

# PROJECT MANUAL

MODERNIZATION OF STATE AIDED PUBLIC HOUSING

## Zoning for Heat Distribution

STATE-AIDED DEVELOPMENT:  
49 Washington Street, 689-1  
HUDSON, MASSACHUSETTS

**Massachusetts Department of**  
*Housing and Community Development*



<b>Hudson HOUSING AUTHORITY</b> 8 Brigham Circle Hudson, MA 01749 Phone: (978) 562-9268 FAX: (978) 562-4623	<b>PROJECT ADDRESS:</b> 49 Washington Street HUDSON, MASSACHUSETTS 01749
Glenn Davis, Chairman Ethan Mikula, Vice-Chairman Barbara Beals, Commissioner	AnneMarie Lourens, Commissioner Joseph Leandres, Treasurer Julie M. Torres, Executive Director

### **Architect**

Andrew M. Brockway & Associates  
209 Parker Street  
Acton, MA 01720  
(978) 793-1550  
Email: [andy@brockwayarch.com](mailto:andy@brockwayarch.com)

### **Engineering Consultant**

NORIAN/SIANI ENGINEERING, INC.  
43 Bradford Street, 3rd floor  
Concord, MA 01742  
(781) 398-2250 x-118  
Email: [GeorgeC@NS-Engineering.com](mailto:GeorgeC@NS-Engineering.com)

**DATE: September 21, 2016**

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# PUBLIC NOTIFICATION FOR WRITTEN QUOTES

The **Hudson** Housing Authority (the Awarding Authority) invites written quotes from contractors for the **Zoning for Heat Distribution** project in accordance with the documents prepared by **Andrew M. Brockway & Associates**.

The Project consists of: Upgrades of the existing zone controls for a multi-zone hot water heating system with baseboard convectors. The base scope includes removal of non-electric valves and installation of new motorized zone valves and electronic thermostats. Scope includes line voltage wiring to serve new control transformers and low voltage control wiring.

Alternates include:

1. Upgrade of the boiler controls with a new controller that includes outdoor temperature reset, warm weather shutdown and DHW zone controls.
2. Replacement of the existing main circulator with a new high efficiency, variable speed circulator.

Quotes are subject to M.G.L. c.149 §44A(2)(B) & to state prevailing wage rates as required by M.G.L. c.149 §§26 to 27H inclusive.

Written quotes will be received until **12:00 p.m., Friday, October 7, 2016**. Quotes may be hand delivered, mailed, faxed or e-mailed as identified below.

Mailed, hand delivered, faxed or e-mailed quotes should be sent to:

**Hudson Housing Authority  
8 Bringham Circle  
Hudson, MA 01749**

and received no later than the date and time specified above. Faxed quotes should be faxed to **(978) 562-4623** or emailed Attention: [juliep@hudsonhousing.org](mailto:juliep@hudsonhousing.org)

Interested contractors please contact **Julie Torres**, Executive Director at the Hudson Housing Authority for a set of Contract Documents. There is a plan deposit of **\$25.00** per set (maximum of 2 sets) payable to the Hudson Housing Authority.

A **Pre-Bid Conference** and site visit will be held on **September 29, 2016 at 10:00AM** at 49 Washington Street Hudson, MA.

For an appointment call **Julie Torres** at **(978) 562-9268**

# INSTRUCTIONS TO BIDDER'S

## ARTICLE 1 - BIDDER'S REPRESENTATION

- 1.1 Each Bidder submitting a quote represents that:
  1. The Bidder has read and understands the Contract Documents and the Bid is made in accordance therewith.
  2. The Bidder has visited the site and is familiar with the local conditions under which the Work has to be performed.
- 1.2 Failure to so examine the Contract Documents and site will not relieve any Bidder from any obligation under the Bid as submitted.

## ARTICLE 2 - BIDDER CERTIFICATIONS – OSHA & LEAD TRAINING

- 2.1. Massachusetts law requires all workers on this project construction site must have no less than 10 hours of OSHA-approved safety and health training.
- 2.2 The Contractor shall comply with requirements of EPA Regulation 40 CFR 745 including but not limited to Company, supervisor, and worker training.

## ARTICLE 3 - REQUESTS FOR INTERPRETATION

- 3.1 Bidders shall promptly notify the Owner of any ambiguity, inconsistency, or error which they may discover upon examination of the Contract Documents, the site, and local conditions.
- 3.2 Bidders requiring clarification or interpretation of the Contract Documents shall make such request to the Owner.

## ARTICLE 4 - PREPARATION AND SUBMISSION OF BIDS

- 4.1 Bids should be submitted on the "Form for Quotes" as appropriate, furnished at no cost by the Owner.
- 4.2 All entries on the Form for Quotes shall be made by typewriter or in ink.
- 4.3 Where so indicated on the Form for Quotes sums shall be expressed in both words and figures. Where there is a discrepancy between the Bid sum expressed in words and the Bid sum expressed in figures, the words shall control.
- 4.4 The Bid shall be submitted with the following clearly marked on the envelope or fax cover sheet  
**BID FOR:**
  - **NAME OF HOUSING AUTHORITY AND PROJECT NUMBER**
  - **BIDDER'S NAME AND BUSINESS ADDRESS**
  - **PHONE NUMBER & CONTACT PERSON**
- 4.5 Date and time for receipt of Bids is set forth in the Public Notification.
- 4.6 Timely delivery of a Bid at the location designated shall be the full responsibility of the Bidders.

## ARTICLE 5- WITHDRAWAL OF BIDS

- 5.1. **Before Opening Bids** Any bid may be withdrawn prior to the time designated for receipt of bids upon written request. Withdrawal of bids must be confirmed over the Bidder's signature by written notice post-marked or sent by facsimile on or before the date and time set for receipt of bids. Withdrawn bids may be resubmitted up to the time designated for the receipt of bids.

## ARTICLE 6 - CONTRACT AWARD

- 6.1 Award means the determination and selection of the lowest, responsible and eligible Bidder, by the Owner.  
The Owner will award the contract to the lowest responsible and eligible Bidder within thirty (30) days, Saturdays, Sundays, and legal holidays excluded after the opening of Bids.
- 6.2 The Owner reserves the right to waive any informalities in or to reject any or all Bids if it be in the public interest to do so.
- 6.3 The Owner also reserves the right to reject any Bid if it determines that such Bid does not represent the Bid of a person competent to perform the work as specified, or if the LHA determines additional competition is in the public interest.
- 6.4 The term "lowest responsible and eligible bidder" shall mean the Bidder whose Bid is the lowest of those Bidders demonstrably possessing the skill, ability, and integrity necessary for the faithful performance of the work, and who meets the requirements set forth in M.G.L. c.149 sec.44 (2)(B) and who shall certify that they are able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work.

## ARTICLE 7 - FORMS REQUIRED AT CONTRACT APPROVAL

- 7.1 Upon award, the Bidder shall complete the following forms to ensure prompt contract validation. These forms will be provided to the Contractor by Owner, and three (3) originals must be submitted.
- .1 **Owner/Contractor Agreement.**
  - .2 **Form of Corporate Vote (If Applicable)**
- 7.2 Insurance Certificates for the coverage required by Article 9 of the General Provisions must be submitted prior to contract validation.
- 7.5 Contractor's Company Certification with EPA Regulation 40 CFR 745 must be submitted prior to contract validation.

**END OF SECTION**

# FORM FOR GENERAL BID

## TO THE AWARDING AUTHORITY:

The undersigned proposes to comply with all terms and conditions and furnish all labor and materials required to successfully complete the attached scope of work for the contract price specified below, subject to additions and deductions according to the terms of the specifications for the proposed contract price of:

\_\_\_\_\_ dollars (\$ \_\_\_\_\_)

1. The undersigned hereby certifies that they are able to furnish labor that can work in harmony with all the other elements of labor employed or to be employed on the Work and that they will comply fully with all laws and regulations applicable to awards made subject to MGL. c.149 sec.44A-J.
2. 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 and that the undersigned is not 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 other rule or regulation promulgated thereunder. As used in this certification the word "person" shall mean natural person, joint venture, partnership, corporation, or other business or legal entity.
3. Pursuant to M.G.L. c.62(c) §49(a), the individual signing this document on behalf of the Contractor, hereby certifies, under the penalties of perjury, that to the best of their knowledge and belief the Contractor has complied with all laws of the Commonwealth relating to taxes, reporting of employees and contractors, and withholding and remitting child support.

\_\_\_\_\_  
Name of Bidder  
By: \_\_\_\_\_  
Signature + Title of person signing Bid

\_\_\_\_\_  
Business Address

\_\_\_\_\_  
City and State.

Date: \_\_\_\_\_

# BIDDER'S REFERENCE FORM

Bidders Name \_\_\_\_\_ Phone: ( ) \_\_\_\_\_

LHA/Project Title: **Hudson Housing Authority, Zone Heat** Email: \_\_\_\_\_

The bidder must provide five (5) business references for projects performed & completed within the past five (5) years. Attach additional pages if necessary.

(1) Reference Name: \_\_\_\_\_ Phone: ( ) \_\_\_\_\_

Address: \_\_\_\_\_ Email: \_\_\_\_\_

Description and date(s) of work: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

(2) Reference Name: \_\_\_\_\_ Phone: ( ) \_\_\_\_\_

Address: \_\_\_\_\_ Email: \_\_\_\_\_

Description and date(s) of work: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

(3) Reference Name: \_\_\_\_\_ Phone: ( ) \_\_\_\_\_

Address: \_\_\_\_\_ Email: \_\_\_\_\_

Description and date(s) of work: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

(4) Reference Name: \_\_\_\_\_ Phone: ( ) \_\_\_\_\_

Address: \_\_\_\_\_ Email: \_\_\_\_\_

Description and date(s) of work: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

(5) Reference Name: \_\_\_\_\_ Phone: ( ) \_\_\_\_\_

Address: \_\_\_\_\_ Email: \_\_\_\_\_

Description and date(s) of work: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

References will be contacted to confirm the bidder's skills, abilities and qualifications to faithfully perform the work as specified.

# OWNER-CONTRACTOR AGREEMENT

COMMONWEALTH OF MASSACHUSETTS  
DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT

This agreement made the \_\_\_\_\_ day of \_\_\_\_\_ **2016** by and between **Hudson Housing Authority** hereinafter called the "Owner", and \_\_\_\_\_ hereinafter called the "Contractor"

*Witnesseth*, that the Owner and the Contractor, for the consideration hereinunder named, agree as follows

**Article 1. Scope of Work:** The Contractor shall perform all Work required by the Contract Documents for **Zoning for Heat Distribution** prepared by

**Andrew M. Brockway & Associates**, acting as and referred to in the Contract Documents as the "Architect".

**ARTICLE 2. TIME OF COMPLETION:** The Contractor shall commence work under this Contract on the date specified in the written "Notice to Proceed" and shall bring the Work to Substantial Completion within **30** calendar days of said date. Damages for delays in the performance of the Work shall be in accordance with Article 9 of the General Conditions of the Contract.

