. Field Measurements: Verify wood window openings by field measurements before fabrication and indicate measurements on Shop Drawings.
 - 1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish opening dimensions and proceed with fabricating wood windows without field measurements. Coordinate wall construction to ensure that actual opening dimensions correspond to established dimensions.

1.7 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace wood windows that fail in materials or workmanship within specified warranty period. Failures include, but are not limited to, the following:
 - 1. Failure to meet performance requirements.

2. Structural failures including excessive deflection.
 3. Water leakage, air infiltration, or condensation.
 4. Faulty operation of movable sash and hardware.
 5. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
 6. Insulating glass failure.
- B. Warranty Period: Two years from date of Substantial Completion.
- C. Warranty Period for Metal Finishes: Ten years from date of Substantial Completion.
- D. Warranty Period for Glass: Ten years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis-of-Design: Andersen Series 400, or approved equals.
- B. Available Equal Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Clad Wood Windows:
 - a. Eagle Window & Door, Inc.
 - b. Kolbe & Kolbe Millwork Co., Inc.
 - c. Marvin Windows and Doors.

2.2 MATERIALS

- A. Wood: Clear ponderosa pine or another suitable fine-grained lumber; kiln dried to a moisture content of 6 to 12 percent at time of fabrication; free of visible finger joints, blue stain, knots, pitch pockets, and surface checks larger than 1/32 inch deep by 2 inches wide; water-repellent preservative treated.
- B. Vinyl for Cladding: Consisting of a rigid PVC sheath, made from PVC complying with ASTM D 4726, not less than 35-mil average thickness, in permanent, integral color finish, mechanically bonded to exterior wood sash and frame members.
1. Color: As selected by the Architect from manufacturer's full range.
- C. Wood Trim and Glazing Stops: Material and finish to match frame members.
- D. Fasteners: Aluminum, nonmagnetic stainless steel, epoxy adhesive, or other materials warranted by manufacturer to be noncorrosive and compatible with wood window members, cladding, trim, hardware, anchors, and other components.
1. Exposed Fasteners: Unless unavoidable for applying hardware, do not use exposed fasteners. For application of hardware, use fasteners that match finish of member or hardware being fastened, as appropriate.

- E. Anchors, Clips, and Accessories: Aluminum, nonmagnetic stainless steel, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions; provide sufficient strength to withstand design pressure indicated.
- F. Reinforcing Members: Aluminum, or nonmagnetic stainless steel, or nickel/chrome-plated steel complying with ASTM B 456 for Type SC 3 severe service conditions, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions; provide sufficient strength to withstand design pressure indicated.
- G. Compression-Type Weather Stripping: Provide compressible weather stripping designed for permanently resilient sealing under bumper or wiper action and for complete concealment when wood window is closed.
 - 1. Weather-Stripping Material: Elastomeric cellular preformed gaskets complying with ASTM C 509.
- H. Sliding-Type Weather Stripping: Provide woven-pile weather stripping of wool, polypropylene, or nylon pile and resin-impregnated backing fabric. Comply with AAMA 701/702.
 - 1. Weather Seals: Provide weather stripping with integral barrier fin or fins of semirigid, polypropylene sheet or polypropylene-coated material. Comply with AAMA 701/702.
- I. Replaceable Weather Seals: Comply with AAMA 701/702.

2.3 GLAZING

- A. Insulating-Glass Units for Vertical Glazing: Minimum 3/4 inch thick insulating glass consisting of two equal lites with low-e coating on No. 2 surface and argon gas filled. Thickness sufficient to maintain DP rating on the window for each window size on the project.
- B. General: Comply with AAMA/NWWDA 101/I.S. 2.

2.4 INSECT SCREENS

- A. General: Design windows and hardware to accommodate screens in a tight-fitting, removable arrangement, with a minimum of exposed fasteners and latches. Provide for each operable exterior sash or ventilator.
- B. Aluminum Insect Screen Frames: Manufacturer's standard aluminum alloy complying with SMA 1004. Fabricate frames with mitered or coped joints, concealed fasteners, and removable PVC spline/anchor concealing edge of frame.
 - 1. Aluminum Tubular Framing Sections and Cross Braces: Roll-formed from aluminum sheet with minimum wall thickness as required for class indicated.
 - 2. Finish: Baked-on organic coating in color selected by Designer from manufacturer's full range.
- C. Glass-Fiber Mesh Fabric: Manufacturer's standard mesh of PVC-coated, glass-fiber threads; woven and fused to form a fabric mesh resistant to corrosion, shrinkage, stretch, impact damage, and weather deterioration in the following color. Comply with ASTM D 3656.
- D. Wickets: Not allowed.

2.5 ACCESSORIES

- A. Grids: Removable grids and simulated divided lites as indicated on the Drawings. Color as selected by Architect.

2.6 FABRICATION

- A. General: Fabricate wood windows, in sizes indicated, that comply with AAMA/NWWDA 101/I.S.2 for performance class and performance grade indicated. Include a complete system for assembling components and anchoring windows.
- B. Exterior Cladding: Minimum thickness 0.050 inch.
- C. Reglazing: Fabricate wood windows that are reglazable without dismantling sash or ventilator framing.
- D. Weather Stripping: Provide full-perimeter weather stripping for each operable sash and ventilator, unless otherwise indicated.
 - 1. Double-Hung Windows: Provide weather stripping only at horizontal rails of operable sash.
- E. Factory machine windows for openings and hardware that is not surface applied.
- F. Mullions: Provide mullions and cover plates as shown, matching window units, complete with anchors for support to structure and installation of window units. Allow for erection tolerances and provide for movement of window units due to thermal expansion and building deflections, as indicated. Provide mullions and cover plates capable of withstanding design loads of window units.
- G. Factory-Glazed Fabrication: Except for light sizes in excess of 100 united inches, glaze wood windows in the factory where practical and possible for applications indicated. Comply with AAMA/NWWDA 101/I.S.2.
- H. Complete fabrication, assembly, finishing, hardware application, and other work in the factory to greatest extent possible. Disassemble components only as necessary for shipment and installation. Allow for scribing, trimming, and fitting at Project site.

2.7 WOOD FINISHES

- A. Factory-Finished Windows: Provide fabricator's standard factory finish consisting of prime coat applied to interior wood surfaces.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine openings, substrates, structural support, anchorage, and conditions, with Installer present, for compliance with requirements for installation tolerances; rough opening dimensions; levelness of sill plate; coordination with wall flashings, vapor retarders, and other built-in components; and other conditions affecting performance of work.

1. Masonry Surfaces: Visibly dry and free of excess mortar, sand, and other construction debris.
2. Metal Surfaces: Dry; clean; free of grease, oil, dirt, rust, corrosion, and welding slag; without sharp edges or offsets at joints.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General: Comply with manufacturer's written instructions for installing windows, hardware, accessories, and other components; Drawings; and Shop Drawings.
- B. Install windows level, plumb, square, true to line, without distortion or impeding thermal movement, anchored securely in place to structural support, and in proper relation to wall flashing and other adjacent construction.
- C. Set sill members in bed of sealant or with gaskets, as indicated, for weathertight construction.
- D. Metal Protection: Separate aluminum and other corrodible surfaces from sources of corrosion or electrolytic action at points of contact with other materials by complying with requirements specified in "Dissimilar Materials" Paragraph in Appendix B in AAMA/NWWDA 101/I.S.2.

3.3 ADJUSTING

- A. Adjust operating sashes and ventilators, screens, hardware, and accessories for a tight fit at contact points and weather stripping for smooth operation and weathertight closure. Lubricate hardware and moving parts.

3.4 PROTECTION AND CLEANING

- A. Protect window surfaces from contact with contaminating substances resulting from construction operations. In addition, monitor window surfaces adjacent to and below exterior concrete and masonry surfaces during construction for presence of dirt, scum, alkaline deposits, stains, or other contaminants. If contaminating substances do contact window surfaces, remove contaminants immediately according to manufacturer's written recommendations.
- B. Clean exposed surfaces immediately after installing windows. Avoid damaging protective coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances.
- C. Clean factory-glazed glass immediately after installing windows. Comply with manufacturer's written recommendations for final cleaning and maintenance. Remove nonpermanent labels and clean surfaces.
- D. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.

END OF SECTION

SECTION 092110

GYPSUM BOARD ASSEMBLIES

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.2 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
 - 1. Interior gypsum wallboard, new and repairs and patching to existing.
 - 2. Acoustic insulation (sound attenuation batts) in gypsum wallboard assemblies.
 - 3. Non-load-bearing steel framing, including angles in partial-height partitions.
- B. Related Work: The following items are not included in this Section and are specified under the designated Sections:
 - 1. Section 061000 - ROUGH CARPENTRY for plywood backing panels.

1.3 PERFORMANCE REQUIREMENTS

- A. Structural Performance:
 - 1. Design framing system to maintain clearances at openings, to allow for construction tolerances, and to accommodate live load deflection of primary building structure.
 - 2. Provide metal framing engineered to meet code requirements, project requirements, required heights, and the following deflection criteria. For gypsum board assemblies without applied rigid finishes L/240; for gypsum board assemblies with applied rigid finishes such as tile, stone, wood paneling L/360. Lateral load 5 psf except at shafts. Lateral load at shafts shall be required based on analysis of equipment and systems using shafts.
 - 3. Provide fire stop tracks capable of withstanding deflection within limits and under conditions indicated.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: If materials and systems other than those specified and those indicated on the Drawings are proposed for use, submit shop drawings signed and sealed by a structural engineer licensed in the jurisdiction of the project certifying proposed systems meet code and project requirements. and specified deflection criteria.
- C. Samples: Full-size Sample in 12-inch-long length for each trim accessory indicated.

1.5 QUALITY ASSURANCE

- A. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.
- B. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.

1.6 STORAGE AND HANDLING

- A. Store materials inside under cover and keep them dry and protected against damage from weather, condensation, direct sunlight, construction traffic, and other causes. Stack panels flat to prevent sagging.

1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.
- B. Do not install interior products until installation areas are enclosed and conditioned.
- C. Do not install panels that are wet, those that are moisture damaged, and those that are mold damaged.
 - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 - PRODUCTS

2.1 NON-LOAD-BEARING STEEL FRAMING, GENERAL

- A. Framing Members, General: Comply with ASTM C 754 for conditions indicated.
 - 1. Steel Sheet Components: Comply with ASTM C 645 requirements for metal, unless otherwise indicated.
 - 2. Protective Coating: Manufacturer's standard corrosion-resistant zinc coating, unless otherwise indicated.
 - 3. Recycled Content: Use minimum recycled content of 25%.

2.2 SUSPENSION SYSTEM COMPONENTS

- A. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.0625-inch-diameter wire, or double strand of 0.0475-inch-diameter wire.
- B. Hanger Attachments to Concrete:

1. Anchors: Fabricated from corrosion-resistant materials with holes or loops for attaching wire hangers and capable of sustaining, without failure, a load equal to 5 times that imposed by construction as determined by testing according to ASTM E 488 by an independent testing agency.
 - a. Type: Postinstalled, expansion anchor.
- C. Wire Hangers: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.162-inch diameter.
- D. Carrying Channels: Cold-rolled, commercial-steel sheet with a base-metal thickness of 0.0538 inch and minimum 1/2-inch-wide flanges with depth as required for span and loading and indicated on Drawings.
- E. Furring Channels (Furring Members): 0.0538-inch bare-steel thickness, with minimum 1/2-inch-wide flanges, 3/4 inch deep.
- F. Grid Suspension System for Ceilings: ASTM C 645, direct-hung system composed of main beams and cross-furring members that interlock.
 1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Armstrong World Industries, Inc.; Drywall Grid Systems.
 - b. Chicago Metallic Corporation; Drywall Furring System.
 - c. USG Corporation; Drywall Suspension System.
 2. Performance Requirements: Ceiling support system shall support a live load of 6 psf minimum at L/240.

2.3 STEEL FRAMING FOR FRAMED ASSEMBLIES

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 1. California Expanded Metals Co. (CEMCO).
 2. EB Metal U.S.
 3. MarinoWARE.
 4. Studco Building Systems.
- B. Steel Studs and Runners: ASTM C 645.
 1. Minimum Base-Steel (Uncoated) Thickness: 0.0296 inches (20 gage).
- C. Slip-Type Head Joints: Where indicated, provide one of the following:
 1. Single Long-Leg Runner System: ASTM C 645 top runner with 2-inch- deep flanges in thickness not less than indicated for studs, installed with studs friction fit into top runner and with continuous bridging located within 12 inches of the top of studs to provide lateral bracing.
 2. Double-Runner System: ASTM C 645 top runners, inside runner with 2-inch-deep flanges in thickness not less than indicated for studs and fastened to studs, and outer runner sized to friction fit inside runner.

3. Deflection Track / Deflection Clip: Steel sheet top runner manufactured to prevent cracking of finishes applied to interior partition framing resulting from deflection of structure above; in thickness not less than indicated for studs and in width to accommodate depth of studs.
 - a. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
 - 1) Brady Innovations; Sliptrack Systems.
 - 2) California Expanded Metals Co. (CEMCO); CST Slotted Tracks.
 - 3) Clark Dietrich Building Systems; MaxTrak Slotted Deflection Track.
 - 4) Steel Network Inc. (The); VertiTrack VT Series.