**ARTICLE 3. CONTRACT SUM:** The Owner shall pay the Contractor, in current funds, for the performance of the Work, subject to additions and deductions by Change Order, of the Contract Sum of:

\_\_\_\_\_ **Dollars** \_\_\_\_\_  
CONTRACT SUM IN WORDS CONTRACT SUM IN NUMBERS

**ARTICLE 4. THE CONTRACT DOCUMENTS:** The following, together with this Agreement, form the Contract and all are as fully a part of the contract as if attached to this Agreement or repeated herein: The Advertisement, Bidding Documents, Contract Forms, Conditions of the Contract, and Specifications as enumerated in the Table of Contents, the drawings as enumerated in the List of Contract Drawings, DHCD publication known as the Construction Handbook, and all Modifications issued after execution of the Contract. Terms used in this Agreement which are defined in the Conditions of the Contract shall have the meanings designated in those Conditions.

**ARTICLE 5. ALTERNATES:** The following Alternates have been accepted and their costs are included in the Contract Sum stated in Article 3 of this Agreement:

Alternate No(s): \_\_\_\_\_ and \_\_\_\_\_

**ARTICLE 6. REAP CERTIFICATION:** Pursuant to M.G.L. c.62(c) §49(a), the individual signing this Contract on behalf of the Contractor, hereby certifies, under the penalties of perjury, that to the best of their knowledge and belief the Contractor has complied with all laws of the Commonwealth relating to taxes, reporting of employees and contractors, and withholding and remitting child support



**Article 7. Worker Documentation Certification:** In accordance with Executive Order 481 the undersigned further certifies under the penalties of perjury that the Contractor shall not knowingly use undocumented workers in connection with the performance of this contract; that pursuant to federal requirements, the Contractor shall verify the immigration status of all workers assigned to such contract without engaging in unlawful discrimination; and that the it shall not knowingly or recklessly alter, falsify, or accept altered or falsified documents from any such worker(s). The Contractor understands and agrees that breach of any of these terms during the contract period may be regarded as a material breach, subjecting the Contractor to sanctions, including but not limited to monetary penalties, withholding of payments, contract suspension or termination.

**Article 8. Conflict of Interest:** The Contractor covenants, that (1) presently, there is no financial interest and shall not acquire any such interest, direct or indirect, which would conflict in any manner or degree with the performance of services required to be performed under this Agreement or which would violate M.G.L. c.268A, as amended; (2) in the performance of this Contract, no person having any such interest shall be employed by the Contractor or engaged as a subcontractor by the contractor; and (3) no partner or employee of the firm is related by blood or marriage to any Board Member or employee of the Awarding Authority."

*In Witness Whereof, the Parties Hereto Have Caused This Instrument to be Executed Under Seal.*

**<sup>1</sup> CONTRACTOR**

\_\_\_\_\_  
Name of Contractor

\_\_\_\_\_  
Street

\_\_\_\_\_  
City State Zip

By: \_\_\_\_\_  
Signature and Seal

Witness \_\_\_\_\_

<sup>1</sup> If a Corporation, attach a notarized copy of the Corporate Vote authorizing signatory to sign Contract.

**<sup>2</sup> AWARDING AUTHORITY**

**Hudson Housing Authority**  
\_\_\_\_\_  
Name of Housing Authority

**8 Brigham Circle Hudson, MA 01749**  
\_\_\_\_\_  
Address

\_\_\_\_\_  
Signature and Seal  
Executive Director

\_\_\_\_\_  
Title

Attest:

<sup>2</sup> If signed by someone other than a Housing Authority Board member, attach a copy of Certified Board Vote authorizing the signatory to sign Contract.

CERTIFICATE OF VOTE OF AUTHORIZATION

\_\_\_\_\_, 201\_\_\_\_

I hereby certify that a meeting of the Board of Directors of the:

\_\_\_\_\_  
NAME OF CORPORATION

duly called and held at \_\_\_\_\_ on the \_\_\_\_\_ day of \_\_\_\_\_ 201\_\_\_\_

At which a quorum was present and acting, it was voted that \_\_\_\_\_  
Name of Corporate Officer

of the \_\_\_\_\_, be and hereby is authorized to execute and deliver for  
and on behalf of the Corporation a Contract with **Hudson Housing Authority**, for

work to be done at State-Aided Housing Project No. **689-1** In the City/Town of **Hudson, MA**

And to act as principal to execute bonds in connection therewith, which Contract and Bonds were  
presented to and made part of the records of said meeting.

I further certify that \_\_\_\_\_ is duly qualified and acting  
Name of Corporate Officer

\_\_\_\_\_ of the Corporation and that said vote has not been  
Title

Repealed, rescinded or amended.

**A true copy of the record,**

**ATTEST:** \_\_\_\_\_

(CORPORATE SEAL)

On this \_\_\_\_ day of \_\_\_\_\_ 201\_\_\_\_, before me, the undersigned Notary Public, personally  
appeared \_\_\_\_\_, duly designated by the board of directors and proved to  
me, through satisfactory evidence of identification, which was \_\_\_\_\_, that s/he is  
the person whose name is signed on the foregoing documents, and acknowledged to me that s/he  
signed it voluntarily for its stated purpose and that it was her/his free act and deed.

\_\_\_\_\_  
Notary Public  
My Commission Expires:

**TERMS AND CONDITIONS OF THE CONTRACT FOR CONSTRUCTION  
FOR c.149 sec.44A(2)(B) PROJECTS BETWEEN \$10,000 - \$25,000**

**1.0 GENERAL PROVISIONS**

**1.1 THE CONTRACT DOCUMENTS**

The Contract for Construction consists of the Contract Documents which include the Owner-Contractor Agreement, Public Notification, Bid Form, Contract Forms, Conditions of the Contract, Specifications, Drawings, all addenda issued prior to execution of the Contract, and other documents listed in the Agreement and Modifications issued after execution of the Contract.

**1.2 THE WORK**

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor's obligation.

**2.0 OWNER**

The term "Owner" sometimes also referred to as the "Awarding Authority" or "Authority" means the Housing Authority identified in the Owner-Contractor Agreement, organized and existing under the provisions of M.G.L. c.121B.

**2.1 BIDDER**

The terms "Quote(s)", "Bid(s)" or "Bidder(s)" shall mean the person or firm from which prices have been submitted to the Owner for the work identified in these documents.

**3.0 DEPARTMENT**

3.1 The term "Department" means the Commonwealth of Massachusetts, Department of Housing and Community Development.

3.2 The term "Construction Advisor" means the person who may be designated by the Administrator to assist the Owner with the Administration of the Contract.

**3.3 PROJECT FUNDING**

The Work under this Contract is funded wholly or in part by the Commonwealth of Massachusetts through the Department pursuant to a Contract for Financial Assistance between the Department and the Owner.

**4.0 CONTRACTOR**

4.1 The Contractor, sometimes referred to as the General Contractor, is the person or entity identified as such throughout the Contract Documents as if singular in number. The term Contractor means the Contractor or its authorized representative.

4.2 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences and procedures, and for coordinating all portions of the Work under the Contract.

**4.3 SALES TAX EXEMPTION AND OTHER TAXES**

4.3.1 To the extent that materials and supplies are used or incorporated in the performance of this Contract, the Contractor is considered an exempt purchaser under the Massachusetts Sales Act, Chapter 14 of the Acts of 1966.

4.3.2 The Contractor shall be responsible for paying all other taxes and tariffs of any sort, related to the work.

**4.4 PERMITS, FEES, AND NOTICES**

4.4.1 The Contractor shall secure and the Owner shall pay for any and all permits. The Contractor shall secure and pay for all licenses, and other fees required for the proper execution of the Work. The Contractor shall coordinate all efforts required to obtain these permits including having the permit issued in the name of the Contractor.

4.4.2 The Contractor shall comply with and give notices required by laws, ordinances, rules, regulations, and lawful orders of public authorities bearing on performance of the Work.

4.4.3 If the Contractor performs Work knowing it to be contrary to laws, statutes, ordinances, building codes, and rules and regulations without such notice to the Owner, the Contractor shall assume full responsibility for such Work and shall bear the attributable costs.

#### **4.5 SAFETY REQUIREMENTS**

The Contractor must comply with all Federal, State, and local safety laws and regulations applicable to work performed under this Contract.

#### **4.6 PREVAILING WAGE RATES AND LABOR REGULATIONS**

4.6.1 The rate per hour to be paid to mechanics, apprentices, teamsters, chauffeurs, and laborers employed on the Work shall not be less than the rate of wages in the attached "Minimum Wage Rates" as determined by the Commissioner of the Massachusetts Department of Labor Division of Occupational Safety. This schedule shall continue to be the minimum rate of wages for said employees during the life of this Contract. Any questions relative to the applicability of any wage rate shall be directed to the Division of Occupational Safety.

4.6.2 Keep a legible copy of said schedule posted on the site at all times. Provide the Owner, on a weekly basis, and keep an on-site file of the wage rates and classifications of labor employed on this Work in order that they may be available for inspection by the Owner, Department, Architect, or any agency having jurisdiction.

4.6.3 Pay reserve police officers employed on the Work the prevailing rate of wages paid to regular police officers as required by MGL c149 § 34B, as amended. Such police officers shall be covered by Worker's Compensation Insurance and Employers Liability Insurance provided by the Contractor.

4.6.4 The Contractor shall not have any claim for extra compensation from the Owner if the actual wages paid to employees on the Contract exceeds the rates listed on the Schedule

##### **4.6.5 WAGE RATE REPORTING**

- .1 The Contractor and all subcontractors shall provide certified payroll affidavits verifying compliance with MGL c.149 §§26 - 27H.
- .2 The Contractor and all subcontractors shall provide a Statement of Compliance within 15 days of the completion of its portion of the work. This statement shall be submitted to the Owner on the form found elsewhere in this section.

##### **4.6.6 APPRENTICE REQUIREMENTS**

Apprentices employed pursuant to this determination of wage rates must be registered and approved by the State Apprenticeship Council wherever rates for journeymen or apprentices are not listed.

##### **4.6.7 EMPLOYEE OSHA SAFETY TRAINING**

- .1 All employees who work on this construction site must have no less than 10 hours of OSHA-approved safety and health training.
- .2 The Contractor and all Subcontractors shall furnish to the Owner, with the certified payroll reports, documentation indicating that each employee has successfully completed 10 hours of a course in construction safety and health. This course must be approved by the United States Occupational Health and Safety Administration (OSHA).

#### **5.0 CONTRACT ADMINISTRATION**

##### **5.1 PRECONSTRUCTION CONFERENCE**

Prior to commencement of the Work, the Contractor shall meet in conference with representatives of the Owner, to discuss and develop mutual understandings relative to administration of the quality assurance program, safety program, labor provisions, the schedule of work, and other Contract procedures.

##### **5.2 REJECTION OF DEFECTIVE MATERIALS AND WORK**

The Owner's inspection of the Work shall not relieve the Contractor of any of its responsibilities to fulfill the Contract obligations, and defective work shall be corrected. Unsuitable work may be rejected by the Owner, notwithstanding that such work and materials have been previously overlooked or misjudged by the Owner and accepted for payment. If the Work or any part thereof shall be found defective at any time before the final acceptance of the whole Work, the Contractor shall forthwith correct such defect in a manner satisfactory to the Owner, and if any material brought upon the site for use in the Work, or selected for the same, shall be rejected by the Owner as unsuitable or not in conformity with the Contract requirements, the Contractor shall forthwith remove such materials from the vicinity of the Work.