- D. Fire Stop Tracks: Top runner manufactured to allow partition heads to expand and contract with movement of the structure while maintaining continuity of fire-resistance-rated assembly indicated; in thickness compatible with studs and in width to accommodate depth of studs.
 1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
 - a. California Expanded Metals Co. (CEMCO); FAS-TRK 1000 Slotted Tracks.
 - b. Clark Dietrich Building Systems; BlazeFrame Fire Stop Deflection Track.
 - c. Fire Trak Corp.; Fire Trak attached to studs with Fire Trak Slip Clip.
 - d. GCPAT; FlameSafe FlowTrack System.

- E. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.
 1. Minimum Base-Metal Thickness: 0.0312 inch (20 gauge).

- F. Cold-Rolled Channel Bridging: 0.0538-inch bare-steel thickness, with minimum 1/2-inch- wide flanges.
 1. Depth: 1-1/2 inches.
 2. Clip Angle: Not less than 1-1/2 by 1-1/2 inches, 0.068-inch-thick, galvanized steel.

- G. Hat-Shaped, Rigid Furring Channels: ASTM C 645.
 1. Minimum Base-Metal Thickness: 0.0312 inch (20 gauge).
 2. Depth: 1-1/2 inches.

- H. Resilient Furring Channels: 1/2-inch-deep, steel sheet members designed to reduce sound transmission. Strictly comply with manufacturer's installation instruction.
 1. Basis-of-Design: ClarkDietrich RC Deluxe, asymmetrical configuration.

- I. Resilient Sound Isolation Clips: Provide galvanized steel and resilient material sound-isolation clips, equal to the following:
 1. Kinetics Noise Control Co.; IsoMax.
 2. PAC International, Inc.; RSIC-1.
 3. Pliteq, Inc.; GenieClip.
 4. Studco Building Systems; Resilmount A237R.

- J. Z-Shaped Furring: With slotted or nonslotted web, face flange of 1-1/4 inches wall attachment flange of 7/8 inch, minimum bare-metal thickness of 0.0179 inch, and depth required to fit insulation thickness indicated.
- K. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.
- L. Isolation Strip at Exterior Walls: Adhesive-backed, closed-cell foam strips that allow fastener penetration without foam displacement, 1/8 inch thick, in width to suit steel stud size.

2.4 INTERIOR GYPSUM BOARD

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. CertainTeed Gypsum, Inc.
 - 2. Georgia-Pacific (G-P) Gypsum.
 - 3. National Gypsum Company.
 - 4. United States Gypsum Company (USG).
- B. Gypsum Wallboard: ASTM C 1396.
 - 1. Thickness: 1/2 inch and 5/8 inch as indicated.
 - 2. Long Edges: Tapered.
 - 3. Building Product Disclosure and Optimization, Environmental Product Declarations (EPD): Type III EPD.
 - 4. Low-Emitting Materials, General Emissions Evaluation: GreenGuard Gold certification.
- C. Gypsum Wallboard, Fire-Resistant Type X: ASTM C 1396.
 - 1. Thickness: 5/8 inch.
 - 2. Long Edges: Tapered.
 - 3. Building Product Disclosure and Optimization, Environmental Product Declarations (EPD): Type III EPD.
 - 4. Building Product Disclosure and Optimization, Material Ingredients: Health Product Declaration (HPD) or Declare product labels.
 - 5. Low-Emitting Materials, General Emissions Evaluation: GreenGuard Gold certification.
- D. Moisture- and Mold-Resistant Gypsum Board: ASTM C 1396. With moisture- and mold-resistant core and paper surfaces.
 - 1. Core: 5/8 inch, Type X.
 - 2. Long Edges: Tapered.
 - 3. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.
 - 4. Building Product Disclosure and Optimization, Environmental Product Declarations (EPD): Type III EPD.
 - 5. Building Product Disclosure and Optimization, Material Ingredients: Declare product labels.
 - 6. Low-Emitting Materials, General Emissions Evaluation: GreenGuard Gold certification.

2.5 TRIM ACCESSORIES

- A. Interior Trim: ASTM C 1047.
 - 1. Material: Galvanized or aluminum-coated steel sheet or rolled zinc, with flanges for mechanical fastening, unless otherwise indicated.
 - 2. Shapes:
 - a. Cornerbead.
 - b. Bullnose bead.
 - c. LC-Bead: J-shaped; exposed long flange receives joint compound.
 - d. Expansion (control) joint. For control joints in fire rated walls provide Cemco FAS 093X fire-rated control joint or equal.
 - e. Curved-Edge Cornerbead: With notched or flexible flanges.
- B. Aluminum Trim: Extruded accessories of profiles and dimensions indicated.
 - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Fry Reglet Corp.
 - b. Flannery, Inc.
 - c. Gordon, Inc.
 - d. Pittcon Industries.
 - 2. Aluminum: Alloy and temper with not less than the strength and durability properties of ASTM B 221, Alloy 6063-T5.
 - 3. Finish: Corrosion-resistant primer compatible with joint compound and finish materials specified.

2.6 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C 475/C 475M.
- B. Joint Tape:
 - 1. Interior Gypsum Wallboard: Paper.
 - 2. Tile Backing Panels: As recommended by panel manufacturer.
- C. Joint Compound for Interior Gypsum Wallboard: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.
 - 1. Prefilling: At open joints, rounded or beveled panel edges, and damaged surface areas, use setting-type taping compound.
 - 2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting-type taping compound.
 - 3. Fill Coat: For second coat, use setting-type, sandable topping compound.
 - 4. Finish Coat: For third coat, use setting-type, sandable topping compound.
 - 5. Skim Coat: For final coat of Level 5 finish, use setting-type, sandable topping compound.

2.7 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.
- B. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.
 - 1. Low-Emitting Materials: Provide adhesives in compliance with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."
 - 2. VOC Content: 50 g/L or less.
 - 3. Methylene chloride and perchloroethylene may not be intentionally added to adhesives.
 - 4. Do not use adhesives that contain urea formaldehyde.
- C. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
 - 1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.
 - 2. For fastening cementitious tile backing units, use screws of type and size recommended by panel manufacturer.
 - 3. For fastening abuse-resistant gypsum panels, use Type S 'high-low' screws.
 - 4. For fastening impact-resistant gypsum panels, use Type S 'high-low' screws.
- D. Acoustic Insulation, Sound Attenuation (Batts) Blankets: ASTM C 665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.
 - 1. Available Products: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. CertainTeed Corporation; NoiseReducer.
 - b. Johns Manville; Unfaced Formaldehyde-Free Fiber Glass Insulation.
 - c. Knauf Insulation; EcoBatt.
 - d. Owens Corning; PINK Next Gen Fiberglass Sound Attenuation Batts (SAB).
 - e. Owens Corning; Thermafiber SAFB FF.
 - f. Rockwool (formerly Roxul); AFB evo.
 - 2. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.
 - 3. Building Product Disclosure and Optimization, Environmental Product Declarations (EPD).
 - 4. Recycled Content: Use minimum recycled content of 25%.
 - 5. Building Product Disclosure and Optimization, Material Ingredients: Health Product Declaration (HPD) or Declare product labels.
 - 6. Low-Emitting Materials, General Emissions Evaluation: GreenGuard Gold certification.
- E. Acoustical Sealant: Manufacturer's standard nondrying, nonhardening, nonskinning, nonstaining, gunnable, joint sealant, recommended for sealing interior concealed joints to reduce airborne sound transmission.

1. Available Products, for Concealed and Exposed Joints: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Pecora Corp.; AC-20 FTR Acoustical and Insulation Sealant.
 - b. Specified Technologies, Inc.; Smoke N Sound Acoustical Sealant.
 - c. USG; SHEETROCK Acoustical Sealant.
2. Available Products, for Concealed Joints Only: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. OSI (a division of Henkel); Pro-Series SC-175.
 - b. Pecora Corp.; BA-98.
 - c. Tremco, Inc.; Tremco Acoustical/Curtainwall Sealant.
3. Low-Emitting Materials: Provide sealants in compliance with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."
4. VOC Content, Architectural Sealants: 250 g/L or less.
5. Methylene chloride and perchloroethylene may not be intentionally added to sealants.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames and framing, for compliance with requirements and other conditions affecting performance.
- B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Suspended Assemblies: Coordinate installation of suspension systems with installation of overhead structure to ensure that inserts and other provisions for anchorages to building structure have been installed to receive hangers at spacing required to support the Work and that hangers will develop their full strength.
 1. Furnish concrete inserts and other devices indicated to other trades for installation in advance of time needed for coordination and construction.

3.3 INSTALLATION, GENERAL

- A. Installation Standard: ASTM C 754. Also comply with requirements in ASTM C 840 that apply to framing installation.

- B. Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.
- C. Install bracing at terminations in assemblies.
- D. Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.

3.4 INSTALLING SUSPENSION SYSTEMS

- A. Install suspension system components in sizes and spacings indicated on Drawings, but not less than those required by referenced installation standards for assembly types and other assembly components indicated.
- B. Isolate suspension systems from building structure where they abut or are penetrated by building structure to prevent transfer of loading imposed by structural movement.
- C. Suspend hangers from building structure as follows:
 - 1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or suspension system.
 - a. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
 - 2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with locations of hangers required to support standard suspension system members, install supplemental suspension members and hangers in the form of trapezes or equivalent devices.
 - a. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced installation standards.
 - 3. Wire Hangers: Secure by looping and wire tying, either directly to structures or to inserts, eye screws, or other devices and fasteners that are secure and appropriate for substrate, and in a manner that will not cause hangers to deteriorate or otherwise fail.
 - 4. Flat Hangers: Secure to structure, including intermediate framing members, by attaching to inserts, eye screws, or other devices and fasteners that are secure and appropriate for structure and hanger, and in a manner that will not cause hangers to deteriorate or otherwise fail.
 - 5. Do not attach hangers to steel roof deck.
 - 6. Do not attach hangers to permanent metal forms. Furnish cast-in-place hanger inserts that extend through forms.
 - 7. Do not attach hangers to rolled-in hanger tabs of composite steel floor deck.
 - 8. Do not connect or suspend steel framing from ducts, pipes, or conduit.
- D. Fire-Resistance-Rated Assemblies: Wire tie furring channels to supports.
- E. Seismic Bracing: Sway-brace suspension systems with hangers used for support.

- F. Grid Suspension Systems: Attach perimeter wall track or angle where grid suspension systems meet vertical surfaces. Mechanically join main beam and cross-furring members to each other and butt-cut to fit into wall track.
- G. Installation Tolerances: Install suspension systems that are level to within 1/8 inch in 12 feet measured lengthwise on each member that will receive finishes and transversely between parallel members that will receive finishes.

3.5 INSTALLING FRAMED ASSEMBLIES

- A. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.
- B. Install studs so flanges within framing system point in same direction.
- C. Install tracks (runners) at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts penetrating partitions above ceiling.
 - 1. Slip-Type Head Joints: Where framing extends to overhead structural supports, install to produce joints at tops of framing systems that prevent axial loading of finished assemblies.
 - 2. Door Openings: Screw vertical studs at jambs to jamb anchor clips on doorframes; install runner track section (for cripple studs) at head and secure to jamb studs.
 - a. Install two studs at each jamb, unless otherwise indicated.
 - b. Install cripple studs at head adjacent to each jamb stud, with a minimum 1/2-inch clearance from jamb stud to allow for installation of control joint in finished assembly.
 - c. Extend jamb studs through suspended ceilings and attach to underside of overhead structure.
 - 3. Other Framed Openings: Frame openings other than door openings the same as required for door openings, unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.
 - 4. Sound-Rated Partitions: Install framing to comply with sound-rated assembly indicated.
- D. Direct Furring: Attach to concrete or masonry with stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches o.c.
- E. Z-Furring Members:
 - 1. Erect insulation vertically and hold in place with Z-furring members spaced 24 inches o.c.
 - 2. Except at exterior corners, securely attach narrow flanges of furring members to wall with concrete stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches o.c.
 - 3. At exterior corners, attach wide flange of furring members to wall with short flange extending beyond corner; on adjacent wall surface, screw-attach short flange of furring channel to web of attached channel. At interior corners, space second member no more than 12 inches from corner and cut insulation to fit.

3.6 APPLYING AND FINISHING PANELS, GENERAL

- A. Comply with ASTM C 840.
- B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.
- C. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.
- D. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.
- E. Form control and expansion joints with space between edges of adjoining gypsum panels.
- F. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.
 - 1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. in area.
 - 2. Fit gypsum panels around ducts, pipes, and conduits.
 - 3. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch- wide joints to install sealant.
- G. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments, except floors. Provide 1/4- to 1/2-inch- wide spaces at these locations, and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.
- H. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.

3.7 APPLYING INTERIOR GYPSUM BOARD

- A. Single-Layer Application:
 - 1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing, unless otherwise indicated.
 - 2. On partitions/walls, apply gypsum panels to minimize end joints.
 - 3. On Z-furring members, apply gypsum panels vertically (parallel to framing) with no end joints. Locate edge joints over furring members.
 - 4. Fastening Methods: Apply gypsum panels to supports with steel drill screws.
- B. Multilayer Application:
 - 1. On ceilings, apply gypsum board indicated for base layers before applying base layers on walls/partitions; apply face layers in same sequence. Apply base layers at right angles to framing members and offset face-layer joints 1 framing member, 16 inches minimum,

from parallel base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly.

2. On partitions/walls, apply gypsum board indicated for base layers and face layers vertically (parallel to framing) with joints of base layers located over stud or furring member and face-layer joints offset at least one stud or furring member with base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly. Stagger joints on opposite sides of partitions.
3. On Z-furring members, apply base layer vertically (parallel to framing) and face layer either vertically (parallel to framing) or horizontally (perpendicular to framing) with vertical joints offset at least one furring member. Locate edge joints of base layer over furring members.
4. Fastening Methods: Fasten base layers and face layers separately to supports with screws.

- C. Laminating to Substrate: Where gypsum panels are indicated as directly adhered to a substrate (other than studs, joists, furring members, or base layer of gypsum board), comply with gypsum board manufacturer's written recommendations and temporarily brace or fasten gypsum panels until fastening adhesive has set.

3.8 INSTALLING TRIM ACCESSORIES

- A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.
- B. Control Joints: Install control joints according to ASTM C 840 and in specific locations approved by Architect for visual effect.
- C. Interior Trim: Install in the following locations:
1. Cornerbead: Use at outside corners, unless otherwise indicated.
 2. LC-Bead: Use at exposed panel edges.
 3. Curved-Edge Cornerbead: Use at curved openings.
- D. Aluminum Trim: Install in locations indicated on Drawings.

3.9 FINISHING GYPSUM BOARD

- A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.
- B. Prefill open joints, rounded or beveled edges, and damaged surface areas.
- C. Apply joint tape over gypsum board joints, except those with trim having flanges not intended for tape.
- D. Gypsum Board Finish Levels: Comply with GA-214. Finish panels to levels indicated below:
1. Level 1: Ceiling plenum areas and concealed areas not exposed to view.
 2. Level 2: Panels that are substrate for tile.
 3. Level 3: Not Used.
 4. Level 4: Panel surfaces that will be exposed to view (typical panels).

3.10 INSTALLING IDENTIFICATION FOR FIRE- AND SMOKE-PARTITIONS

- A. Marking and Identification for Fire- and Smoke-Partitions: Permanently install as required by Code.

3.11 PROTECTION

- A. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.
- B. Remove and replace panels that are wet, moisture damaged, or exhibit mold growth. Repair of damaged panels in place is not acceptable.
 - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION

SECTION 095100
ACOUSTICAL CEILINGS

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.2 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
1. Acoustical ceiling tiles and panels.
 2. Suspension systems, grid systems and ceiling hangers.
 3. Acoustical sealant at edge moldings at acoustical ceilings.
- B. Related Work: The following items are not included in this Section and are specified under the designated Sections:
1. Section 092110 - GYPSUM BOARD ASSEMBLIES for gypsum board ceilings and soffits.
 2. Division 21 - FIRE SUPPRESSION for fire-suppression components located in ceilings.
 3. Division 23 - HEATING, VENTILATING AND AIR CONDITIONING for air handling and distribution components located in ceilings.
 4. Division 26 - ELECTRICAL for light fixture and alarm system components located in ceilings.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Coordination Drawings: Reflected ceiling plans drawn to scale and coordinating penetrations and ceiling-mounted items. Show the following:
1. Ceiling suspension members.
 2. Method of attaching hangers to building structure. Furnish layouts for cast-in-place anchors, clips, and other ceiling attachment devices whose installation is specified in other Sections.
 3. Ceiling-mounted items including lighting fixtures, diffusers, grilles, speakers, sprinklers, access panels, and special moldings.
 4. Minimum Drawing Scale: 1/4 inch = 1 foot.
- C. Samples for Verification: For each component indicated and for each exposed finish required, prepared on Samples of size indicated below.
1. Acoustical Panel: Set of 6 inch square Samples of each type, color, pattern, and texture.

2. Exposed Suspension System Members, Moldings, and Trim: Set of 12 inch long Samples of each type, finish, and color.

- D. Asbestos Certification: Manufacturer's written certification that acoustical ceiling products contain no asbestos (0.0000%). Product labels indicating that it is the user's responsibility to test the products for asbestos are unacceptable and sufficient cause for rejection of the product on site.
- E. Maintenance Data: For finishes to include in maintenance manuals.

1.4 QUALITY ASSURANCE

A. Source Limitations:

1. Acoustical Ceiling Panels: Obtain each type through one source from a single manufacturer.
2. Suspension Systems: Obtain each type through one source from a single manufacturer.
3. Seismic Performance: Acoustical ceiling shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.

B. Fire-Test-Response Characteristics: Provide acoustical panel ceilings that comply with the following requirements:

1. Fire-Resistance Characteristics: Where indicated, provide acoustical panel ceilings identical to those of assemblies tested for fire resistance per ASTM E 119 by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.
2. Fire-Resistance Ratings: Indicated by design designations from UL's "Fire Resistance Directory" or from the listings of another testing and inspecting agency.
3. Identify materials with appropriate markings of applicable testing and inspecting agency.
4. Surface-Burning Characteristics: Provide acoustical panels complying with ASTM E 1264 for Class A materials as determined by testing identical products per ASTM E 84.

C. Mockups: Build mockups to verify selections made under sample Submittals and to demonstrate aesthetic effects and qualities of materials and execution.

1. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

D. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver acoustical panels, suspension system components, and accessories to Project site in original, unopened packages and store them in a fully enclosed, conditioned space where they will be protected against damage from moisture, humidity, temperature extremes, direct sunlight, surface contamination, and other causes.
- B. Before installing acoustical panels, permit them to reach room temperature and a stabilized moisture content.
- C. Handle acoustical panels carefully to avoid chipping edges or damaging units in any way.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install acoustical panel ceilings until spaces are enclosed and weatherproof, wet work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

1.7 COORDINATION

- A. Coordinate layout and installation of acoustical panels and suspension system with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system, and partition assemblies.

PART 2 - PRODUCTS

2.1 BASIS-OF-DESIGN

- A. Basis-of-Design Products: Refer to the Finish Schedule on the Drawings.

2.2 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Armstrong Ceilings.
 - 2. CertainTeed Ceilings.
 - 3. USG.

2.3 METAL SUSPENSION SYSTEMS

- A. Metal Suspension System Standard: Provide manufacturer's standard direct-hung metal suspension systems of types, structural classifications, and finishes indicated that comply with applicable requirements in ASTM C 635.
 - 1. Structural Classification: Intermediate-duty system.
 - 2. End Condition of Cross Runners: Override (stepped) or butt-edge type.
 - 3. Face Design: Flat, flush.
 - 4. Cap Material: Steel or aluminum cold-rolled sheet.
 - 5. Color: White, prefinished.
 - 6. Grid Face Width: As specified with ACT type.
 - 7. Recycled Content: Use minimum recycled content of 25%.
- B. Attachment Devices: Size for five times the design load indicated in ASTM C 635, Table 1, "Direct Hung," unless otherwise indicated.
 - 1. Anchors in Concrete: Anchors with holes or loops for attaching hangers of type indicated and with capability to sustain, without failure, a load equal to five times that imposed by ceiling construction, as determined by testing per ASTM E 488 or ASTM E 1512 as applicable, conducted by a qualified testing and inspecting agency; zinc-plated for Class SC1 service.

- a. Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hangers of type indicated, and with capability to sustain, without failure, a load equal to 10 times that imposed by ceiling construction, as determined by testing per ASTM E 1190, conducted by a qualified testing and inspecting agency.
- C. Wire Hangers, Braces, and Ties: Provide wires complying with the following requirements:
 - 1. Zinc-Coated Carbon-Steel Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper.
 - a. Size: Select wire diameter so its stress at three times hanger design load (ASTM C 635, Table 1, "Direct Hung") will be less than yield stress of wire, but provide not less than 0.106 diameter wire.
- D. Hold-Down Clips: At vestibules and areas subject to wind uplift, provide manufacturer's standard hold-down clips spaced 24 inches on all cross tees.

2.4 METAL EDGE MOLDINGS AND TRIM

- A. Roll-Formed Sheet-Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that fit acoustical panel edge details and suspension systems indicated; formed from sheet metal of same material, finish, and color as that used for exposed flanges of suspension system runners.
 - 1. For lay-in panels with reveal edge details, provide stepped edge molding that forms reveal of same depth and width as that formed between edge of panel and flange at exposed suspension member.
 - 2. For circular penetrations of ceiling, provide edge moldings fabricated to diameter required to fit penetration exactly.
 - 3. For narrow-face suspension systems, provide suspension system and manufacturer's standard edge moldings that match width and configuration of exposed runners.
- B. Suspension Trim: Subject to compliance with requirements, provide one of the following:
 - 1. Armstrong World Industries, Inc.; Axiom.
 - 2. CertainTeed Ceilings; Approved equal.
 - 3. USG Interiors, Inc.; Compasso.

2.5 ACOUSTICAL SEALANT

- A. Acoustical Sealant, for Concealed Joints: Manufacturer's standard nondrying, nonhardening, nonskinning, nonstaining, gunnable, joint sealant, recommended for sealing interior concealed joints to reduce airborne sound transmission.
 - 1. Available Products: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. OSI (a division of Henkel); Pro-Series SC-175.
 - b. Pecora Corp.; AC-20 FTR Acoustical and Insulation Sealant.
 - c. Pecora Corp.; BA-98.

- d. Specified Technologies, Inc. (STI); Smoke N Sound Acoustical Sealant.
 - e. USG; SHEETROCK Acoustical Sealant.
2. Low-Emitting Materials: Provide adhesives and sealants in compliance with the requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."
 3. VOC Content, Architectural Sealants: 250 g/L or less.
 4. Methylene chloride and perchloroethylene may not be intentionally added to sealants.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, including structural framing to which acoustical panel ceilings attach or abut, with Installer present, for compliance with requirements specified in this and other Sections that affect ceiling installation and anchorage and with requirements for installation tolerances and other conditions affecting performance of acoustical panel ceilings.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders, and comply with layout shown on reflected ceiling plans.

3.3 INSTALLATION

- A. General: Install acoustical panel ceilings to comply with ASTM C 636 per manufacturer's written instructions and CISCA's "Ceiling Systems Handbook."
- B. Suspend ceiling hangers from building's structural members and as follows:
 1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structure or of ceiling suspension system.
 2. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
 3. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with location of hangers at spacings required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards and publications.
 4. Secure wire hangers to ceiling suspension members and to supports above with a minimum of three tight turns. Connect hangers directly either to structures or to inserts, eye screws, or other devices that are secure and appropriate for substrate and that will not deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.
 5. Do not support ceilings directly from permanent metal forms or floor deck. Fasten hangers to cast-in-place hanger inserts, postinstalled mechanical or adhesive anchors, or power-actuated fasteners that extend through forms into concrete.

6. Do not attach hangers to steel deck tabs.
 7. Space hangers not more than 48 o.c. along each member supported directly from hangers, unless otherwise indicated; provide hangers not more than 8 inches from ends of each member.
- C. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels.
1. Apply acoustical sealant in a continuous ribbon concealed on back of vertical legs of moldings before they are installed.
 2. Screw attach moldings to substrate at intervals not more than 16 inches o.c. and not more than 3 inches from ends, leveling with ceiling suspension system to a tolerance of 1/8 inch in 12 feet. Miter corners accurately and connect securely.
 3. Do not use exposed fasteners, including pop rivets, on moldings and trim.
- D. Install suspension system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.
- E. Install acoustical panels with undamaged edges and fit accurately into suspension system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide a neat, precise fit.
1. Paint cut edges of panel remaining exposed after installation; match color of exposed panel surfaces using coating recommended in writing for this purpose by acoustical panel manufacturer.
 2. Install hold-down clips in areas indicated, in areas required by authorities having jurisdiction, and for fire-resistance ratings; space as recommended by panel manufacturer's written instructions, unless otherwise indicated.

3.4 CLEANING

- A. Clean exposed surfaces of acoustical panel ceilings, including trim, edge moldings, and suspension system members. Comply with manufacturer's written instructions for cleaning and touchup of minor finish damage. Remove and replace ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION

SECTION 099000

PAINTING AND COATING

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.2 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
 - 1. Field painting of exposed interior items and surfaces.
 - 2. Surface preparation for painting.
- B. Related Work: The following items are not included in this Section and are specified under the designated Sections:
 - 1. Section 092110 - GYPSUM BOARD ASSEMBLIES for surface preparation of gypsum board.

1.3 DEFINITIONS AND EXTENT

- A. General: Standard coating terms defined in ASTM D 16 apply to this Section.
 - 1. Flat refers to a lusterless or matte finish with a gloss range below 15 when measured at an 85-degree meter.
 - 2. Eggshell refers to low-sheen finish with a gloss range between 20 and 35 when measured at a 60-degree meter.
 - 3. Semigloss refers to medium-sheen finish with a gloss range between 35 and 70 when measured at a 60-degree meter.
 - 4. Full gloss refers to high-sheen finish with a gloss range more than 70 when measured at a 60-degree meter.
- B. This Section includes surface preparation and field painting of exposed exterior and interior items and surfaces.
 - 1. Surface preparation, priming, and finish coats specified in this Section are in addition to shop priming and surface treatment specified in other Sections.
- C. Paint exposed surfaces, except where these Specifications indicate that the surface or material is not to be painted or is to remain natural. If an item or a surface is not specifically mentioned, paint the item or surface the same as similar adjacent materials or surfaces. If a color of finish is not indicated, Architect will select from standard colors and finishes available.