## **6.0 CHANGES**

6.1 All changes in the work, including any increase, decrease, or other equitable adjustment in the Contract price or in the time for performing the Contract, shall be authorized in writing by the Owner. .

6.2 The Owner may direct changes to the Work provided:

- .1 the unit prices remain the same,
- .2 the Owner's representative has specified in writing that an increase is necessary to fulfill the al needs of the Owner and is more economical than awarding another contract,
- .3 the Contractor agrees to the increase or decrease in writing, and

## **7.0 PAYMENTS**

### **7.1 CONTRACT SUM**

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

### **7.2 APPLICATIONS FOR PAYMENT**

7.2.1 Once each month, on a date established at the beginning of the Work, the Contractor shall deliver to the Owner an itemized Application for Payment, supported by such data substantiating the Contractor's right to payment as the Owner may require, and reflecting a minimum of 5% retainage until the final acceptance and payment by the Owner.

7.2.2 . The Owner shall make payment to the Contractor within 30 days of receipt of said application, less any applicable retainage.

7.2.3 The Owner may make changes in any application for payment submitted by the Contractor for:

- .1 Retention based on the value of its claims against the Contractor,
- .2 Retention of 5% of the approved amount of the Application for Payment.

### **7.3 FINAL PAYMENT**

The acceptance by the Contractor of the last payment due under this Contract or the execution of the Final Certificate of Completion, shall operate as a release to the Owner from all claims and liability related to this Contract.

## **8.0 GUARANTY AND WARRANTY**

### **8.1 WARRANTY**

The Contractor warrants to the Owner that materials and equipment furnished under the Contract will be of good quality and new unless otherwise required or permitted by the Contract Documents, that the Work will be free from defects not inherent in the quality required or permitted, and that the Work will conform with the requirements of the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. If required by the Owner, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment furnished. The Owner reserves the right to reject said substituted materials even after requesting evidence.

### **8.2 GENERAL GUARANTY**

If at any time during the period of one (1) year from the date of the Substantial Completion the Work to be performed under this Contract, or any part of the Work shall, in the reasonable determination of the Owner, require replacing or repairing due to the fact that it is broken, defective, or otherwise does not conform to the Contract Documents, the Owner will notify the Contractor to make the required repairs or replacement. If the Contractor shall neglect to commence such repairs or replacement to the satisfaction of the Owner within ten (10) days from the date of giving or mailing such notice, then the Owner may employ other persons to make said repairs or replacements. The Contractor agrees, upon demand, to pay to the Owner all amounts which the Owner expends for such repairs or replacements. During this one year guarantee period any corrective work shall be performed in accordance with the applicable terms of this Contract. For items of work completed after substantial completion, the one year guarantee shall commence at the time the Owner accepts such items. This one year guarantee shall not limit any express guaranty or warranty provided elsewhere in the Contract.

## 9.0 INSURANCE REQUIREMENTS

The Contractor shall provide insurance coverage as listed in subparagraphs 9.1 - 9.6. This insurance shall be provided at the Contractor's expense and shall be in full force and effect during the full term of this contract.

### 9.1 WORKER'S COMPENSATION

Worker's Compensation:	Coverage A	Statutory Per M.G.L. c.149 §34 and c.152 as amended
Employer's liability:	Coverage B	up to \$ 500,000 each accident
		\$ 500,000 disease per employee
		\$ 500,000 disease policy

### 9.2 CONTRACTOR'S COMMERCIAL GENERAL LIABILITY

Bodily Injury & Property Damage	\$ 1,000,000. each occurrence
	\$ 1,000,000. general aggregate

Products & Completed Operations	\$ 1,000,000. aggregate
Personal & Advertising Injury	\$ 1,000,000. each occurrence

### 9.3 VEHICLE LIABILITY

Personal Injury and Property Damage	\$ 500,000. each person
Combined Single Limit	\$ 1,000,000. aggregate
	\$ 1,000,000.

### 9.4 OWNER AS CO-INSURED

The Owner and Department shall be named as additional insured on the Contractor's liability policies.

### 9.5 CERTIFICATES OF INSURANCE, POLICIES

9.5.1 The Contractor shall not commence work on this contract until proof of compliance with this article has been furnished to the Owner by submitting one copy of a properly endorsed insurance certificate issued by a company authorized to write insurance in the Commonwealth. This certificate shall indicate that the Contractual Liability Coverage is in force.

9.5.2 The Contractor shall file the original and one certified copy of all policies with the Owner within sixty days after Contract award. If the Owner is damaged by the Contractor's failure to maintain such insurance and to so notify the Owner, then the Contractor shall be responsible for all reasonable costs attributable thereto.

### 9.6 CANCELLATION

Cancellation of any insurance required by this contract, whether by the insurer or the insured, shall not be valid unless written notice thereof is given by the party proposing cancellation to the other party and to the Owner at least thirty days prior to the effective date thereof, which shall be expressed in said notice.

## 10.0 INDEMNIFICATION

10.1 The Contractor shall take all responsibility for the Work and take all precautions for preventing injuries to persons and property in or about the Work and shall bear all losses resulting to or on account of the amount or character of the Work. The Contractor shall pay or cause payment to be made for all labor performed or furnished and for all materials used or employed in carrying out this Contract.

10.2 The Contractor shall assume the defense of, and indemnify and save harmless the Owner, the Department, and their officers and agents from all claims:

- .1 relating to labor performed or furnished and materials used or employed for the Work;
- .2 to inventions, patents and patent rights used in and in doing the Work unless such patent infringement is due to a product or process specified by the Owner;
- .3 to injuries to any person or corporation received or sustained by or from the Contractor and any employees, and subcontractors and employees, in doing the work, or in consequence of any improper materials, implements or labor used or employed therein;
- .4 and to any act, omission or neglect of the Contractor and any employees therein.

## 11.0 NOT USED

## **12.0 MISCELLANEOUS REQUIREMENTS AND EXECUTIVE ORDERS**

12.1 The Contractor shall comply with the provisions of EPA Regulation 40 CFR 745; M.G.L. c.151B; Executive Order 526, Order regarding Non-Discrimination, Diversity, Equal Opportunity, and Affirmative Action; pertaining to minority and women owned business enterprises; Executive Order 527 establishing the Office of Access and Opportunity and Executive Order 481, prohibiting the use of undocumented workers on state contracts and all regulations promulgated pursuant thereto. The aforementioned law, executive orders, regulations and any amendments are incorporated herein by reference and made a part of this Contract.

## **12.2 CONFLICT OF INTEREST**

The Contractor covenants, that:

- .1 presently, there is no financial interest and shall not acquire any such interest, direct or indirect, which would conflict in any manner or degree with the performance of services required to be performed under this Agreement or which would violate M.G.L. c.268A, as amended;
- .2 in the performance of this Contract, no person having any such interest shall be employed by the Contractor or engaged as a subcontractor by the contractor; and
- .3 no partner or employee of the firm is related by blood or marriage to any Board Member or employee of the Awarding Authority."

## **13.0 TERMINATION**

### **13.1 TERMINATION FOR CAUSE**

13.1.1 The Owner may terminate this contract for cause if it determines that any of the following circumstances have occurred:

- .1 The Contractor is adjudged bankrupt or has made a general assignment for the benefit of its creditors.
- .2 A receiver has been appointed of the Contractor's property.
- .3 All or a part of the Work has been abandoned.
- .4 The Contractor has sublet or assigned all or any portion of the Work, the Contract, or claims thereunder, without the prior written consent of the Owner, except as provided in the Contract Documents.
- .5 The Owner has determined that the rate of progress required on the project is not being met.
- .6 The Contractor has substantially violated any provisions of this Contract.

13.1.3 The Owner may complete the work, or any part thereof, and charge its expense of so completing the work or part thereof, to the Contractor.

13.1.4 The Owner may take possession of and use any materials, machinery, implements and tools found upon the site of said Work. The Owner shall not be liable for any depreciation, loss or damage to said materials, machinery, implements or tools during said use and the Contractor shall be solely responsible for their removal from the Project site after the Owner has no further use for them.

### **13.3 TERMINATION - NO FAULT**

13.3.1 In the event that this Contract is terminated by the Owner, prior to the completion of construction and termination is not based on a reason listed in Paragraph 13.1, the Contractor shall be compensated for its costs incurred, including reasonable costs of de-mobilization, calculated on a percent completion basis covering the period of time between the last approved application for payment and the date of termination.

13.3.2 Payment by the Owner pursuant to Subparagraph 13.3.1 shall be considered to fully compensate the Contractor for all claims and expenses and those of any consultants, subcontractors, and suppliers, directly or indirectly attributable to the termination, including any claims for lost profits.

## **END OF GENERAL CONDITIONS 00.72.10**

# DIVISION 1

## General Administrative Requirements

### 1.01 GENERAL SCOPE OF THE WORK

A. The Work of the Contract consists of:

1. The scope of work includes upgrade of the existing zone controls for a multi-zone hot water heating system with baseboard convectors. The base scope includes removal of non-electric valves and installation of new motorized zone valves and electronic thermostats. Scope includes line voltage wiring to serve new control transformers and low voltage control wiring.

There are two Additive Alternates. See Section 01.23.00, ALTERNATES for scope of work.

2. Work either shown on the Drawings or included in the specifications unless specifically indicated not to be done.
3. Work outside the Project Site as called for in the Contract Documents and as required for the performance of the Work.
4. Providing and restoring, where appropriate, all temporary facilities.

### 1.02 TIME OF COMPLETION

The Work shall be commenced at the time stated in the Owner's Notice to Proceed and shall be completed within **30** consecutive calendar days thereafter.

### 1.03 SELECTION CRITERIA

A. In addition to any provisions of the General Conditions, the Contractor will be selected based on the lowest total bid (Base Bid plus Alternates) and a review of the Bidder's references.

### 1.04 PREVAILING WAGE RATES AND OSHA SAFETY TRAINING

- A Bidders shall include in their bid wages calculated from the wage rates established by the Massachusetts Department of Labor and Workforce Development and subject to M.G.L. c.149 §26 to 27H inclusive. A list of the wage rates for this project can be found at the end of this section
- B The Contractor shall certify that all employees working on this project have successfully completed a 10 Hour Safety and Health Training Course approved by the United State Occupational Health an Safety Administration (OSHA). This certification must be submitted with the payroll certifications require by paragraph A above.



## **1.05 SAMPLES AND SUBMITTALS**

- A.** The Contractor shall provide samples (or submittal of manufacturer's literature) for the Owner's approval prior to installation per Technical Specification Sections 230001 and 260001 requirements.

## **1.06 CONDUCT OF THE WORK**

- A.** Existing Buildings. All units will be occupied during construction. The Contractor shall take all necessary precautions to ensure the public safety and convenience of the occupants during construction. Contractor to coordinate access to units with Resident House Director and Hudson Housing Authority representative.
  