1. Painting includes field painting of exposed bare and covered pipes and ducts (including color coding), hangers, exposed steel and iron supports, and surfaces of mechanical and electrical equipment that do not have a factory-applied final finish.
- D. Do NOT paint prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels.
1. Prefinished items include the following factory-finished components:
 - a. Finished mechanical and electrical equipment.
 - b. Light fixtures.
 2. Concealed surfaces include walls or ceilings in the following generally inaccessible spaces:
 - a. Foundation spaces.
 - b. Furred areas.
 - c. Ceiling plenums.
 - d. Utility tunnels.
 - e. Pipe spaces.
 - f. Duct shafts.
 - g. Elevator shafts.
 3. Finished metal surfaces include the following:
 - a. Anodized aluminum.
 - b. Stainless steel.
 - c. Chromium plate.
 - d. Copper and copper alloys.
 - e. Bronze and brass.
 4. Operating parts include moving parts of operating equipment and the following:
 - a. Valve and damper operators.
 - b. Linkages.
 - c. Sensing devices.
 - d. Motor and fan shafts.
 5. Labels: Do not paint over UL, FMG, or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.

1.4 SUBMITTALS

- A. Product Data: For each paint system indicated. Include block fillers and primers.
1. Material List: An inclusive list of required coating materials. Indicate each material and cross-reference specific coating, finish system, and application. Identify each material by manufacturer's catalog number and general classification.
 - a. Disclose material ingredients by name and Chemical Abstract Service (CAS) Registry Number.

2. Manufacturer's Information: Manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each coating material.
- B. Samples for Verification: For each color and material to be applied, with texture to simulate actual conditions, on representative Samples of the actual substrate.
1. Provide stepped Samples, defining each separate coat, including block fillers and primers. Use representative colors when preparing Samples for review. Resubmit until required sheen, color, and texture are achieved.
 2. Provide a list of materials and applications for each coat of each Sample. Label each Sample for location and application.
 3. Submit two 8 inch by 12 inch Samples for each type of finish coating for Architect's review of color and texture only.
- C. Qualification Data: For Applicator.

1.5 QUALITY ASSURANCE

- A. Applicator Qualifications: A firm or individual experienced in applying paints and coatings similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance.
- B. Source Limitations: Obtain block fillers and primers for each coating system from the same manufacturer as the finish coats.
- C. Mockups: Provide a full-coat benchmark finish sample for each type of coating and substrate required. Comply with procedures specified in PDCA P5. Duplicate finish of approved sample Submittals.
1. Architect will select one room or surface to represent surfaces and conditions for application of each type of coating and substrate.
 - a. Wall Surfaces: Provide samples on at least 100 sq. ft.
 - b. Small Areas and Items: Architect will designate items or areas required.
 2. Apply benchmark samples, according to requirements for the completed Work, after permanent lighting and other environmental services have been activated. Provide required sheen, color, and texture on each surface.
 - a. After finishes are accepted, Architect will use the room or surface to evaluate coating systems of a similar nature.
 3. Final approval of colors will be from benchmark samples.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in manufacturer's original, unopened packages and containers bearing manufacturer's name and label and the following information:
1. Product name or title of material.
 2. Product description (generic classification or binder type).
 3. Manufacturer's stock number and date of manufacture.

4. Contents by volume, for pigment and vehicle constituents.
5. Thinning instructions.
6. Application instructions.
7. Color name and number.
8. VOC content.

B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F. Maintain storage containers in a clean condition, free of foreign materials and residue.

1. Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily.

1.7 PROJECT CONDITIONS

A. Apply waterborne paints only when temperatures of surfaces to be painted and surrounding air are between 50 and 90 deg F.

B. Apply solvent-thinned paints only when temperatures of surfaces to be painted and surrounding air are between 45 and 95 deg F.

C. Do not apply paint in snow, rain, fog, or mist; or when relative humidity exceeds 85 percent; or at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

1. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and heated within temperature limits specified by manufacturer during application and drying periods.

1.8 EXTRA MATERIALS (ATTIC STOCK)

A. Furnish extra materials that match and are from same production runs as products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Paint: Furnish one unopened gallon of each type of paint and coating work, in color and gloss as used for the Project.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work are listed in the Finish Schedule at the end of this Section.

2.2 PAINT MATERIALS, GENERAL

A. Material Compatibility: Provide block fillers, primers, and finish-coat materials that are compatible with one another and with the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.

B. Material Quality: Provide manufacturer's best-quality paint material of the various coating types specified that are factory formulated and recommended by manufacturer for application indicat-

ed. Paint-material containers not displaying manufacturer's product identification will not be acceptable.

1. Proprietary Names: Use of manufacturer's proprietary product names to designate colors or materials is not intended to imply that products named are required to be used to the exclusion of equivalent products of other manufacturers. Furnish manufacturer's material data and certificates of performance for proposed substitutions.
- C. Low-Emitting Materials: Interior paints and coatings shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- D. VOC Content Limits, for Interior Paints and Coatings:
1. Default: 50 g/L.
 2. Dry-Fog Coatings: 50 g/L.
 3. Flats: 50 g/L.
 4. Floor Coatings: 50 g/L.
 5. Industrial Maintenance (IM) Coatings: 100 g/L.
 6. Color indicating safety coatings: 480 g/L.
 7. Zinc rich IM primers: 100 g/L.
 8. Metallic pigmented coatings: 150 g/L.
 9. Multi-color coatings: 250 g/L.
 10. Non-flat coatings: 50 g/L.
 11. Pre-treatment wash primers: 420 g/L.
 12. Primers, sealers and undercoaters: 100 g/L.
 13. Shellacs, Clear: 730 g/L.
 14. Shellacs, Pigmented: 550 g/L.
 15. Specialty Primers: 100 g/L.
 16. Stains: 100 g/L.
 17. Stains, Interior: 250 g/L.
 18. Wood Coatings, Varnish: 275 g/L.
 19. Wood Coatings, Sanding Sealer: 275 g/L.
 20. Wood Coatings, Lacquer: 275 g/L.
 21. Wood Conditioners: 100 g/L.
 22. Colorant Added to Architectural Coatings, excluding IM coatings: 50 g/L.
 23. Colorant Added to Solvent Based IM: 600 g/L.
 24. Colorant Added to Waterborne IM: 50 g/L.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Applicator present, for compliance with requirements for paint application.
1. Proceed with paint application only after unsatisfactory conditions have been corrected and surfaces receiving paint are thoroughly dry.
 2. Start of painting will be construed as Applicator's acceptance of surfaces and conditions within a particular area.

- B. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.

- 1. Notify Architect about anticipated problems when using the materials specified over substrates primed by others.

3.2 PREPARATION

- A. General: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted. If removal is impractical or impossible because of size or weight of the item, provide surface-applied protection before surface preparation and painting.

- 1. After completing painting operations in each space or area, reinstall items removed using workers skilled in the trades involved.

- B. Cleaning: Before applying paint or other surface treatments, clean substrates of substances that could impair bond of the various coatings. Remove oil and grease before cleaning.

- 1. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.
 - 2. Use low-emitting, environmentally friendly cleaning agents and procedures, including but not limited to trisodium phosphate (TSP) diluted with warm water. Do not use ammonia-, chlorine bleach-, or solvent-based cleaners, unless authorized in writing by Architect.

- C. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions and technical bulletins for each particular substrate condition and as specified.

- 1. Provide barrier coats over incompatible primers or remove and reprime.
 - 2. Cementitious Materials: Prepare concrete, concrete unit masonry, cement plaster, and mineral-fiber-reinforced cement panel surfaces to be painted. Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen as required to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods of surface preparation.

- a. Use abrasive blast-cleaning methods if recommended by paint manufacturer.
 - b. Determine alkalinity and moisture content of surfaces by performing appropriate tests. If surfaces are sufficiently alkaline to cause the finish paint to blister and burn, correct this condition before application. Do not paint surfaces if moisture content exceeds that permitted in manufacturer's written instructions.
 - c. Clean concrete floors to be painted with a 5 percent solution of muriatic acid or other etching cleaner. Flush the floor with clean water to remove acid, neutralize with ammonia, rinse, allow to dry, and vacuum before painting.

- 3. Wood: Clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sand surfaces exposed to view smooth and dust off.

- a. Scrape and clean small, dry, seasoned knots, and apply a thin coat of recommended knot sealer before applying primer. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood filler. Sand smooth when dried.

- b. Prime, stain, or seal wood to be painted immediately on delivery. Prime edges, ends, faces, undersides, and back sides of wood, including cabinets, counters, cases, and paneling.
 - c. If transparent finish is required, backprime with clear sealer.
 - d. Backprime paneling on interior partitions where masonry, plaster, or other wet wall construction occurs on back side.
 - e. Seal tops, bottoms, and cutouts of unprimed wood doors with a heavy coat of varnish or sealer immediately on delivery.
4. Ferrous Metals: Clean ungalvanized ferrous-metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with SSPC's recommendations.
- a. Exterior Exposed Steel: Clean steel surfaces in accordance with SSPC-SP 6/NACE No. 3 Commercial Blast Cleaning. Abrasive blast cleaned surfaces shall exhibit a uniform, angular profile of 1.5-3.0 mils. Prime cleaned surfaces within 8 hours and prior to surface rusting.
 - b. Interior Exposed Steel, in Humid Environments: Clean steel surfaces in accordance with SSPC-SP 6/NACE No. 3 Commercial Blast Cleaning. Abrasive blast cleaned surfaces shall exhibit a uniform, angular profile of 1.5-3.0 mils. Prime cleaned surfaces within 8 hours and prior to surface rusting.
 - c. Interior Exposed Steel, in Dry Environments: Clean steel surfaces in accordance with SSPC-SP2 or SP3 Hand or Power Tool Cleaning.
5. Galvanized Surfaces: Clean galvanized surfaces in accordance with SSPC-SP16 Brush off Blast Cleaning of Galvanized Steel and NonFerrous Metals, to achieve a minimum 1 mil anchor profile.
- D. Material Preparation: Mix and prepare paint materials according to manufacturer's written instructions.
1. Maintain containers used in mixing and applying paint in a clean condition, free of foreign materials and residue.
 2. Stir material before application to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into material. If necessary, remove surface film and strain material before using.
 3. Use only thinners approved by paint manufacturer and only within recommended limits.
- E. Tinting: Tint each undercoat a lighter shade to simplify identification of each coat when multiple coats of same material are applied. Tint undercoats to match the color of the finish coat, but provide sufficient differences in shade of undercoats to distinguish each separate coat.

3.3 APPLICATION

- A. General: Apply paint according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied.
1. Paint colors, surface treatments, and finishes are indicated in the paint schedules.
 2. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.
 3. Provide finish coats that are compatible with primers used.
 4. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, grilles, convector covers, covers for finned-tube radiation, and similar components are in

- place. Extend coatings in these areas, as required, to maintain system integrity and provide desired protection.
5. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Before final installation of equipment, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
 6. Paint interior surfaces of ducts with a flat, nonspecular black paint where visible through registers or grilles.
 7. Paint backsides of access panels and removable or hinged covers to match exposed surfaces.
 8. Finish exterior doors and doors in wet areas on tops, bottoms, and side edges the same as exterior faces.
 9. Sand lightly between each succeeding enamel or varnish coat.
- B. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
1. The number of coats and film thickness required are the same regardless of application method. Do not apply succeeding coats until previous coat has cured as recommended by manufacturer. If sanding is required to produce a smooth, even surface according to manufacturer's written instructions, sand between applications.
 2. Omit primer over metal surfaces that have been shop primed and touchup painted.
 3. If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance. Give special attention to ensure that edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
 4. Allow sufficient time between successive coats to permit proper drying. Do not recoat surfaces until paint has dried to where it feels firm, and does not deform or feel sticky under moderate thumb pressure, and until application of another coat of paint does not cause undercoat to lift or lose adhesion.
- C. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.
1. Brushes: Use brushes best suited for type of material applied. Use brush of appropriate size for surface or item being painted.
 2. Rollers: Use rollers of carpet, velvet-back, or high-pile sheep's wool as recommended by manufacturer for material and texture required.
 3. Spray Equipment: Use airless spray equipment with orifice size as recommended by manufacturer for material and texture required.
- D. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate to achieve dry film thickness indicated. Provide total dry film thickness of the entire system as recommended by manufacturer.
- E. Mechanical and Electrical Work: Painting of mechanical and electrical work is limited to items exposed in equipment rooms and occupied spaces.
- F. Mechanical items to be painted include, but are not limited to, the following:
1. Uninsulated metal piping.
 2. Uninsulated plastic piping.
 3. Pipe hangers and supports.

4. Tanks that do not have factory-applied final finishes.
 5. Visible portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets.
 6. Duct, equipment, and pipe insulation having "all-service jacket" or other paintable jacket material.
 7. Mechanical equipment that is indicated to have a factory-primed finish for field painting.
- G. Electrical items to be painted include, but are not limited to, the following:
1. Electrical equipment that is indicated to have a factory-primed finish for field painting.
- H. Block Fillers: Apply block fillers to concrete masonry block at a rate to ensure complete coverage with pores filled.
- I. Prime Coats: Before applying finish coats, apply a prime coat, as recommended by manufacturer, to material that is required to be painted or finished and that has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn-through or other defects due to insufficient sealing.
- J. Pigmented (Opaque) Finishes: Completely cover surfaces as necessary to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.
- K. Transparent (Clear) Finishes: Use multiple coats to produce a glass-smooth surface film of even luster. Provide a finish free of laps, runs, cloudiness, color irregularity, brush marks, orange peel, nail holes, or other surface imperfections.
1. Provide satin finish for final coats.
- L. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not complying with requirements.
- 3.4 FIELD QUALITY CONTROL
- A. The Owner reserves the right to invoke the following test procedure at any time and as often as the Owner deems necessary during the period when paint is being applied:
1. The Owner will engage a qualified independent testing agency to sample paint material being used. Samples of material delivered to Project will be taken, identified, sealed, and certified in the presence of Contractor.
 2. Testing agency will perform appropriate tests for the following characteristics as required by the Architect.
 3. The Architect may direct Contractor to stop painting if test results show material being used does not comply with specified requirements. Contractor shall remove noncomplying paint from Project site, pay for testing, and repaint surfaces previously coated with the noncomplying paint. If necessary, Contractor may be required to remove noncomplying paint from previously painted surfaces if, on repainting with specified paint, the two coatings are incompatible.

3.5 CLEANING

- A. Cleanup: At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from Project site.
 - 1. After completing painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping without scratching or damaging adjacent finished surfaces.

3.6 PROTECTION

- A. Protect work of other trades, whether being painted or not, against damage from painting. Correct damage by cleaning, repairing or replacing, and repainting, as approved by Architect.
- B. Provide "Wet Paint" signs to protect newly painted finishes. After completing painting operations, remove temporary protective wrappings provided by others to protect their work.
 - 1. After work of other trades is complete, touch up and restore damaged or defaced painted surfaces. Comply with procedures specified in PDCA P1.

3.7 PAINT SCHEDULE

- A. Schedule: Provide products and number of coats specified. Use of manufacturer's proprietary product names to designate colors, materials, generic class, standard of quality and performance criteria and is not intended to imply that products named are required to be used to the exclusion of equivalent performing products of other manufacturers.
- B. Interior Paint Schedule, Typical:
 - 1. Interior Gypsum Wallboard (GWB), Latex Paint Finish:
 - a. One Coat, Primer: MPI 50 X-Green and 149 X-Green.
 - 1) Moore; Ultra Spec 500 Interior Latex Primer N534.
 - 2) PPG; Speedhide Pro EV Zero VOC Interior Primer 12-900XI series.
 - 3) S-W; ProMar 200 HP Zero VOC Interior Primer.
 - b. And Two Coats, Flat Finish: At ceilings and elsewhere as indicated. MPI 53 X-Green.
 - 1) Moore; Ultra Spec 500 Interior Latex Flat T536.
 - 2) PPG; Speedhide Pro EV Zero VOC Interior Latex Flat 12-110XI series.
 - 3) S-W; ProMar 400 HP Zero VOC Interior Flat.
 - or
 - c. And Two Coats, Eggshell Finish: At walls and elsewhere as indicated. MPI 144 X-Green.
 - 1) Moore; Ultra Spec 500 Interior Latex Eggshell T538.
 - 2) PPG; Speedhide Pro EV Zero VOC Interior Latex Eggshell 12-110XI series.
 - 3) S-W; ProMar 200 HP Zero VOC Interior Eg-Shel.

- or
- d. And Two Coats, Semi-Gloss Finish: At toilet rooms, other wet areas, and elsewhere as indicated. MPI 54 X-Green.
 - 1) Moore; Ultra Spec 500 Interior Latex Semi-Gloss T546.
 - 2) PPG; Speedhide Pro EV Zero VOC Interior Latex Semi-Gloss 12-110XI series.
 - 3) S-W; ProMar 200 HP Zero VOC Interior Semi-Gloss.
2. Interior Architectural Woodwork, Finish Carpentry, and Wood Doors (softwoods, paint grade hardwoods, MDF, MDO, and hardwood veneers), Latex Paint Finish:
- a. One Coat, Primer:
 - 1) Moore; Ultra Spec 500 Interior Latex Primer N534.
 - 2) PPG; Pure Performance Interior Latex Primer 9-900.
 - 3) PPG; Seal Grip Interior/Exterior Acrylic Universal Primer/Sealer 17-921 series.
 - 4) PPG; Speedhide Zero VOC Interior Primer 6-4900XI series.
 - 5) PPG; Speedhide Pro EV Zero VOC Interior Primer 12-900XI series.
 - 6) S-W; ProMar 200 HP Zero VOC Interior Primer.
 - b. And Two Coats, Semi-Gloss:
 - 1) Moore; Ultra Spec 500 Interior Latex Semi-Gloss T546.
 - 2) PPG; Speedhide Zero VOC Interior Latex Semi-Gloss 6-4510XI.
 - 3) S-W; ProMar 200 HP Zero VOC Interior Semi-Gloss.
3. Interior Brick Floor, Clear Exposed Sealer (Silicate type):
- a. One Coat:
 - 1) Curecrete Chemical; Ashford Formula.
 - 2) Tnemec (Chem Probe); Series 629 CT Densifyer.
 - 3) WR Meadows; Liqui-Hard.
 - 4) Laticrete; L&M Seal Hard.
 - 5) Prosoco; Consolideck LS.
- C. Mechanical and Electrical Work: Paint all exposed items throughout the project except factory finished items with factory-applied baked enamel finishes which occur in mechanical rooms or areas, and excepting chrome or nickel plating, stainless steel, and aluminum other than mill finished. Paint all exposed ductwork and inner portion of all ductwork. Same as specified for other interior metals, hereinabove.

END OF SECTION

Section 23 00 00
Heating, Ventilation and Air Conditioning
(FILED SUB-BID REQUIRED)

Part 1 GENERAL

1.01 General

The General and Supplementary Conditions of the Contract and all sections of Division 01, General Requirements shall be part of this section.

1.02 Filed Sub-bids

- A. Sub-bids shall be submitted for the Work of this Section in accordance with the provisions of M.G.L. c.149 §§44A-J inclusive, as amended. The time and place for submission of sub-bids are set forth in the Advertisement. The procedures and requirements for submitting sub-bids are set forth in the Instructions to Bidders.
- B. Sub-bidders must be DCAMM Certified in the listed trade and shall include a Current DCAMM sub-bidder Certificate of Eligibility and a signed DCAMM Sub-bidder's Update Statement with the bid
- C. The Work of this section is shown on Drawings H0, H1, H2, H3, H4, and H5

1.03 SCOPE OF WORK

- A. The scope of work consists of the installation of all materials to be furnished under Section 23.00.00, and without limiting the generality thereof, consists of furnishing all labor, materials, equipment, plant, transportation, rigging, staging up to 8 feet, appurtenances, and services necessary and/or incidental to properly complete all work as shown on the Heating, Ventilating and Air Conditioning drawings, as described in the Specifications, or as reasonably inferred from either, in the opinion of the Architect.

1.04 RELATED WORK SPECIFIED ELSEWHERE

- A. The following related work or materials shall be provided under the designated Sections and coordinated by the Contractor:
 - 1. Section 01.04.50 Cutting and Patching including openings in concrete masonry floors, walls and roof: Sub contractors shall perform incidental Cutting and Patching required for work of this trade.
 - 2. Section 02.06.20 Existing Conditions
 - 3. Section 03.30.00 Concrete
 - 4. Section 09.90.00 Painting
 - 5. Section 11.31.00 Residential Appliances: range hood duct
 - 7. Section 23.00.00 Plumbing
 - 8. Section 26.00.00 Electrical

1.06 SUBMITTALS

- A. Attention is directed to Specification Section 01300 Submittals.

- B. Attention is directed to Specification Section 01.25.13 OR Equals

1.07 RECORD DRAWINGS

- A. Refer to Specification Section 01.72.00 for the Record Drawing requirements for this section.
- B. The marked up As Built Drawings required to be maintained under this section are of Drawings H0, H1, H2, H3, H4, and H5
- C. Availability of marked up As Built drawings shall be a prerequisite to scheduling final inspection of this contract and said drawings and original contract documents will be used in checking completion of the work..
- D. Non-availability of marked up As Built drawings or inaccuracies therein may be grounds for cancellation and postponement of any scheduled final inspection by the Architect until the discrepancy has been corrected.

1.08 TEMPORARY HEAT

- A. Refer to section 01.50.00 for the Temporary Heat requirements for this Contract.
- B. The Contractor shall pay the costs of all fuel and electricity required for temporary heating until substantial completion

1.09 OPERATING AND MAINTENANCE MANUALS

- A. Refer to Section 01.70.00 Project Close Out for the Operating and Maintenance Manual requirements for this Contract..
- B. The Heating, Ventilating and Air Conditioning subcontractor shall provide the Contractor two (2) sets of operating and maintenance instructions of all mechanical and electrical equipment furnished and installed under this section.
- C. The Contractor shall collect the operating instructions, bind them into two complete sets and deliver them to the Architect who will check for completeness and deliver them to the Owner.
- D. Delivery of the operating and maintenance manuals shall be a condition precedent to final payment.

1.10 INSTRUCTION OF OWNER'S PERSONNEL

- A. Refer to Section 01.77.00 for the Instruction of Owner's Personnel requirements for this Contract.
- B. The Heating, Ventilating and Air Conditioning subcontractor shall instruct the Owner's personnel, at the site, in the use and maintenance of equipment installed under this section.
- C. Submission to the Architect of a certificate of compliance to this requirement, signed by the Contractor and the Owner's Representative shall be a condition precedent to final payment.

1.11 GUARANTEE AND SERVICE

- A. Notwithstanding any other requirements of this contract, the Heating, Ventilating and Air Conditioning Subcontractor shall guarantee the performance of the installation and equipment

included in this Section for one year from the date of Substantial Completion as defined in Article 9.6 of the General Conditions. Should any defects in materials or workmanship appear during this period, they shall be corrected or replaced by the Heating, Ventilating and Air Conditioning Subcontractor to the satisfaction of the Architect, and at no expense to the Owner.

1.12 PERMITS

- A. The subcontractors attention is directed to subparagraph 12(b) of the General Conditions for Construction Contracts.

1.13 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, and without limiting the generality thereof includes:

1. Split System Heat Pump and Fan coil units
2. Controls, thermostats.
3. Wall heaters
4. Energy Recovery Ventilator with terminations
5. Baseboard piping and enclosures
6. Vehicle exhaust duct, system and Intake louver
7. Multizone Heat pump system
8. Ductwork, hangers, Insulation
9. Refrigerant piping and fittings.
10. Thermostats
11. Wall Caps
12. Fire stopping
13. Pipe insulation.
14. Temperature controls and control wiring.
15. Testing adjusting and balancing.
16. Guarantee and warranty.
17. Disconnect switches and starters.
18. Demolition/disposal of existing mechanical equipment/system components as noted

1.14 CODES AND ORDINANCES

- A. All work shall be installed in accordance with the laws, ordinances, rules and regulations of all local and State Authorities, having jurisdiction and the rules and regulations of the National Board of Fire Underwriters.
- B. All motors and motor control equipment shall meet the requirements of the National Electrical Code, and comply with the requirements of the NEMA and the local public utility furnishing current to the building.
- C. This Contractor shall apply and prepare all required documents necessary to obtain required permits and certificates, the owner shall be responsible for ordinary fees required by the Town of Dracut, expect that any fee or cost incurred for reinspections, revisions or other additional cost due to contractors work being incomplete, incorrect or non compliant on initial inspection shall be paid by the contractor.
- D. All diagrams required by local or State Authorities shall be supplied by this Contractor.

1.15 MANUALS

- A. The Manual shall include the following:
 - 1. Summary description of the systems' operation.
 - 2. Manufactures' literature, illustrations and technical data.
 - 3. Guarantee and warranty data.
 - 4. Parts list and parts numbers.
 - 5. Maintenance, lubrication and replacement charts.
 - 6. Troubleshooting charts

1.16 BASES AND SUPPORTS

- A. Furnish and install all supplementary steel required for setting and/or hanging all piping and equipment.
- B. Wherever necessary, this Contractor shall provide all bases and supports not part of the building structure, or required size, type, and strength, as approved by the Architect, for all equipment and materials furnished by him.
- C. All equipment, bases and supports shall be adequately anchored to the building structure to prevent shifting of position under operating conditions.
- D. Concrete piers and bases will be furnished by the General Contractor, except where otherwise noted.

1.17 EXAMINATION OF SITE

- A. Before submitting his proposal, this Contractor shall visit the site, examine the condition, and thoroughly acquaint himself with the obstacles and advantages for performing the work. He shall also study the drawings and specifications explanatory of the work to be performed and compare them with the information gathered by the examination of the site.
- B. This Contractor shall not be allowed to charge for extra work caused by his unfamiliarity with the site, drawings, specifications or rules of the various governing authorities.