- B.** Unless specifically authorized by the Owner, the Work must be conducted between the hours of 8:00 A.M. and 4:30 P.M. on Monday through Friday. No work is to be done on holidays, Saturdays, or Sundays other than for emergencies.

## **1.07 SHUTDOWN OF SERVICES**

The Contractor's attention is especially called to the fact that the continuous operation of services for this housing development is mandatory. If any unit is to be left without heat, hot water, domestic water, electricity, gas, sanitary facilities, or any other services for more than an eight hour period, the Contractor shall submit a letter and obtain written authority from the Owner before proceeding.

If such a shutdown is unacceptable to the Owner, the Contractor shall make, and pay for, alternative arrangements to insure that services are provided.

## **1.08 PROTECTION AND ACCESS**

- A.** The Contractor shall, at all times, leave an unobstructed way along walks and roadways, and shall maintain barriers and lights for the protection of all persons and property in all locations where materials are stored or work is in progress.
  
- B.** The Contract shall take special measures to protect the tenants from noise, dust, and other disturbances.
  
- C.** The Contractor shall take necessary precautions to insure against fire during construction. The Contractor shall be responsible to insure that the area within the contract limits is kept orderly and clean and that combustible rubbish and construction debris is promptly removed from the site.

## **1.09 TEMPORARY FACILITIES**

- A.** Temporary Water - The Contractor may make use of the water available at the site for construction purposes.
- B.** Temporary Electricity - The Contractor may make use of the electricity available at the site, metered and paid for by the Owner, provided that the Contractor shall supply the proper adapters and extension cords. Where heavy duty electric equipment drawing a current in excess of 15 amps is involved, the Contractor shall provide temporary electric work to supply this power.
- C.** Temporary Toilets – The Contractor shall not use the on-site sanitary facilities. At the Contractor's option, the Contractor shall provide, pay for, and service an adequate number of toilet booths with chemical type toilets.

## **1.10 CLEANING UP**

- A.** Conduct cleaning and disposal operations to comply with all Federal, State, and local laws, ordinances, and regulations.
- B.** Provide on-site containers for collection of waste materials and rubbish, to be located with the approval of the Owner.
- C.** At the end of each day's work, remove, and legally dispose, all waste materials and rubbish from the site,

**END OF SECTION**



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

**Prevailing Wage Rates**

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

RONALD L. WALKER, II  
Secretary

WILLIAM D MCKINNEY  
Director

CHARLES D. BAKER  
Governor

KARYN E. POLITO  
Lt. Governor

**Awarding Authority:** Hudson Housing Authority  
**Contract Number:** 141047 **City/Town:** HUDSON  
**Description of Work:** Removal of existing manual thermostats and replacement with new thermostats to improve heat distribution at group home owned by Hudson Housing Authority, Massachusetts.  
**Job Location:** 49 Washington Street, Hudson, MA 01749

Information about Prevailing Wage Schedules for Awarding Authorities and Contractors

- 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 from the Department of Labor Standards (“DLS”) 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 any sub-contractor.
- All apprentices working on the project are required to be registered with the Massachusetts Department of Labor Standards, Division of Apprentice Standards (DLS/DAS). Apprentice must keep his/her apprentice identification card on his/her person 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 DLS/DAS regardless of whether or not they are registered with any other federal, state, local, or private agency must be paid the journeyworker's rate for the trade.**
- 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. Awarding authorities are required to request these updates 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, 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. Contractors are required to obtain the wage schedules from awarding authorities, and to pay no less than these rates to covered workers. The annual update requirement is not applicable to 27F “rental of equipment” contracts.
- Every contractor or subcontractor which performs construction work on the project is required to 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. A sample of a payroll reporting form may be obtained at <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.
- Employees not receiving the prevailing wage rate set forth on the wage schedule may report the violation to the Fair Labor Division of the office of the Attorney General at (617) 727-3465.
- 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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
<b>Construction</b>						
(2 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	08/01/2016	\$32.15	\$10.91	\$10.08	\$0.00	\$53.14
	12/01/2016	\$32.15	\$10.91	\$10.89	\$0.00	\$53.95
(3 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	08/01/2016	\$32.22	\$10.91	\$10.08	\$0.00	\$53.21
	12/01/2016	\$32.22	\$10.91	\$10.89	\$0.00	\$54.02
(4 & 5 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	08/01/2016	\$32.34	\$10.91	\$10.08	\$0.00	\$53.33
	12/01/2016	\$32.34	\$10.91	\$10.89	\$0.00	\$54.14
ADS/SUBMERSIBLE PILOT <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2015	\$88.29	\$9.80	\$19.23	\$0.00	\$117.32
For apprentice rates see "Apprentice- PILE DRIVER"						
AIR TRACK OPERATOR <i>LABORERS - ZONE 2</i>	06/01/2016	\$32.40	\$7.45	\$12.65	\$0.00	\$52.50
	12/01/2016	\$33.15	\$7.45	\$12.65	\$0.00	\$53.25
For apprentice rates see "Apprentice- LABORER"						
ASBESTOS REMOVER - PIPE / MECH. EQUIPT. <i>HEAT &amp; FROST INSULATORS LOCAL 6 (BOSTON)</i>	06/01/2016	\$32.90	\$11.50	\$7.10	\$0.00	\$51.50
	12/01/2016	\$33.90	\$11.50	\$7.10	\$0.00	\$52.50
	06/01/2017	\$34.90	\$11.50	\$7.10	\$0.00	\$53.50
	12/01/2017	\$35.90	\$11.50	\$7.10	\$0.00	\$54.50
	06/01/2018	\$36.90	\$11.50	\$7.10	\$0.00	\$55.50
	12/01/2018	\$37.90	\$11.50	\$7.10	\$0.00	\$56.50
	06/01/2019	\$38.90	\$11.50	\$7.10	\$0.00	\$57.50
	12/01/2019	\$39.90	\$11.50	\$7.10	\$0.00	\$58.50
	06/01/2020	\$40.90	\$11.50	\$7.10	\$0.00	\$59.50
	12/01/2020	\$41.90	\$11.50	\$7.10	\$0.00	\$60.50
ASPHALT RAKER <i>LABORERS - ZONE 2</i>	06/01/2016	\$31.90	\$7.45	\$12.65	\$0.00	\$52.00
	12/01/2016	\$32.65	\$7.45	\$12.65	\$0.00	\$52.75
For apprentice rates see "Apprentice- LABORER"						
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2016	\$44.23	\$10.00	\$15.15	\$0.00	\$69.38
	12/01/2016	\$45.48	\$10.00	\$15.15	\$0.00	\$70.63
	06/01/2017	\$46.48	\$10.00	\$15.15	\$0.00	\$71.63
	12/01/2017	\$47.48	\$10.00	\$15.15	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BACKHOE/FRONT-END LOADER <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2016	\$44.23	\$10.00	\$15.15	\$0.00	\$69.38
	12/01/2016	\$45.48	\$10.00	\$15.15	\$0.00	\$70.63
	06/01/2017	\$46.48	\$10.00	\$15.15	\$0.00	\$71.63
	12/01/2017	\$47.48	\$10.00	\$15.15	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BARCO-TYPE JUMPING TAMPER <i>LABORERS - ZONE 2</i>	06/01/2016	\$31.90	\$7.45	\$12.65	\$0.00	\$52.00
	12/01/2016	\$32.65	\$7.45	\$12.65	\$0.00	\$52.75
For apprentice rates see "Apprentice- LABORER"						
BLOCK PAVER, RAMMER / CURB SETTER <i>LABORERS - ZONE 2</i>	06/01/2016	\$32.40	\$7.45	\$12.65	\$0.00	\$52.50
	12/01/2016	\$33.15	\$7.45	\$12.65	\$0.00	\$53.25
For apprentice rates see "Apprentice- LABORER"						
BOILER MAKER <i>BOILERMAKERS LOCAL 29</i>	01/01/2016	\$41.62	\$6.97	\$16.21	\$0.00	\$64.80
	01/01/2017	\$42.92	\$6.97	\$16.21	\$0.00	\$66.10

**Classification**

**Effective Date   Base Wage   Health   Pension   Supplemental Unemployment   Total Rate**

**Apprentice - BOILERMAKER - Local 29**

**Effective Date - 01/01/2016**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	65	\$27.05	\$6.97	\$10.54	\$0.00	\$44.56
2	65	\$27.05	\$6.97	\$10.54	\$0.00	\$44.56
3	70	\$29.13	\$6.97	\$11.35	\$0.00	\$47.45
4	75	\$31.22	\$6.97	\$12.16	\$0.00	\$50.35
5	80	\$33.30	\$6.97	\$12.97	\$0.00	\$53.24
6	85	\$35.38	\$6.97	\$13.78	\$0.00	\$56.13
7	90	\$37.46	\$6.97	\$14.59	\$0.00	\$59.02
8	95	\$39.54	\$6.97	\$15.40	\$0.00	\$61.91

**Effective Date - 01/01/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	65	\$27.90	\$6.97	\$10.54	\$0.00	\$45.41
2	65	\$27.90	\$6.97	\$10.54	\$0.00	\$45.41
3	70	\$30.04	\$6.97	\$11.35	\$0.00	\$48.36
4	75	\$32.19	\$6.97	\$12.16	\$0.00	\$51.32
5	80	\$34.34	\$6.97	\$12.97	\$0.00	\$54.28
6	85	\$36.48	\$6.97	\$13.78	\$0.00	\$57.23
7	90	\$38.63	\$6.97	\$14.59	\$0.00	\$60.19
8	95	\$40.77	\$6.97	\$15.40	\$0.00	\$63.14

**Notes:**

**Apprentice to Journeyworker Ratio:1:5**

BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING)	09/01/2016	\$48.66	\$10.18	\$18.62	\$0.00	\$77.46
BRICKLAYERS LOCAL 3 (LOWELL)	03/01/2017	\$49.23	\$10.18	\$18.62	\$0.00	\$78.03

**Classification**

**Effective Date   Base Wage   Health   Pension   Supplemental Unemployment   Total Rate**

**Apprentice - BRICK/PLASTER/CEMENT MASON - Local 3 Lowell**

**Effective Date - 09/01/2016**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.33	\$10.18	\$18.62	\$0.00	\$53.13
2	60	\$29.20	\$10.18	\$18.62	\$0.00	\$58.00
3	70	\$34.06	\$10.18	\$18.62	\$0.00	\$62.86
4	80	\$38.93	\$10.18	\$18.62	\$0.00	\$67.73
5	90	\$43.79	\$10.18	\$18.62	\$0.00	\$72.59

**Effective Date - 03/01/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.62	\$10.18	\$18.62	\$0.00	\$53.42
2	60	\$29.54	\$10.18	\$18.62	\$0.00	\$58.34
3	70	\$34.46	\$10.18	\$18.62	\$0.00	\$63.26
4	80	\$39.38	\$10.18	\$18.62	\$0.00	\$68.18
5	90	\$44.31	\$10.18	\$18.62	\$0.00	\$73.11

**Notes:**

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**Apprentice to Journeyworker Ratio:1:5**