1.18 DRAWINGS

- A. The drawings show the extent and the general arrangement for piping, ductwork, and locations of the equipment. Piping and ductwork are shown diagrammatically it is not intended to show every fitting and transition. This Contractor shall be responsible for the locations in the most practical manner, free from interferences with other piping or structural features. Provide all necessary fittings, offsets and transitions.
- B. If any changes from the drawings are deemed advisable, details of such proposed changes shall be submitted to the Architect for approval. No changes shall be made without such approval. Maintain maximum headroom and space conditions at all points. Where headroom or space conditions appear inadequate Architect shall be notified before proceeding with the installation.
- C. The drawings are in general, are to true scale but all working measurements shall be taken from figured dimensions and not be scaling. Whether or not an error is believed to exist, deviations from the drawings and dimensions thereon shall be made only after approval is obtained from the

Architect. Large scale details shall, in general, govern the smaller scale drawings.

- D. Compare all drawings affecting work and verify all figures before laying out the work. Be responsible for any and all errors in work which might have been avoided thereby. When dimensions are affected by conditions already established, take all necessary measurements of existing work, notwithstanding the figured dimensions of the drawings. If directed by the Architect, make reasonable modifications in the layout as needed to prevent conflict with work of other trades or for proper execution of work.

1.19 SHOP DRAWINGS

- E. Submit for approval copies of descriptive literature giving performance data, physical size, wiring diagrams, capacity, materials, etc., for all items.

1.20 SUBSTITUTIONS

- A. Substitutions of equipment or materials other than those shown on the drawings or named in the specifications may be made only with the written approval of the Architects, who reserve the right to require adequate proof of the quality of the substitute before permitting its use.
- B. Where a Contractor proposes to use an item of equipment other than that specified or detailed on the drawings, which requires any redesign of the structure, partitions, foundations, piping, wiring, or of any other part of the mechanical, electrical or architectural layout, all such redesign, and all new drawings and detailing required therefore shall with the approval of the Architect be prepared by this Contractor at his own expense.

1.21 APPROVALS

- A. Engineers approval of the system, equipment, and shop drawings shall not relieve this Contractor from the responsibility for deviations from contract documents, unless he has in writing called attention to such deviations, at the time of submission and secured written approval, not shall it relieve him from responsibility for errors in submittals.

1.22 FEES AND TAXES

- A. This Contractor shall apply and prepare all required documents necessary to obtain required permits and certificates, the owner shall be responsible for ordinary fees required by the Town of Dracut, expect that any fee or cost incurred for reinspections, revisions or other additional cost due to contractors work being incomplete, incorrect or non compliant on initial inspection shall be paid by the contractor. The owner will reimburse the contractor for permit cost.

1.23 COORDINATION OF TRADES

- A. Where the work of this Contractor will be installed in close proximity to work of other trades, or where there is evidence that the work of this Contractor will interfere with work of other trades, he shall assist in working out space conditions to make a satisfactory adjustment. If so directed by the Architect, this Contractor shall prepare composite working drawings and sections at a suitable scale designated by the Architect clearly showing how his work is to be installed in relation to the work of other trades.
- B. If this Contractor installs his work before coordinating with other trades or so to cause interferences with work of other trades, he shall make necessary changes in his work to correct the condition

without extra charge.

1.24 TEMPORARY OPENINGS

- A. This Contractor shall ascertain, from his examination of the architectural drawings, whether any special temporary openings in the building will be required for the admission of apparatus furnished under his contract, and he shall notify the Architect accordingly. In the event of failure of this Contractor to give sufficient notice to the Architect in time to arrange for these openings during construction, this Contractor shall assume all costs of providing such openings thereafter.

1.25 OPENINGS IN EXTERIOR WALLS

- A. Openings in exterior walls and roofs shall be kept properly plugged and caulked at all times, except when being worked on, to preclude the possibility of flooding due to storms or other causes. After completion of the work, openings for which this Contractor is responsible shall be permanently sealed and caulked in a manner approved by the Architect.

1.26 ACCESSIBILITY

- A. All work shall be installed so that all parts required are readily accessible for inspection, operating, maintenance, and repair. Minor deviations from the drawings may be made to accomplish this, but changes to magnitude shall not be made without prior written approval from the Architect.

1.27 CUTTING AND PATCHING

- A. The Heating and Ventilating Contractor shall be responsible for all required cutting and drilling associated with his work, but in no case shall cut into any structural elements without the written approval of the Architect.
- B. All rough patching and finish patching shall be provided by the General Contractor.
- C. Coordinate installation of diffusers, grilles location with Architect.

1.28 ELECTRIC WORK

- A. Power wiring will be furnished and installed by the Electrical Contractor.
- B. Temperature control wiring, motor control wiring, control valves and damper operator wiring, interlock wiring shall be furnished and installed by the Heating and Ventilating Contractor.
- C. All wiring furnished under this Section shall be in accordance with the Electrical Work Section of these Specifications, the National Electric Code, and applicable local codes.

1.29 TESTING AND ADJUSTMENTS

- A. After the installation is completed and ready for operation, this Contractor shall test the system under normal operating conditions. Whenever the equipment or system under test is interrelated with and depends upon the operation of other equipment, systems and controls for proper operation, functioning and performance, the latter shall be operated simultaneously with the equipment or system being tested.

- B. All defective work shall be promptly repaired or replaced and the tests shall be repeated until the system or components parts thereof receive the approval of the Architect. Any damage resulting from tests shall be repaired and damaged materials replaced, all to the satisfaction of the Engineer.
- C. Tests shall be performed in the presence of and to the satisfaction of the Engineer and such other parties as may have legal jurisdiction.
- D. Labor, materials, instruments and power required for testing shall be furnished by this Contractor unless otherwise indicated under another Section of the Specifications.
- E. After completion of the installation work called for in this Specification, this Contractor shall furnish necessary mechanics or engineers for the adjustment and operation of the system to the end that the system may be adjusted and turned over to the Owner in perfect working order.
- F. All piping and connected equipment shall be tested to 100 pounds hydrostatic pressure and proven tight before installation of equipment.
- G. Test and balance the entire system. Submit written report to the Engineer for approval.

1.30 ACCESS PANELS

- A. The Heating and Ventilating Contractor shall furnish access panels to the General Contractor to be distributed to the trades involved for the installation in walls, ceilings, etc. He shall coordinate the access panel location as well as provide a list of locations to the General Contractor prior to installation. Piping shall be laid out in such a manner as to minimize the number of access panels required. Access panels shall be fire-rated where required.

PART 2 – PRODUCTS

2.01 PIPE CLASSES

- A. Class I piping shall be Type L copper pipe per ASTM B88.
- B. Class II piping Type ACR copper tubing with solder joints under nitrogen purge.

2.02 PIPE JOINTS

- A. Solder joints shall be made with (95-5) tin-antimony solder with non-corrosive flux.
- B. Joints for PVC piping shall be solvent joints.

2.03 VALVES

- A. All valves shall be full port ball valves equal to Nibco, Apollo, or Watts.

2.04 HANGERS AND SUPPORTS

- A. Provide all hangers and supports in conformance with ANSI B31-1 for the various parts of the mechanical work.
- B. Pipe hangers, supports, hanger rods, protection saddles and inserts shall be as manufactured by Carpenter and Patterson, Inc. (Figure numbers given), Grinnell, or Mason Ind.

- 1. Concrete inserts Figures 20, 300, 500, 650, 510 and 108
- 2. Clamps Figures 14, 15, 45, 47, with 22
- 3. Spring hangers Figures 445, 450, 468, 482, and 498
- 4. Pipe guides Figures 1001
- 5. Clevis pipe hangers Figures 100, 265, 286
- 6. Swivel pipe hangers Figures 16
- 7. Pipe roll hangers Figures 17, 53, 63, 142, or 183

- C. Pipe Support Spacing:

PIPE SIZE	COPPER PIPE	
	MAXIMUM SPAN	ROD DIAMETER (INCHES)
1/2" to 1"	6 ft.	3/8"
1-1/4" to 2"	6 ft.	3/8"
2-1/2" to 4"	10 ft.	1/2"

2.05 APPLICATION OF PIPING CLASSES

- A. The applications for the piping classes shall be as follows:

<u>SYSTEM</u>	<u>PIPING CLASS</u>
Heating Hot Water	I Type "L" Copper

2.06 SHEET METAL WORK

Reference Standards

Material, construction and installation shall meet applicable requirements of the current editions (unless otherwise shown) of the following standards and references, unless more stringent requirements are specified or shown on the Drawings (such as hazardous exhaust systems):

Standard	As Applicable to
SMACNA HVAC Duct Construction Standards (Metal and Flexible, 2005)	Sheet Metal Ductwork; Duct Liners; Adhesives; Fasteners; Flexible Ductwork
SMACNA HVAC Air Duct Leakage Test Manual	Duct Leakage Testing
NFPA 90A	Fire Dampers; Fire Resistance Standards for Ducts and Liners

A. General

All slip joints for low velocity rectangular ducts shall be made in direction of airflow and, unless otherwise indicated on the plans, all elbows shall have long turns with the inside radius no less than the plan dimension of the duct. Where short radius elbows or square corner elbows are used, they shall be fitted with turning vanes. All notches for connecting sections of duct and all governing seam notches shall not be cut any deeper than necessary to insure tight corners. Any notched corners not meeting with approval shall be removed and reinstalled or sealed with solder.

Unless otherwise specified, all low pressure ducts shall be of the best bloom galvanized steel and shall be stiffened by cross breaking and by use of galvanized rolled steel angles as required by SMACNA for 2" W.C. static pressure.

All low pressure rectangular sheet metal ductwork, unless otherwise specified, shall be constructed with longitudinal Pittsburgh Lock seams thoroughly flattened down to make a tight joint. Transverse joints shall be make-up with slip joints and standing lock seams. Branches to and from the main trunk shall be made at an angle but shall, in no case, exceed 45° to the line of airflow.

Provide all required supporting and hanging devices to attach entire HVAC system including ductwork and equipment, and to prevent vibration. Include vertical and horizontal supports as required by codes to meet minimum applicable earthquake resistance standards.

Ductwork shall be free from vibration at all times.

No pipe conduit, hanger, Architectural element or structural member shall pass through duct without Engineer's written approval. Where the pipe or conduit cannot possibly be relocated and when written approval has been obtained, increase duct size to maintain full cross-sectional area at point of interference. Provide streamlined enclosure for pipe or conduit, per SMACNA.

All offsets and transformations necessary due to structural conditions shall maintain the full cross-sectional area of ductwork shown on Drawings.

All transverse and longitudinal joints shall be sealed airtight to the satisfaction of the Architect/Engineer with United McGill water based duct sealer or approved equal. Duct sealer shall be vinyl copolymer mastic formulated to withstand temperature from -20°F to +150°F. Sealant shall have a temperature UL Classification 1 with a flame spread of 5 or less and smoke developed of 0 when tested on both 18-gauge galvanized steel and inorganic reinforced cement board.

B. Ductwork Pressure Velocity Classifications:

Pressure Class	Static Pressure Rating ⁽¹⁾⁽²⁾	SMACNA Seal Class ⁽³⁾	SMACNA Leakage Class ⁽³⁾	Velocity Limits
3"	3" Pos. or Neg.	A	6	4000 fpm or less
2"	2" Pos. or Neg.	B	12	2500 fpm or less
1"	1" Pos. or Neg.	B	12	2500 fpm or less

(1) For negative pressure over 3" w.g., refer to SMACNA Round and Rectangular Industrial Duct Construction Standards for joint and intermediate reinforcement requirements.

C. Duct Construction

Unless otherwise specified or shown on the drawings, use the following pressure classifications for the types of ductwork listed below:

2" Class: All other ductwork.

1. Ducts required to be continuously welded, such as kitchen exhaust (hoods and dishwasher) and with all penetrations sealed (damper rods, access doors, etc.) shall be liquid-tight and shall be airtight. The leakage test shall yield a zero leak rate. All welding shall use inert gas shielding with filler rod equal to or exceeding the base metal properties.
2. Non-welded duct seals and joints shall be as listed by SMACNA or Ductmate for the specified pressure and seal classes.

Material: Unless otherwise specified or shown on drawings, all ductwork shall be fabricated from G-90 galvanized steel or 316 stainless steel. Galvanized steel shall meet ASTM A525 and A527 standards and stainless steel shall meet ASTM A240 standards.

Round ductwork shall be furnished where shown or called for on the drawings, and may be substituted for rectangular, except for shower exhaust, as an option to the Sheet Metal Sub-subcontractor when approved by the engineer, it can be easily fit in the available space and is round duct and fittings shall be of spiral lockseam construction.

3. Elbows and Bends:

Wherever possible, all elbows and bends for rectangular ducts shall be full radius (centerline radius of 1.5 times duct width). Elbows for grease exhaust shall have a centerline radius of 2.0 times duct width, unless this physically can't fit, then full radius may be used. Turning vanes and mitered elbows are not allowed.

Where centerline radius must be less than 1.5 times duct width (on supply, return and exhaust ductwork other than grease exhaust) in the plane of bend, elbows shall be minimum 2" inside (not centerline) radius throat with radius heel and full length splitter vanes installed as shown on drawings or per SMACNA. Splitter vanes are not required on bends less than 30°. When centerline radius (r) divided by the duct width (w) is less than 1.5, provide the following number of splitter vanes:

r/w	No. of Vanes for Elbow Angle of 45° - 90°	No. of Vanes for Elbow Angle of 30° - 44°
1.49 - 0.70	1	0
0.69 - 0.60	2	1
Under - 0.60	3	2

- a. For round ductwork provide stamped elbows, with centerline radius equal to 1-1/2 times duct diameter, or sealed, gored elbows as follows:

Elbow Angle	No. of Gores
0 - 36	2
37 - 72	3
73 - 90	5

- b. Elbows for flat oval ducts shall have centerline radius equal to 1-1/2 times duct diameter in plane of bend, or sealed, gored elbows with gores as specified above for round ducts.

4. Transitions: Diverging air flow transitions shall be made with each side pitched out a maximum of 15 degrees, for an included angle of 30 degrees. Transitions for converging air flow shall be made with each side pitched in a maximum of 30 degrees, for an included angle of 60 degrees, or shall be as indicated. Factory-fabricated reducing fittings for systems using round duct sections when formed to the shape of the ASME short flow nozzle, need not comply with the maximum angles specified.
5. Metallic Flexible Duct: Metallic flexible type duct shall be two-ply aluminum or single ply stainless steel, self-supporting to 8-foot spans. Duct shall be of corrugated / interlocked, folded and knurled type seam construction, bendable without damage through 180 degrees with a throat radius equal to 1/2 duct diameter. Duct shall conform to UL 181 and shall be rated for positive or negative working pressure of 15 inches water gauge at 350 degrees F when duct is aluminum, and 650 degrees F when duct is galvanized steel or stainless steel.
6. Insulated Nonmetallic Flexible Duct Runouts: Flexible duct runouts shall be used only where indicated. Runout length shall be as shown on the drawings, but shall in no case exceed 4 to 6 feet. Runouts shall be preinsulated, factory fabricated, and shall comply with NFPA 90A and UL 181. Either field or factory applied vapor barrier shall be provided. Where coil induction or high velocity units are supplied with vertical air

inlets, a streamlined and vaned and mitered elbow transition piece shall be provided for connection to the flexible duct or hose. The last elbow to these units, other than the vertical air inlet type, shall be a die-stamped elbow and not a flexible connector. Insulated flexible connectors may be used as runouts. The insulated material and vapor barrier shall conform to the requirements of this specification 15500, (Insulation paragraph). The insulation material surface shall not be exposed to the air stream.

General Service Duct Connectors: Flexible duct connectors approximately 6 inches in width shall be provided where sheet metal connections are made to fans or where ducts of dissimilar metals are connected. For round/oval ducts, the flexible material shall be secured by stainless steel or zinc-coated, iron clinch-type draw bands. For rectangular ducts, the flexible material locked to metal collars shall be installed using normal duct construction methods. The composite connector system shall comply with UL 214 and be classified as "flame-retarded fabrics" in UL-01.

Ductwork Accessories

Access Doors shall be rated for the duct pressure class they are installed in. For hazardous exhaust systems, minimum gauge shall be the same as the duct.

Frame: same materials as duct with seal

Door: hinged, with exterior (and, for insulation ducts, interior) panel.

Locks: doors 16" and under, one lock doors over 16", two locks

Seals: foam gaskets for ultra-low leakage

Insulation (for insulation ducts): 1/2" foam board with aluminum foil face, 0.12K at 75°F.

Manufacturer: Ruskin model ADH-2, Inland Steel, Miami-Carey or approved equal.

Sizes:

SCHEDULE OF DUCTWORK ACCESS DOOR SIZES	
Duct width (inches)	Access door size (inches)
<=10	10 x 6
12 - 16	12 x 8
Over 16	18 x 24

Manual Volume Dampers

Manual volume dampers shall be provided where shown on the Drawings as well as at every branch take off from the main duct, and elsewhere as required by the Balancing Sub-subcontractor, and shall be single or multiple blade type with sleeve bearings, galvanized steel interlocking blades and a galvanized steel frame. In ducts over 15" deep provide multiple opposed blade type, gang operated dampers with a maximum blade width of 8". Damper blades shall be fabricated of 16 gauge steel with hemmed edges, and a maximum length of 48". The dampers shall be two gauges heavier than the ducts in which they are installed. In each branch duct run-out, install a friction type damper shall be provided for each branch duct.

- a. Damper operating rod shall be full blade length extended through the duct to externally mounted bearing plates. On insulated ductwork, bearing plates shall be installed flush with insulation finish and fastened to the duct. Operating lever shall be of the indicating type with locking quadrant.

Damper blades shall be riveted to the supporting rod. Cast or malleable brackets riveted to the sides of the ducts shall be used to support the damper rod.

- b. For dampers in inaccessible locations, such as above gypsum ceilings provide remote cable actuated dampers.

Backdraft Dampers

- c. Back draft dampers shall be provided where indicated and required, and shall consist of a set of externally adjustable counter weighted louvers that open automatically due to excess pressure and prevent reverse flow. The edges of the blades shall be provided with seals to prevent rattling and minimize air leakage. The damper blades shall be supported on metal frames designed for wall mounting as indicated. The dampers shall be rated for operation up to a minimum of 2,500 fpm

and be standard catalog products of Ruskin, Vent Products, American Warming and Ventilating or approved equal.

Motor Operated Actuators for Control and Smoke Dampers

- d. Motor operated control and smoke dampers and actuators shall be furnished by the Automatic Temperature Control Sub-subcontractor and installed by the Sheet Metal Sub-subcontractor unless specified as part of a piece of equipment.

Blankoff Plates

- e. Any blankoff plates or conversions required for mounting control dampers or coils shall be the responsibility of the Sheet Metal Sub-subcontractor.

Insulated Metal Panels

- f. Provide 18 gauge, insulated double wall sandwich construction, 1½" thick where called for on the Drawings and for blanking off unused portions of wall louvers.

Test Openings

- g. Provide instrument test opening enclosures in the ductwork at the discharge of each fan and fan coil, inlet of each fan and fan coil, and where directed by the Balancing Sub-subcontractor. The enclosures shall be installed before the application of the insulation and shall be of the proper height to extend beyond the insulation. The attachment of the test opening enclosure shall be made airtight.

Flexible connections shall be 6" wide connections constructed of heavy glass fabric double coated with neoprene. Flexible connections shall meet the requirements of the National Board of Fire Underwriters.

Duct Sleeves, Framed Prepared

Openings, Closure Collars

Duct Sleeves

Duct sleeves shall be provided for round ducts 15 inches in diameter or less passing through floors, walls, ceilings, or roof, and installed during construction of the floor, wall, ceiling, or roof. Round ducts larger than 15 inches in diameter and square, rectangular, and oval ducts passing through floors, walls, ceilings, or roof shall be installed through framed prepared openings. The Contractor shall be responsible for the proper size and location of sleeves and prepared openings. Sleeves and framed openings are also required where grilles, registers, and diffusers are installed at the openings. Framed prepared openings shall be fabricated from 20 gauge galvanized steel, unless otherwise indicated. Where sleeves are installed in bearing walls or partitions, black steel pipe, ASTM A 53, Schedule 20 shall be used. Sleeve shall provide 1 inch clearance between the duct and the sleeve or 1 inch clearance between the insulation and the sleeve for insulated ducts.

7. Framed Prepared Openings

- a. Openings shall have 1 inch clearance between the duct and the opening or 1 inch clearance between the insulation and the opening for insulated ducts.

8. Closure Collars

- a. Collars shall be fabricated of galvanized sheet metal not less than 4 inches wide, unless otherwise indicated, and shall be installed on exposed ducts on each side of walls or floors where sleeves or prepared openings are provided. Collars shall be installed tight against surfaces. Collars shall fit snugly around the duct or insulation. Sharp edges of the collar around insulated duct shall be ground smooth to preclude tearing or puncturing the insulation covering or vapor barrier. Collars for round ducts 15 inches in diameter or less shall be fabricated from 20 gauge galvanized steel. Collars for round ducts larger than 15 inches and square, and rectangular ducts shall be fabricated from 18 gauge galvanized steel. Collars shall be installed with fasteners on

maximum 6 inch centers, except that not less than 4 fasteners shall be used.

Acoustic Duct Liner

Provide acoustic duct lining as specified in the INSULATION SECTION of these specifications. Duct sizes shown are clear internal dimensions, increase duct sizes to compensate for lining thickness. Lining shall not be used on ductwork serving surgical suites, delivery rooms, intensive care units and isolation areas of hospitals and medical facilities or on kitchen and fume hood exhaust and wet exhaust such as dishwasher and shower systems. Lining shall be installed on all supply and return ductwork within 20 feet of air handling units and fans (including branches), on all low pressure ductwork downstream of all supply volume boxes, and where detailed or shown on drawings. Factory fabricated double-wall internally insulated duct with perforated panel may be used in place of lining.

Ductwork contractor shall coordinate with insulation contractor and indicate (label) all locations where sheet metal nosing or other lining erosion protection has bridged the thermal barrier on ductwork supplying cool air (below 60°F) in concealed or unconditioned spaces. Since this bridges the insulation, these locations require exterior insulation to prevent possible condensation.

Air Vents, Penthouses, and

Goosenecks

Air vents, penthouses, and goosenecks shall be fabricated from aluminum or stainless steel sheets with aluminum or stainless steel structural shapes. Sheet metal thickness, reinforcement, and fabrication shall conform to THE SMACNA HVAC DUCT CONSTRUCTION STANDARDS, 2ND ED., 2005. Louver blades shall be accurately fitted and secured to frames. Edges of louver blades shall be folded or beaded for rigidity and baffled to exclude driving rain. Air vents, penthouses, and goosenecks shall be provided with bird screen.

Bird Screens and Frames

Bird screens shall conform to ASTM E 437, Type I, Class 1, 2 by 2 mesh, 0.063 inch diameter aluminum wire or 0.031 inch diameter stainless steel wire. Frames shall be removable type either stainless steel or extruded aluminum.

2.07 DIFFUSERS, REGISTERS AND GRILLES

Units shall be factory-fabricated of steel, corrosion-resistant steel, or aluminum (as scheduled) and shall distribute the specified quantity of air evenly over space intended without causing noticeable drafts, air movement faster than 50 fpm in occupied zone, or dead spots anywhere in the conditioned area. Outlets for diffusion, spread, throw, and noise level shall be as required for specified performance. Performance shall be certified according to ADC 1062:GRD. Inlets and outlets shall be sound rated and certified according to ADC 1062:GRD. Sound power level shall be as indicated (where level is not indicated, maximum level shall be NC30). Diffusers and registers shall be provided with volume damper with accessible operator, unless otherwise indicated; or if standard with the manufacturer, an automatically controlled device will be acceptable. Volume dampers shall be opposed blade type for all diffusers and registers, except linear slot diffusers. Linear slot diffusers shall be provided with round or elliptical balancing dampers. Where the inlet and outlet openings are located less than 7 feet above the floor, they shall be protected by a grille or screen according to NFPA 90A.

Acceptable manufacturer's: Titus, Price, Metalaire or approved equal.

Diffusers: Diffuser types shall be as indicated. Ceiling mounted units shall be furnished with anti-smudge devices, unless the diffuser unit minimizes ceiling smudging through design features. Diffusers shall be provided with air deflectors of the type indicated. Air handling troffers or combination light and ceiling diffusers shall conform to the requirements of UL-03 for the interchangeable use as cooled or heated air supply diffusers or return air units. Ceiling mounted units shall be installed with rims tight against ceiling. Sponge rubber gaskets shall be provided between ceiling and surface mounted diffusers for air leakage control. Suitable trim shall be provided for flush mounted diffusers. Duct collar connecting the duct to diffuser shall be airtight and shall not interfere with volume controller. Return or exhaust units shall be similar to supply diffusers.

Registers and Grilles: Units shall be four-way directional-control type, except that return and exhaust registers may be fixed horizontal or vertical louver type similar in appearance to the supply register face. Registers shall be provided with sponge-rubber gasket between flanges and wall or ceiling. Wall supply registers shall be installed at least 6 inches below the ceiling unless otherwise indicated. Return and exhaust registers shall be located 6 inches above the floor unless otherwise indicated. Four-way directional control may be achieved by a grille face which can be rotated in 4 positions or by adjustment of horizontal and vertical vanes. Grilles shall be as specified for registers, without volume control damper.

2.08 LOUVERS

Furnish and install fixed drainable 6" deep aluminum louvers of the sizes and capacities as shown on the Contract Drawings.

The fixed wall louvers shall have heads, sills, jambs and mullions of one (1) piece structural members of 6063-T5 alloy, 0.125 inch thick with integral caulking slot and retaining beads. Mullions shall be sliding interlock type with double integral internal drains. Drainable blade shall be of the same material and shall be minimum 0.081 inch thick with front lip gutter and recessed second gutter designed to catch and direct water to jamb and mullion drains. Closed cell PVC compression gaskets to be provided between bottom of mullion or jamb and top of sill to insure leak tight connections. Structural supports shall be designed to carry a wind load of not less than thirty (30) pounds per square foot. All fasteners shall be stainless steel or aluminum. All louvers shall be furnished with aluminum mesh insect screen. Screening shall be replaceable.

Manufacturer to submit AMCA500 test data on a 4 foot x 4 foot unit showing that the louver shall pass 1010 FPM free areas velocity at a pressure drop of less than 0.01 ounces of water per square foot of free area.