<b>BULLDOZER/GRADER/SCRAPER</b> <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2016	\$43.81	\$10.00	\$15.15	\$0.00	\$68.96
	12/01/2016	\$45.04	\$10.00	\$15.15	\$0.00	\$70.19
	06/01/2017	\$46.03	\$10.00	\$15.15	\$0.00	\$71.18
	12/01/2017	\$47.02	\$10.00	\$15.15	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
<b>CAISSON &amp; UNDERPINNING BOTTOM MAN</b> <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2016	\$36.95	\$7.45	\$14.00	\$0.00	\$58.40
	12/01/2016	\$37.95	\$7.45	\$14.00	\$0.00	\$59.40
For apprentice rates see "Apprentice- LABORER"						
<b>CAISSON &amp; UNDERPINNING LABORER</b> <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2016	\$35.80	\$7.45	\$14.00	\$0.00	\$57.25
	12/01/2016	\$36.80	\$7.45	\$14.00	\$0.00	\$58.25
For apprentice rates see "Apprentice- LABORER"						
<b>CAISSON &amp; UNDERPINNING TOP MAN</b> <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2016	\$35.80	\$7.45	\$14.00	\$0.00	\$57.25
	12/01/2016	\$36.80	\$7.45	\$14.00	\$0.00	\$58.25
For apprentice rates see "Apprentice- LABORER"						
<b>CARBIDE CORE DRILL OPERATOR</b> <i>LABORERS - ZONE 2</i>	06/01/2016	\$31.90	\$7.45	\$12.65	\$0.00	\$52.00
	12/01/2016	\$32.65	\$7.45	\$12.65	\$0.00	\$52.75
For apprentice rates see "Apprentice- LABORER"						
<b>CARPENTER</b> <i>CARPENTERS -ZONE 2 (Eastern Massachusetts)</i>	09/01/2016	\$38.08	\$9.80	\$16.82	\$0.00	\$64.70
	03/01/2017	\$39.05	\$9.80	\$16.82	\$0.00	\$65.67
	09/01/2017	\$40.06	\$9.80	\$16.82	\$0.00	\$66.68
	03/01/2018	\$41.06	\$9.80	\$16.82	\$0.00	\$67.68
	09/01/2018	\$42.10	\$9.80	\$16.82	\$0.00	\$68.72
	03/01/2019	\$43.13	\$9.80	\$16.82	\$0.00	\$69.75



Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CHAIN SAW OPERATOR <i>LABORERS - ZONE 2</i>	06/01/2016	\$31.90	\$7.45	\$12.65	\$0.00	\$52.00
	12/01/2016	\$32.65	\$7.45	\$12.65	\$0.00	\$52.75
For apprentice rates see "Apprentice- LABORER"						
CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2016	\$45.23	\$10.00	\$15.15	\$0.00	\$70.38
	12/01/2016	\$46.48	\$10.00	\$15.15	\$0.00	\$71.63
	06/01/2017	\$47.48	\$10.00	\$15.15	\$0.00	\$72.63
	12/01/2017	\$48.48	\$10.00	\$15.15	\$0.00	\$73.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
COMPRESSOR OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2016	\$30.40	\$10.00	\$15.15	\$0.00	\$55.55
	12/01/2016	\$31.27	\$10.00	\$15.15	\$0.00	\$56.42
	06/01/2017	\$31.96	\$10.00	\$15.15	\$0.00	\$57.11
	12/01/2017	\$32.65	\$10.00	\$15.15	\$0.00	\$57.80
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DELEADER (BRIDGE) <i>PAINTERS LOCAL 35 - ZONE 2</i>	07/01/2016	\$50.46	\$7.85	\$16.10	\$0.00	\$74.41
	01/01/2017	\$51.41	\$7.85	\$16.10	\$0.00	\$75.36

**Apprentice - PAINTER Local 35 - BRIDGES/TANKS**

**Effective Date - 07/01/2016**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.23	\$7.85	\$0.00	\$0.00	\$33.08
2	55	\$27.75	\$7.85	\$3.66	\$0.00	\$39.26
3	60	\$30.28	\$7.85	\$3.99	\$0.00	\$42.12
4	65	\$32.80	\$7.85	\$4.32	\$0.00	\$44.97
5	70	\$35.32	\$7.85	\$14.11	\$0.00	\$57.28
6	75	\$37.85	\$7.85	\$14.44	\$0.00	\$60.14
7	80	\$40.37	\$7.85	\$14.77	\$0.00	\$62.99
8	90	\$45.41	\$7.85	\$15.44	\$0.00	\$68.70

**Effective Date - 01/01/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.71	\$7.85	\$0.00	\$0.00	\$33.56
2	55	\$28.28	\$7.85	\$3.66	\$0.00	\$39.79
3	60	\$30.85	\$7.85	\$3.99	\$0.00	\$42.69
4	65	\$33.42	\$7.85	\$4.32	\$0.00	\$45.59
5	70	\$35.99	\$7.85	\$14.11	\$0.00	\$57.95
6	75	\$38.56	\$7.85	\$14.44	\$0.00	\$60.85
7	80	\$41.13	\$7.85	\$14.77	\$0.00	\$63.75
8	90	\$46.27	\$7.85	\$15.44	\$0.00	\$69.56

**Notes:**

Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

DEMO: ADZEMAN <i>LABORERS - ZONE 2</i>	12/01/2015	\$35.50	\$7.45	\$13.55	\$0.00	\$56.50
For apprentice rates see "Apprentice- LABORER"						



Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DEMO: BACKHOE/LOADER/HAMMER OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2015	\$36.50	\$7.45	\$13.55	\$0.00	\$57.50
For apprentice rates see "Apprentice- LABORER"						
DEMO: BURNERS <i>LABORERS - ZONE 2</i>	12/01/2015	\$36.25	\$7.45	\$13.55	\$0.00	\$57.25
For apprentice rates see "Apprentice- LABORER"						
DEMO: CONCRETE CUTTER/SAWYER <i>LABORERS - ZONE 2</i>	12/01/2015	\$36.50	\$7.45	\$13.55	\$0.00	\$57.50
For apprentice rates see "Apprentice- LABORER"						
DEMO: JACKHAMMER OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2015	\$36.25	\$7.45	\$13.55	\$0.00	\$57.25
For apprentice rates see "Apprentice- LABORER"						
DEMO: WRECKING LABORER <i>LABORERS - ZONE 2</i>	12/01/2015	\$35.50	\$7.45	\$13.55	\$0.00	\$56.50
For apprentice rates see "Apprentice- LABORER"						
DIRECTIONAL DRILL MACHINE OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2016	\$43.81	\$10.00	\$15.15	\$0.00	\$68.96
	12/01/2016	\$45.04	\$10.00	\$15.15	\$0.00	\$70.19
	06/01/2017	\$46.03	\$10.00	\$15.15	\$0.00	\$71.18
	12/01/2017	\$47.02	\$10.00	\$15.15	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DIVER <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2015	\$58.86	\$9.80	\$19.23	\$0.00	\$87.89
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2015	\$42.04	\$9.80	\$19.23	\$0.00	\$71.07
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2015	\$63.06	\$9.80	\$19.23	\$0.00	\$92.09
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER/SLURRY (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2015	\$88.23	\$9.80	\$19.23	\$0.00	\$117.26
For apprentice rates see "Apprentice- PILE DRIVER"						
ELECTRICIAN <i>ELECTRICIANS LOCAL 96</i>	12/01/2015	\$39.37	\$8.41	\$13.68	\$0.00	\$61.46

**Apprentice - ELECTRICIAN - Local 96**

**Effective Date - 12/01/2015**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$15.75	\$8.41	\$0.47	\$0.00	\$24.63
2	43	\$16.93	\$8.41	\$0.51	\$0.00	\$25.85
3	48	\$18.90	\$8.41	\$10.82	\$0.00	\$38.13
4	55	\$21.65	\$8.41	\$11.20	\$0.00	\$41.26
5	65	\$25.59	\$8.41	\$11.75	\$0.00	\$45.75
6	80	\$31.50	\$8.41	\$12.58	\$0.00	\$52.49

**Notes:**

Steps 1-2 are 1000 hrs; Steps 3-6 are 1500 hrs.

**Apprentice to Journeyworker Ratio:2:3\*\*\***

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
ELEVATOR CONSTRUCTOR <i>ELEVATOR CONSTRUCTORS LOCAL 41</i>	01/01/2016	\$48.77	\$14.43	\$14.96	\$0.00	\$78.16
	01/01/2017	\$49.90	\$15.28	\$15.71	\$0.00	\$80.89

**Apprentice - ELEVATOR CONSTRUCTOR - Local 41**

**Effective Date - 01/01/2016**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.39	\$14.43	\$14.96	\$0.00	\$53.78
2	55	\$26.82	\$14.43	\$14.96	\$0.00	\$56.21
3	65	\$31.70	\$14.43	\$14.96	\$0.00	\$61.09
4	70	\$34.14	\$14.43	\$14.96	\$0.00	\$63.53
5	80	\$39.02	\$14.43	\$14.96	\$0.00	\$68.41

**Effective Date - 01/01/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.95	\$15.28	\$15.71	\$0.00	\$55.94
2	55	\$27.45	\$15.28	\$15.71	\$0.00	\$58.44
3	65	\$32.44	\$15.28	\$15.71	\$0.00	\$63.43
4	70	\$34.93	\$15.28	\$15.71	\$0.00	\$65.92
5	80	\$39.92	\$15.28	\$15.71	\$0.00	\$70.91

**Notes:**

Steps 1-2 are 6 mos.; Steps 3-5 are 1 year

**Apprentice to Journeyworker Ratio:1:1**

ELEVATOR CONSTRUCTOR HELPER <i>ELEVATOR CONSTRUCTORS LOCAL 41</i>	01/01/2016	\$34.14	\$14.43	\$14.96	\$0.00	\$63.53
	01/01/2017	\$34.93	\$15.28	\$15.71	\$0.00	\$65.92

For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"

FENCE & GUARD RAIL ERECTOR <i>LABORERS - ZONE 2</i>	06/01/2016	\$31.90	\$7.45	\$12.65	\$0.00	\$52.00
	12/01/2016	\$32.65	\$7.45	\$12.65	\$0.00	\$52.75

For apprentice rates see "Apprentice- LABORER"

FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	05/01/2016	\$41.03	\$10.00	\$14.90	\$0.00	\$65.93
	11/01/2016	\$41.62	\$10.00	\$14.90	\$0.00	\$66.52
	05/01/2017	\$42.50	\$10.00	\$14.90	\$0.00	\$67.40
	11/01/2017	\$43.23	\$10.00	\$14.90	\$0.00	\$68.13
	05/01/2018	\$43.94	\$10.00	\$14.90	\$0.00	\$68.84

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	05/01/2016	\$42.47	\$10.00	\$14.90	\$0.00	\$67.37
	11/01/2016	\$43.07	\$10.00	\$14.90	\$0.00	\$67.97
	05/01/2017	\$43.96	\$10.00	\$14.90	\$0.00	\$68.86
	11/01/2017	\$44.69	\$10.00	\$14.90	\$0.00	\$69.59
	05/01/2018	\$45.41	\$10.00	\$14.90	\$0.00	\$70.31