AMCA data shall also show a 4 foot x 4 foot unit to have a minimum of 8.8 square feet free area.

Louvers shall be finished with 2 coats of baked acrylic enamel paint, containing a minimum of 50% Kynar. Submit color chips to Architect and Engineer for approval.

On louvers that call for blank-off panels, the panels shall be a rigid insulation board type minimum of two (2) inch thick with a minimum twenty (20) gauge aluminum protective facing on both sides.

Louvers shall be Ruskin Model ELF 6375X, Arrow United Industries Model EA-615-D, American Warming and Ventilating Model LE-31 or equal by Construction Specialties.

Installation shall meet all manufacturers requirements.

2.09-FANS

General

Fans shall be tested, rated and certified according to AMCA 210. Fans may be connected to the non-overloading motors either directly or indirectly with V-belt drive. Motor shown on the drawings as used with VFD's shall be VFD rated. V-belt drives shall be designed for not less than 140 percent of the connected driving capacity. Motor sheaves shall be variable pitch for 15 HP and below and fixed pitch as defined by ARI Guideline D. Variable pitch sheaves shall be selected to drive the fan at a speed which will produce the specified capacity when set at the approximate midpoint of the sheave adjustment. When fixed pitch sheaves are furnished, a replaceable sheave shall be provided when needed to achieve system air balance. Motors for V-belt drives shall be provided with adjustable rails or bases. Removable metal guards shall be provided for all exposed V-belt drives, and speed-test openings shall be provided at the center of all rotating shafts. Fans shall be provided with personnel screens or guards on both suction and supply ends, except that the screens need not be provided, unless otherwise indicated, where ducts are connected to the fan. Fan and motor assemblies shall be provided with vibration-isolation supports or mountings as indicated. Vibration-isolation units shall be standard products with published loading ratings. Each fan shall be selected to produce the capacity required at the fan static pressure indicated. Sound power level shall be as indicated. The sound power level values shall be obtained according to AMCA 300. Standard AMCA arrangement, rotation, and discharge shall be as indicated.

Provide each fan with motors and accessories as shown on the drawings, specified elsewhere, and as required for proper operation.

Fan manufacturer shall be as scheduled on the drawings, or provided they meet all requirements of these specifications, scheduled capacities and efficiencies, and fit with proper accessibility. Acceptable manufacturers shall be Greenheck, Cook, Trane, Chicago, Hartzell, Kanaflykt, New York Blower, Pace or Penn.

In-Line Centrifugal Fans

In-line fans shall have centrifugal backward inclined blades, stationary discharge conversion vanes, internal and external belt guards, and adjustable motor mounts. Fans shall be mounted in a welded tubular casing. Air shall enter and leave the fan axially. Inlets shall be streamlined with conversion vanes to eliminate turbulence and provide smooth discharge air flow. Fan bearings and drive shafts shall be enclosed and isolated from the air stream. Fan bearings shall be sealed against dust and dirt and shall be permanently lubricated, and shall be precision self-aligning ball or roller type. Bearing life shall be L10 rated at not less than 80,000 hours as defined by ABEMA 9 and ABEMA 11. Motors, unless otherwise indicated, shall not exceed 1800 rpm and shall have open dripproof enclosures.

Ceiling Exhaust and Transfer Fans

Suspended cabinet-type ceiling exhaust fans shall be centrifugal type, direct-driven. Fans shall have acoustically insulated housing. Integral backdraft damper shall be chatter-proof. Fan shall have integral face grille or be mounted inline as shown on drawings. Fan motors shall be mounted on vibration isolators. Unit shall be provided with mounting flange for hanging unit from above. Fans shall be U.L. listed. Fan shall be provided with [remote] [unit] mounted vari-speed controller, capable of reducing airflow to 66% of design.

2.10 ELECTRICAL WORK FOR TEMPERATURE CONTROLS

- A. Electrical contractor shall only provide power wiring to motors. All other line voltage or low voltage wiring, interlock wiring, transformers, relays, control valves, damper operators, panels, timeclocks

and wiring, switches, and accessories shall be provided by the temperature control contractor.

2.11 AUTOMATIC TEMPERATURE CONTROL SYSTEM

- A. Automatic temperature control system shall be electrical as manufactured by Honeywell, or Johnson Controls Company, Barber-Coleman.
- B. With the exception of valves and dampers, all control equipment and electric wiring in connection with the temperature control system shall be installed by the control equipment manufacturer. Automatic valves shall be furnished by the control equipment manufacturer and installed by the Heating and Ventilating Contractor under his supervision. The temperature control system shall consist of all thermostats, valves, relays, control panels, dampers, damper motors, switches, piping, wiring and other accessories necessary to fulfill the intent of the Specifications.
- C. Space thermostats shall be low voltage type adjustable throttling range, locking covers concealed adjustments, and include thermometers. Provide clear plastic locking covers for all thermostats in common areas.
- D. Damper and valve motors shall be capable of providing smooth proportional control under all operating conditions. All activators shall be provided with positive positioning, relays or sequencing relays. Control valves shall have self-adjusting packing, equal percentage throttling plugs, stem travel indicators, removable discs, screwed body for 2" and smaller, flanged body for 2-1/2" and larger and shall be sized by the manufacturer for the design conditions.
- E. Automatically controlled dampers shall be louver type if two-position, opposed blade if modulating, 10" maximum width 16 gauge galvanized steel roll formed blade, 2" channel frame, 9brass or nylon bearings and hot dip galvanized outdoor air and exhaust relief damper. Blades shall have low leakage blow-up seals equal to Honeywell D642A.
- F. Duct and immersion thermostats of the single input type shall have integral setpoint adjustments and throttling ranges adequate for the application. Duct thermostats shall have sensing elements of sufficient length and accuracy to measure average duct temperature in each location.
- G. Sequence of operation:
 - 1. Heat pump: Thermostat to control split heat pump, upon call for heating or cooling unit will operate condenser based on set point.
 - 2. Energy Recovery Unit: Unit shall operate constantly on low speed, with timeclock override to shut down in off hours. Provide wall controller for additional setpoints by tenant
 - 3. Wall heaters: Thermostat shall control the fan. Provide and wire speed switch. Locate on wall.

2.13 INSULATION

- A. All insulation when installed shall have composite fire and smoke hazard ratings as tested by Procedure ASTM E-84, NFPA 255, and UL-723, not exceeding a flame spread of 25 and smoke developed or 50 when compared with red oak as 100, as approved under NFPA Pamphlet No. 90A and 90B.
- B. Insulation shall not be applied to any system until the system has been tested and approved for release to be insulated. All insulation shall be kept dry and clean for application. All surfaces shall be clean and dry before application or insulation.
- C. Piping shall be insulated with preformed, fiberglass pipe insulation with white, embossed, vinyl-coated self-sealing ASJ jacket. Fittings and valves shall be insulated with equal thickness of preformed or precut fiberglass sections and finished with PVC jackets. Exposed ends shall be

similarly covered with PVC end closures.

- D. Supply ductwork shall be insulated with 1" thick fiberglass duct wrap with vapor barrier. Supply and return ductwork shall be lined with 1" fiberglass liner 15 ft. distance from the rooftop unit.
- E. Insulation materials shall be Owens-Corning, Johns Manville, Gustin-Bacon or approved equal.
- F. The following systems shall be insulated.
 - 1. Supply and Return Duct: 1.5" or R-6
 - 2. All ductwork in attic: R-12
 - 3. Condensate: ½"
 - 4. Fresh air ducts: 2" or R-8 Insulation
- G. Insulation shall be continuous through hangers and sleeves. Provide saddle between insulation and hangers. Label pipe insulation with heat flow arrows, and designation of hot water supply and return.

2.14 SMOKE AND FIRE STOPPING

- A. All pipes/ductwork passing through rated elements shall be fire sealed per UL requirements. UL System #49 by filling the annular space with mineral wool and covering with 3M Fire Barrier CP25 S/L or N/S caulk or equal UL approved fire stopping system. Comply with manufacturer's installation instructions. Refer to architectural plans/specifications for more instruction. See also Section 07.84.00 – Fire Stopping

3.1 EXECUTION (GENERAL)

- A. Verify all existing conditions before proceeding with the work.
- B. Install piping in a neat manner with lines straight and parallel or at right angles to walls. Coordinate with other trades.
- C. Use full length of pipe. Cut pipe square and clean before installing. Do not use bushings. Use reducers to facilitate air removal and water drainage from system.
- D. Erect piping with proper provisions for expansion and contraction. Provide all required offsets, swing joints, expansion loops, anchors and guides. At expansion loops the elbow radius shall be equal to six times of the pipe diameter. Do not use miter elbows for expansion loops.
- E. Where steel flanges are bolted to flat face cast-iron flanges the raised face shall be removed.

3.2 HANGERS

- A. Do not use hangers, supports or equipment of the other trades to support piping systems.
- B. All hanger rods shall be hung from inserts in concrete or from I-beam clamps on steel beams. Clamps shall have retaining clips and locknut. If inserts have not been provided, hangers shall be through bolted or inch or slug-in expansion bolts may be used with the permission of the Engineer. When pipe or equipment is hung or supported, no part of any equipment furnished by this Contractor or any part of the building shall be stressed beyond its normal allowable working strength.
- C. Drilling of building structural steel for attachment of hangers or supports is not permitted.
- D. When two or more pipes run parallel, they may be supported with trapeze hangers with individual pipe supports.
- E. Vertical piping passing through slabs shall be supported with riser clamps installed above slab and resting on floor sleeve.
- F. All hangers and supports for copper tubing shall be heavily copper plated and sized for copper tubing.
- G. Hangers for cold water piping or piping supported on roll hangers shall be sized for pipe insulation.
- H. Insulation protection saddles shall be provided on all piping supported by all hangers.

3.3 SLEEVES AND ESCUTCHEONS

- A. Furnish and install sleeves on all pipes passing through walls, partitions, floors, foundations, etc. Sleeves for copper tubing shall be Type "L" hard tempered; for steel pipe, 26 gauge galvanized in frame partitions, Schedule 40 elsewhere. Caulk sleeves in fire walls with asbestos and cement.
- B. Sleeves shall be sized to accommodate the covering and to provide 1/4" annular space.
- C. Provide chrome-plated brass escutcheon plates over sleeve ends in finished areas.
- D. The subcontractor is responsible for accurate location of setting of sleeves.
- E. Steel sleeves will not be allowed in contact with copper pipe.

3.4 TAGS, CHARTS AND PIPE MARKING

- A. Provide all valves in mechanical rooms laminated plastic tags with stamped numerals and name of service. Tags shall be attached to valve handles or stem necks with brass hooks or chains and properly secured.
- B. Numbers shall correspond to the as-built drawings and a printed list. Printed list shall state numbers and location of each valve and control, equipment which the valve controls and other necessary information such as requiring opening or closing of another valve when one is to be opened or closed.
- C. All piping in the mechanical rooms shall be marked with "Set-Mark" or approved equal pipe markers showing direction of flow and pipe service after pipe is insulated and/or painted.

3.5 DUCTWORK

- A. Ductwork shall be installed per recommendations of SMACNA. Seal all duct seams with duct sealer to limit the system leakage to 10% of total capacity.
- B. Provide splitter or balancing damper at every branch and as required to facilitate the systems balancing.
- C. Provide fire damper with access door at all fire walls and floors.
- D. Provide motor operated smoke and fire damper at all fire/smoke walls.
- E. Provide access doors for servicing dampers, filters, coils controls, motors, etc. Minimum access door size shall be 14" x 14".
- F. Provide flexible connectors at all fan, air handling and other equipment inlet and discharge connections.
- G. Before the duct system is tested and balanced, the interior of all ducts shall be cleaned thoroughly by blowing through the system with the ventilating fan. Do not operate system without filters in air handling units. Provide clean set of filters prior to acceptance of the building by the owner.

3.6 EQUIPMENT INSTALLATION

- A. Install all fans, air handling units on spring isolator or suspended from building structure with approved hangers, attachments, and vibration eliminators to minimize sound and vibration transmission to the building structure.
- B. All suspension platforms shall be braced to prevent swaying.
- C. Contractor shall phase installation of new heating equipment to maintain adequate heat in all areas at all times. Do not block existing flues / chimneys with new work. If necessary, temporarily install thru-wall venting for new equipment out through the existing mechanical room louvers. Install new permanent flues up through the existing masonry chimney only after new heating equipment is functioning properly and old heating equipment can be removed without adversely affecting the tenants.

3.7 TESTING, ADJUSTING AND BALANCING

- A. After the testing and adjusting work specified in Part I has been completed, provide services of an independent testing and balancing agency to test the operation of the entire system and balance

the system.

- B. Without limiting the testing and balancing, Contractor shall check operation of every fan, motor, drive, damper, damper operator.
- C. Make all required adjustments to bring the system to design conditions.
- D. The testing and balancing Contractor then shall balance the entire system, including but not limited to fans main duct branches, supply/return/exhaust outlets, air handling units, etc., to +/- 10% of their design quantities.
- E. The testing and balancing Contractor shall for each system prepare a balancing report listing for each equipment, air outlets, its name, service, mechanical and electrical specifications, design and actual measured quantities.
- F. Submit balancing report for approval.

END OF SECTION 23 0000