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	05/01/2016	\$21.88	\$10.00	\$14.90	\$0.00	\$46.78
	11/01/2016	\$22.23	\$10.00	\$14.90	\$0.00	\$47.13
	05/01/2017	\$22.76	\$10.00	\$14.90	\$0.00	\$47.66
	11/01/2017	\$23.18	\$10.00	\$14.90	\$0.00	\$48.08
	05/01/2018	\$23.61	\$10.00	\$14.90	\$0.00	\$48.51
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIRE ALARM INSTALLER <i>ELECTRICIANS LOCAL 96</i>	12/01/2015	\$39.37	\$8.41	\$13.68	\$0.00	\$61.46
For apprentice rates see "Apprentice- ELECTRICIAN"						
FIRE ALARM REPAIR / MAINT/COMMISSIONING <i>ELECTRICIANS LOCAL 96</i>	12/01/2015	\$39.37	\$8.41	\$13.68	\$0.00	\$61.46
For apprentice rates see "Apprentice- ELECTRICIAN"						
FIREMAN (ASST. ENGINEER) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2016	\$36.71	\$10.00	\$15.15	\$0.00	\$61.86
	12/01/2016	\$37.75	\$10.00	\$15.15	\$0.00	\$62.90
	06/01/2017	\$38.59	\$10.00	\$15.15	\$0.00	\$63.74
	12/01/2017	\$39.42	\$10.00	\$15.15	\$0.00	\$64.57
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FLAGGER & SIGNALER <i>LABORERS - ZONE 2</i>	06/01/2016	\$20.50	\$7.45	\$12.65	\$0.00	\$40.60
	12/01/2016	\$20.50	\$7.45	\$12.65	\$0.00	\$40.60
For apprentice rates see "Apprentice- LABORER"						
FLOORCOVERER <i>FLOORCOVERERS LOCAL 2168 ZONE I</i>	03/01/2016	\$42.13	\$9.80	\$17.62	\$0.00	\$69.55

**Apprentice - FLOORCOVERER - Local 2168 Zone I**

**Effective Date - 03/01/2016**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.07	\$9.80	\$1.79	\$0.00	\$32.66
2	55	\$23.17	\$9.80	\$1.79	\$0.00	\$34.76
3	60	\$25.28	\$9.80	\$12.25	\$0.00	\$47.33
4	65	\$27.38	\$9.80	\$12.25	\$0.00	\$49.43
5	70	\$29.49	\$9.80	\$14.04	\$0.00	\$53.33
6	75	\$31.60	\$9.80	\$14.04	\$0.00	\$55.44
7	80	\$33.70	\$9.80	\$15.83	\$0.00	\$59.33
8	85	\$35.81	\$9.80	\$15.83	\$0.00	\$61.44

**Notes:**

Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

FORK LIFT/CHERRY PICKER <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2016	\$44.23	\$10.00	\$15.15	\$0.00	\$69.38
	12/01/2016	\$45.48	\$10.00	\$15.15	\$0.00	\$70.63
	06/01/2017	\$46.48	\$10.00	\$15.15	\$0.00	\$71.63
	12/01/2017	\$47.48	\$10.00	\$15.15	\$0.00	\$72.63

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
GENERATOR/LIGHTING PLANT/HEATERS <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2016	\$30.40	\$10.00	\$15.15	\$0.00	\$55.55
	12/01/2016	\$31.27	\$10.00	\$15.15	\$0.00	\$56.42
	06/01/2017	\$31.96	\$10.00	\$15.15	\$0.00	\$57.11
	12/01/2017	\$32.65	\$10.00	\$15.15	\$0.00	\$57.80
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS) <i>GLAZIERS LOCAL 35 (ZONE 2)</i>	07/01/2016	\$39.96	\$7.85	\$16.10	\$0.00	\$63.91
	01/01/2017	\$40.91	\$7.85	\$16.10	\$0.00	\$64.86

**Apprentice - GLAZIER - Local 35 Zone 2**

**Effective Date - 07/01/2016**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.98	\$7.85	\$0.00	\$0.00	\$27.83
2	55	\$21.98	\$7.85	\$3.66	\$0.00	\$33.49
3	60	\$23.98	\$7.85	\$3.99	\$0.00	\$35.82
4	65	\$25.97	\$7.85	\$4.32	\$0.00	\$38.14
5	70	\$27.97	\$7.85	\$14.11	\$0.00	\$49.93
6	75	\$29.97	\$7.85	\$14.44	\$0.00	\$52.26
7	80	\$31.97	\$7.85	\$14.77	\$0.00	\$54.59
8	90	\$35.96	\$7.85	\$15.44	\$0.00	\$59.25

**Effective Date - 01/01/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.46	\$7.85	\$0.00	\$0.00	\$28.31
2	55	\$22.50	\$7.85	\$3.66	\$0.00	\$34.01
3	60	\$24.55	\$7.85	\$3.99	\$0.00	\$36.39
4	65	\$26.59	\$7.85	\$4.32	\$0.00	\$38.76
5	70	\$28.64	\$7.85	\$14.11	\$0.00	\$50.60
6	75	\$30.68	\$7.85	\$14.44	\$0.00	\$52.97
7	80	\$32.73	\$7.85	\$14.77	\$0.00	\$55.35
8	90	\$36.82	\$7.85	\$15.44	\$0.00	\$60.11

**Notes:**

Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

HOISTING ENGINEER/CRANES/GRADALLS <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2016	\$44.23	\$10.00	\$15.15	\$0.00	\$69.38
	12/01/2016	\$45.48	\$10.00	\$15.15	\$0.00	\$70.63
	06/01/2017	\$46.48	\$10.00	\$15.15	\$0.00	\$71.63
	12/01/2017	\$47.48	\$10.00	\$15.15	\$0.00	\$72.63

**Classification**

**Effective Date   Base Wage   Health   Pension   Supplemental Unemployment   Total Rate**

**Apprentice - OPERATING ENGINEERS - Local 4**

**Effective Date - 06/01/2016**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$24.33	\$10.00	\$0.00	\$0.00	\$34.33
2	60	\$26.54	\$10.00	\$15.15	\$0.00	\$51.69
3	65	\$28.75	\$10.00	\$15.15	\$0.00	\$53.90
4	70	\$30.96	\$10.00	\$15.15	\$0.00	\$56.11
5	75	\$33.17	\$10.00	\$15.15	\$0.00	\$58.32
6	80	\$35.38	\$10.00	\$15.15	\$0.00	\$60.53
7	85	\$37.60	\$10.00	\$15.15	\$0.00	\$62.75
8	90	\$39.81	\$10.00	\$15.15	\$0.00	\$64.96

**Effective Date - 12/01/2016**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$25.01	\$10.00	\$0.00	\$0.00	\$35.01
2	60	\$27.29	\$10.00	\$15.15	\$0.00	\$52.44
3	65	\$29.56	\$10.00	\$15.15	\$0.00	\$54.71
4	70	\$31.84	\$10.00	\$15.15	\$0.00	\$56.99
5	75	\$34.11	\$10.00	\$15.15	\$0.00	\$59.26
6	80	\$36.38	\$10.00	\$15.15	\$0.00	\$61.53
7	85	\$38.66	\$10.00	\$15.15	\$0.00	\$63.81
8	90	\$40.93	\$10.00	\$15.15	\$0.00	\$66.08

**Notes:**

**Apprentice to Journeyworker Ratio:1:6**

HVAC (DUCTWORK) <i>SHEETMETAL WORKERS LOCAL 17 - A</i>	08/01/2016	\$43.31	\$10.70	\$23.07	\$2.31	\$79.39
	02/01/2017	\$44.41	\$10.70	\$23.07	\$2.31	\$80.49
	08/01/2017	\$45.51	\$10.70	\$23.07	\$2.31	\$81.59
	02/01/2018	\$46.66	\$10.70	\$23.07	\$2.31	\$82.74

For apprentice rates see "Apprentice- SHEET METAL WORKER"

HVAC (ELECTRICAL CONTROLS) <i>ELECTRICIANS LOCAL 96</i>	12/01/2015	\$39.37	\$8.41	\$13.68	\$0.00	\$61.46
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For apprentice rates see "Apprentice- ELECTRICIAN"

HVAC (TESTING AND BALANCING - AIR) <i>SHEETMETAL WORKERS LOCAL 17 - A</i>	08/01/2016	\$43.31	\$10.70	\$23.07	\$2.31	\$79.39
	02/01/2017	\$44.41	\$10.70	\$23.07	\$2.31	\$80.49
	08/01/2017	\$45.51	\$10.70	\$23.07	\$2.31	\$81.59
	02/01/2018	\$46.66	\$10.70	\$23.07	\$2.31	\$82.74

For apprentice rates see "Apprentice- SHEET METAL WORKER"

HVAC (TESTING AND BALANCING -WATER) <i>PIPEFITTERS LOCAL 537</i>	09/01/2016	\$50.19	\$9.70	\$18.14	\$0.00	\$78.03
	03/01/2017	\$51.19	\$9.70	\$18.14	\$0.00	\$79.03

For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"

HVAC MECHANIC <i>PIPEFITTERS LOCAL 537</i>	09/01/2016	\$50.19	\$9.70	\$18.14	\$0.00	\$78.03
	03/01/2017	\$51.19	\$9.70	\$18.14	\$0.00	\$79.03

For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
HYDRAULIC DRILLS <i>LABORERS - ZONE 2</i>	06/01/2016	\$32.40	\$7.45	\$12.65	\$0.00	\$52.50
	12/01/2016	\$33.15	\$7.45	\$12.65	\$0.00	\$53.25
For apprentice rates see "Apprentice- LABORER"						
INSULATOR (PIPES & TANKS) <i>HEAT &amp; FROST INSULATORS LOCAL 6 (BOSTON)</i>	09/01/2016	\$45.09	\$11.75	\$14.20	\$0.00	\$71.04
	09/01/2017	\$47.09	\$11.75	\$14.20	\$0.00	\$73.04
	09/01/2018	\$49.34	\$11.75	\$14.20	\$0.00	\$75.29
	09/01/2019	\$51.84	\$11.75	\$14.20	\$0.00	\$77.79

**Apprentice - ASBESTOS INSULATOR (Pipes & Tanks) - Local 6 Boston**

**Effective Date - 09/01/2016**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.55	\$11.75	\$10.45	\$0.00	\$44.75
2	60	\$27.05	\$11.75	\$11.20	\$0.00	\$50.00
3	70	\$31.56	\$11.75	\$11.95	\$0.00	\$55.26
4	80	\$36.07	\$11.75	\$12.70	\$0.00	\$60.52

**Effective Date - 09/01/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.55	\$11.75	\$10.45	\$0.00	\$45.75
2	60	\$28.25	\$11.75	\$11.20	\$0.00	\$51.20
3	70	\$32.96	\$11.75	\$11.95	\$0.00	\$56.66
4	80	\$37.67	\$11.75	\$12.70	\$0.00	\$62.12

**Notes:**

Steps are 1 year

**Apprentice to Journeyworker Ratio:1:4**

IRONWORKER/WELDER <i>IRONWORKERS LOCAL 7 (WORCESTER AREA)</i>	03/16/2016	\$43.10	\$7.80	\$20.85	\$0.00	\$71.75
	09/16/2016	\$43.75	\$7.80	\$20.85	\$0.00	\$72.40
	03/16/2017	\$44.35	\$7.80	\$20.85	\$0.00	\$73.00

**Classification**

**Effective Date   Base Wage   Health   Pension   Supplemental Unemployment   Total Rate**

**Apprentice - IRONWORKER - Local 7 Worcester**

**Effective Date - 03/16/2016**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$25.86	\$7.80	\$20.85	\$0.00	\$54.51
2	70	\$30.17	\$7.80	\$20.85	\$0.00	\$58.82
3	75	\$32.33	\$7.80	\$20.85	\$0.00	\$60.98
4	80	\$34.48	\$7.80	\$20.85	\$0.00	\$63.13
5	85	\$36.64	\$7.80	\$20.85	\$0.00	\$65.29
6	90	\$38.79	\$7.80	\$20.85	\$0.00	\$67.44

**Effective Date - 09/16/2016**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$26.25	\$7.80	\$20.85	\$0.00	\$54.90
2	70	\$30.63	\$7.80	\$20.85	\$0.00	\$59.28
3	75	\$32.81	\$7.80	\$20.85	\$0.00	\$61.46
4	80	\$35.00	\$7.80	\$20.85	\$0.00	\$63.65
5	85	\$37.19	\$7.80	\$20.85	\$0.00	\$65.84
6	90	\$39.38	\$7.80	\$20.85	\$0.00	\$68.03

**Notes:**

Structural 1:6; Ornamental 1:4

**Apprentice to Journeyworker Ratio:**

JACKHAMMER & PAVING BREAKER OPERATOR LABORERS - ZONE 2	06/01/2016	\$31.90	\$7.45	\$12.65	\$0.00	\$52.00
	12/01/2016	\$32.65	\$7.45	\$12.65	\$0.00	\$52.75
For apprentice rates see "Apprentice- LABORER"						
LABORER LABORERS - ZONE 2	06/01/2016	\$31.65	\$7.45	\$12.65	\$0.00	\$51.75
	12/01/2016	\$32.40	\$7.45	\$12.65	\$0.00	\$52.50

**Apprentice - LABORER - Zone 2**

**Effective Date - 06/01/2016**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$18.99	\$7.45	\$12.65	\$0.00	\$39.09
2	70	\$22.16	\$7.45	\$12.65	\$0.00	\$42.26
3	80	\$25.32	\$7.45	\$12.65	\$0.00	\$45.42
4	90	\$28.49	\$7.45	\$12.65	\$0.00	\$48.59

**Effective Date - 12/01/2016**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$19.44	\$7.45	\$12.65	\$0.00	\$39.54
2	70	\$22.68	\$7.45	\$12.65	\$0.00	\$42.78
3	80	\$25.92	\$7.45	\$12.65	\$0.00	\$46.02
4	90	\$29.16	\$7.45	\$12.65	\$0.00	\$49.26

**Notes:**

**Apprentice to Journeyworker Ratio:1:5**

LABORER: CARPENTER TENDER <i>LABORERS - ZONE 2</i>	06/01/2016	\$31.65	\$7.45	\$12.65	\$0.00	\$51.75
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For apprentice rates see "Apprentice- LABORER"

	12/01/2016	\$32.40	\$7.45	\$12.65	\$0.00	\$52.50
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LABORER: CEMENT FINISHER TENDER <i>LABORERS - ZONE 2</i>	06/01/2016	\$31.65	\$7.45	\$12.65	\$0.00	\$51.75
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For apprentice rates see "Apprentice- LABORER"

	12/01/2016	\$32.40	\$7.45	\$12.65	\$0.00	\$52.50
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LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER <i>LABORERS - ZONE 2</i>	12/01/2015	\$31.35	\$7.45	\$12.60	\$0.00	\$51.40
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For apprentice rates see "Apprentice- LABORER"

LABORER: MASON TENDER <i>LABORERS - ZONE 2</i>	06/01/2016	\$31.90	\$7.45	\$12.65	\$0.00	\$52.00
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For apprentice rates see "Apprentice- LABORER"

	12/01/2016	\$32.65	\$7.45	\$12.65	\$0.00	\$52.75
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LABORER: MULTI-TRADE TENDER <i>LABORERS - ZONE 2</i>	06/01/2016	\$31.65	\$7.45	\$12.65	\$0.00	\$51.75
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For apprentice rates see "Apprentice- LABORER"

	12/01/2016	\$32.40	\$7.45	\$12.65	\$0.00	\$52.50
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LABORER: TREE REMOVER <i>LABORERS - ZONE 2</i>	06/01/2016	\$31.65	\$7.45	\$12.65	\$0.00	\$51.75
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This classification applies to all tree work associated with the removal of standing trees, and trimming and removal of branches and limbs when the work is not done for a utility company for the purpose of operation, maintenance or repair of utility company equipment. For apprentice rates see "Apprentice- LABORER"

	12/01/2016	\$32.40	\$7.45	\$12.65	\$0.00	\$52.50
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LASER BEAM OPERATOR <i>LABORERS - ZONE 2</i>	06/01/2016	\$31.90	\$7.45	\$12.65	\$0.00	\$52.00
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For apprentice rates see "Apprentice- LABORER"

	12/01/2016	\$32.65	\$7.45	\$12.65	\$0.00	\$52.75
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MARBLE & TILE FINISHERS <i>BRICKLAYERS LOCAL 3 - MARBLE &amp; TILE</i>	08/01/2016	\$38.78	\$10.18	\$17.78	\$0.00	\$66.74
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	02/01/2017	\$39.24	\$10.18	\$17.78	\$0.00	\$67.20
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**Apprentice - MARBLE & TILE FINISHER - Local 3 Marble & Tile**

**Effective Date - 08/01/2016**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.39	\$10.18	\$17.78	\$0.00	\$47.35
2	60	\$23.27	\$10.18	\$17.78	\$0.00	\$51.23
3	70	\$27.15	\$10.18	\$17.78	\$0.00	\$55.11
4	80	\$31.02	\$10.18	\$17.78	\$0.00	\$58.98
5	90	\$34.90	\$10.18	\$17.78	\$0.00	\$62.86

**Effective Date - 02/01/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.62	\$10.18	\$17.78	\$0.00	\$47.58
2	60	\$23.54	\$10.18	\$17.78	\$0.00	\$51.50
3	70	\$27.47	\$10.18	\$17.78	\$0.00	\$55.43
4	80	\$31.39	\$10.18	\$17.78	\$0.00	\$59.35
5	90	\$35.32	\$10.18	\$17.78	\$0.00	\$63.28

Notes:

**Apprentice to Journeyworker Ratio:1:3**

MARBLE MASONS, TILELAYERS & TERRAZZO MECH	08/01/2016	\$50.80	\$10.18	\$19.22	\$0.00	\$80.20
BRICKLAYERS LOCAL 3 - MARBLE & TILE	02/01/2017	\$51.37	\$10.18	\$19.22	\$0.00	\$80.77

**Apprentice - MARBLE-TILE-TERRAZZO MECHANIC - Local 3 Marble & Tile**

**Effective Date - 08/01/2016**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.40	\$10.18	\$19.22	\$0.00	\$54.80
2	60	\$30.48	\$10.18	\$19.22	\$0.00	\$59.88
3	70	\$35.56	\$10.18	\$19.22	\$0.00	\$64.96
4	80	\$40.64	\$10.18	\$19.22	\$0.00	\$70.04
5	90	\$45.72	\$10.18	\$19.22	\$0.00	\$75.12

**Effective Date - 02/01/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.69	\$10.18	\$19.22	\$0.00	\$55.09
2	60	\$30.82	\$10.18	\$19.22	\$0.00	\$60.22
3	70	\$35.96	\$10.18	\$19.22	\$0.00	\$65.36
4	80	\$41.10	\$10.18	\$19.22	\$0.00	\$70.50
5	90	\$46.23	\$10.18	\$19.22	\$0.00	\$75.63

Notes:

**Apprentice to Journeyworker Ratio:1:5**

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
MECH. SWEEPER OPERATOR (ON CONST. SITES) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2016	\$43.81	\$10.00	\$15.15	\$0.00	\$68.96
	12/01/2016	\$45.04	\$10.00	\$15.15	\$0.00	\$70.19
	06/01/2017	\$46.03	\$10.00	\$15.15	\$0.00	\$71.18
	12/01/2017	\$47.02	\$10.00	\$15.15	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
MECHANICS MAINTENANCE <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2016	\$43.81	\$10.00	\$15.15	\$0.00	\$68.96
	12/01/2016	\$45.04	\$10.00	\$15.15	\$0.00	\$70.19
	06/01/2017	\$46.03	\$10.00	\$15.15	\$0.00	\$71.18
	12/01/2017	\$47.02	\$10.00	\$15.15	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
MILLWRIGHT (Zone 2) <i>MILLWRIGHTS LOCAL 1121 - Zone 2</i>	04/01/2015	\$34.69	\$9.80	\$16.21	\$0.00	\$60.70
<b>Apprentice - MILLWRIGHT - Local 1121 Zone 2</b>						
<b>Effective Date - 04/01/2015</b>						
Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$19.08	\$9.80	\$4.48	\$0.00	\$33.36
2	65	\$22.55	\$9.80	\$13.36	\$0.00	\$45.71
3	75	\$26.02	\$9.80	\$14.18	\$0.00	\$50.00
4	85	\$29.49	\$9.80	\$14.99	\$0.00	\$54.28
<b>Notes:</b>						
Steps are 2,000 hours						
<b>Apprentice to Journeyworker Ratio:1:5</b>						
MORTAR MIXER <i>LABORERS - ZONE 2</i>	06/01/2016	\$31.90	\$7.45	\$12.65	\$0.00	\$52.00
	12/01/2016	\$32.65	\$7.45	\$12.65	\$0.00	\$52.75
For apprentice rates see "Apprentice- LABORER"						
OILER (OTHER THAN TRUCK CRANES,GRADALLS) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2016	\$22.41	\$10.00	\$15.15	\$0.00	\$47.56
	12/01/2016	\$23.06	\$10.00	\$15.15	\$0.00	\$48.21
	06/01/2017	\$23.57	\$10.00	\$15.15	\$0.00	\$48.72
	12/01/2017	\$24.09	\$10.00	\$15.15	\$0.00	\$49.24
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OILER (TRUCK CRANES, GRADALLS) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2016	\$26.29	\$10.00	\$15.15	\$0.00	\$51.44
	12/01/2016	\$27.04	\$10.00	\$15.15	\$0.00	\$52.19
	06/01/2017	\$27.64	\$10.00	\$15.15	\$0.00	\$52.79
	12/01/2017	\$28.25	\$10.00	\$15.15	\$0.00	\$53.40
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OTHER POWER DRIVEN EQUIPMENT - CLASS II <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2016	\$43.81	\$10.00	\$15.15	\$0.00	\$68.96
	12/01/2016	\$45.04	\$10.00	\$15.15	\$0.00	\$70.19
	06/01/2017	\$46.03	\$10.00	\$15.15	\$0.00	\$71.18
	12/01/2017	\$47.02	\$10.00	\$15.15	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PAINTER (BRIDGES/TANKS) <i>PAINTERS LOCAL 35 - ZONE 2</i>	07/01/2016	\$50.46	\$7.85	\$16.10	\$0.00	\$74.41
	01/01/2017	\$51.41	\$7.85	\$16.10	\$0.00	\$75.36

**Classification**

**Effective Date   Base Wage   Health   Pension   Supplemental Unemployment   Total Rate**

**Apprentice - PAINTER Local 35 - BRIDGES/TANKS**

**Effective Date - 07/01/2016**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.23	\$7.85	\$0.00	\$0.00	\$33.08
2	55	\$27.75	\$7.85	\$3.66	\$0.00	\$39.26
3	60	\$30.28	\$7.85	\$3.99	\$0.00	\$42.12
4	65	\$32.80	\$7.85	\$4.32	\$0.00	\$44.97
5	70	\$35.32	\$7.85	\$14.11	\$0.00	\$57.28
6	75	\$37.85	\$7.85	\$14.44	\$0.00	\$60.14
7	80	\$40.37	\$7.85	\$14.77	\$0.00	\$62.99
8	90	\$45.41	\$7.85	\$15.44	\$0.00	\$68.70

**Effective Date - 01/01/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.71	\$7.85	\$0.00	\$0.00	\$33.56
2	55	\$28.28	\$7.85	\$3.66	\$0.00	\$39.79
3	60	\$30.85	\$7.85	\$3.99	\$0.00	\$42.69
4	65	\$33.42	\$7.85	\$4.32	\$0.00	\$45.59
5	70	\$35.99	\$7.85	\$14.11	\$0.00	\$57.95
6	75	\$38.56	\$7.85	\$14.44	\$0.00	\$60.85
7	80	\$41.13	\$7.85	\$14.77	\$0.00	\$63.75
8	90	\$46.27	\$7.85	\$15.44	\$0.00	\$69.56

**Notes:**  
Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

PAINTER (SPRAY OR SANDBLAST, NEW) *	07/01/2016	\$41.36	\$7.85	\$16.10	\$0.00	\$65.31
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. PAINTERS LOCAL 35 - ZONE 2	01/01/2017	\$42.31	\$7.85	\$16.10	\$0.00	\$66.26

**Classification**

**Effective Date   Base Wage   Health   Pension   Supplemental Unemployment   Total Rate**

**Apprentice - PAINTER Local 35 Zone 2 - Spray/Sandblast - New**

**Effective Date - 07/01/2016**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.68	\$7.85	\$0.00	\$0.00	\$28.53
2	55	\$22.75	\$7.85	\$3.66	\$0.00	\$34.26
3	60	\$24.82	\$7.85	\$3.99	\$0.00	\$36.66
4	65	\$26.88	\$7.85	\$4.32	\$0.00	\$39.05
5	70	\$28.95	\$7.85	\$14.11	\$0.00	\$50.91
6	75	\$31.02	\$7.85	\$14.44	\$0.00	\$53.31
7	80	\$33.09	\$7.85	\$14.77	\$0.00	\$55.71
8	90	\$37.22	\$7.85	\$15.44	\$0.00	\$60.51

**Effective Date - 01/01/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.16	\$7.85	\$0.00	\$0.00	\$29.01
2	55	\$23.27	\$7.85	\$3.66	\$0.00	\$34.78
3	60	\$25.39	\$7.85	\$3.99	\$0.00	\$37.23
4	65	\$27.50	\$7.85	\$4.32	\$0.00	\$39.67
5	70	\$29.62	\$7.85	\$14.11	\$0.00	\$51.58
6	75	\$31.73	\$7.85	\$14.44	\$0.00	\$54.02
7	80	\$33.85	\$7.85	\$14.77	\$0.00	\$56.47
8	90	\$38.08	\$7.85	\$15.44	\$0.00	\$61.37

**Notes:**  
Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

PAINTER (SPRAY OR SANDBLAST, REPAINT)	07/01/2016	\$39.42	\$7.85	\$16.10	\$0.00	\$63.37
PAINTERS LOCAL 35 - ZONE 2	01/01/2017	\$40.37	\$7.85	\$16.10	\$0.00	\$64.32

**Apprentice - PAINTER Local 35 Zone 2 - Spray/Sandblast - Repaint**

**Effective Date - 07/01/2016**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.71	\$7.85	\$0.00	\$0.00	\$27.56
2	55	\$21.68	\$7.85	\$3.66	\$0.00	\$33.19
3	60	\$23.65	\$7.85	\$3.99	\$0.00	\$35.49
4	65	\$25.62	\$7.85	\$4.32	\$0.00	\$37.79
5	70	\$27.59	\$7.85	\$14.11	\$0.00	\$49.55
6	75	\$29.57	\$7.85	\$14.44	\$0.00	\$51.86
7	80	\$31.54	\$7.85	\$14.77	\$0.00	\$54.16
8	90	\$35.48	\$7.85	\$15.44	\$0.00	\$58.77

**Effective Date - 01/01/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.19	\$7.85	\$0.00	\$0.00	\$28.04
2	55	\$22.20	\$7.85	\$3.66	\$0.00	\$33.71
3	60	\$24.22	\$7.85	\$3.99	\$0.00	\$36.06
4	65	\$26.24	\$7.85	\$4.32	\$0.00	\$38.41
5	70	\$28.26	\$7.85	\$14.11	\$0.00	\$50.22
6	75	\$30.28	\$7.85	\$14.44	\$0.00	\$52.57
7	80	\$32.30	\$7.85	\$14.77	\$0.00	\$54.92
8	90	\$36.33	\$7.85	\$15.44	\$0.00	\$59.62

**Notes:**  
Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

PAINTER (TRAFFIC MARKINGS)	06/01/2016	\$31.65	\$7.45	\$12.65	\$0.00	\$51.75
LABORERS - ZONE 2	12/01/2016	\$32.40	\$7.45	\$12.65	\$0.00	\$52.50

For Apprentice rates see "Apprentice- LABORER"

PAINTER / TAPER (BRUSH, NEW) *	07/01/2016	\$39.96	\$7.85	\$16.10	\$0.00	\$63.91
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. PAINTERS LOCAL 35 - ZONE 2	01/01/2017	\$40.91	\$7.85	\$16.10	\$0.00	\$64.86

**Classification**

**Effective Date   Base Wage   Health   Pension   Supplemental Unemployment   Total Rate**

**Apprentice - PAINTER - Local 35 Zone 2 - BRUSH NEW**

**Effective Date - 07/01/2016**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.98	\$7.85	\$0.00	\$0.00	\$27.83
2	55	\$21.98	\$7.85	\$3.66	\$0.00	\$33.49
3	60	\$23.98	\$7.85	\$3.99	\$0.00	\$35.82
4	65	\$25.97	\$7.85	\$4.32	\$0.00	\$38.14
5	70	\$27.97	\$7.85	\$14.11	\$0.00	\$49.93
6	75	\$29.97	\$7.85	\$14.44	\$0.00	\$52.26
7	80	\$31.97	\$7.85	\$14.77	\$0.00	\$54.59
8	90	\$35.96	\$7.85	\$15.44	\$0.00	\$59.25

**Effective Date - 01/01/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.46	\$7.85	\$0.00	\$0.00	\$28.31
2	55	\$22.50	\$7.85	\$3.66	\$0.00	\$34.01
3	60	\$24.55	\$7.85	\$3.99	\$0.00	\$36.39
4	65	\$26.59	\$7.85	\$4.32	\$0.00	\$38.76
5	70	\$28.64	\$7.85	\$14.11	\$0.00	\$50.60
6	75	\$30.68	\$7.85	\$14.44	\$0.00	\$52.97
7	80	\$32.73	\$7.85	\$14.77	\$0.00	\$55.35
8	90	\$36.82	\$7.85	\$15.44	\$0.00	\$60.11

**Notes:**

Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

PAINTER / TAPER (BRUSH, REPAINT)	07/01/2016	\$38.02	\$7.85	\$16.10	\$0.00	\$61.97
PAINTERS LOCAL 35 - ZONE 2	01/01/2017	\$38.97	\$7.85	\$16.10	\$0.00	\$62.92

**Classification**

**Effective Date   Base Wage   Health   Pension   Supplemental Unemployment   Total Rate**

**Apprentice - PAINTER Local 35 Zone 2 - BRUSH REPAINT**

**Effective Date - 07/01/2016**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.01	\$7.85	\$0.00	\$0.00	\$26.86
2	55	\$20.91	\$7.85	\$3.66	\$0.00	\$32.42
3	60	\$22.81	\$7.85	\$3.99	\$0.00	\$34.65
4	65	\$24.71	\$7.85	\$4.32	\$0.00	\$36.88
5	70	\$26.61	\$7.85	\$14.11	\$0.00	\$48.57
6	75	\$28.52	\$7.85	\$14.44	\$0.00	\$50.81
7	80	\$30.42	\$7.85	\$14.77	\$0.00	\$53.04
8	90	\$34.22	\$7.85	\$15.44	\$0.00	\$57.51

**Effective Date - 01/01/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.49	\$7.85	\$0.00	\$0.00	\$27.34
2	55	\$21.43	\$7.85	\$3.66	\$0.00	\$32.94
3	60	\$23.38	\$7.85	\$3.99	\$0.00	\$35.22
4	65	\$25.33	\$7.85	\$4.32	\$0.00	\$37.50
5	70	\$27.28	\$7.85	\$14.11	\$0.00	\$49.24
6	75	\$29.23	\$7.85	\$14.44	\$0.00	\$51.52
7	80	\$31.18	\$7.85	\$14.77	\$0.00	\$53.80
8	90	\$35.07	\$7.85	\$15.44	\$0.00	\$58.36

**Notes:**

Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

PANEL & PICKUP TRUCKS DRIVER <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2012	\$30.28	\$9.07	\$8.00	\$0.00	\$47.35
PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK) <i>PILE DRIVER LOCAL 56 (ZONE 1)</i> For apprentice rates see "Apprentice- PILE DRIVER"	08/01/2015	\$42.04	\$9.80	\$19.23	\$0.00	\$71.07
PILE DRIVER <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2015	\$42.04	\$9.80	\$19.23	\$0.00	\$71.07

**Classification**

**Effective Date    Base Wage    Health    Pension    Supplemental Unemployment    Total Rate**

**Apprentice - PILE DRIVER - Local 56 Zone 1**

**Effective Date - 08/01/2015**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.02	\$9.80	\$19.23	\$0.00	\$50.05
2	60	\$25.22	\$9.80	\$19.23	\$0.00	\$54.25
3	70	\$29.43	\$9.80	\$19.23	\$0.00	\$58.46
4	75	\$31.53	\$9.80	\$19.23	\$0.00	\$60.56
5	80	\$33.63	\$9.80	\$19.23	\$0.00	\$62.66
6	80	\$33.63	\$9.80	\$19.23	\$0.00	\$62.66
7	90	\$37.84	\$9.80	\$19.23	\$0.00	\$66.87
8	90	\$37.84	\$9.80	\$19.23	\$0.00	\$66.87

**Notes:**

**Apprentice to Journeyworker Ratio:1:3**

PIPEFITTER & STEAMFITTER PIPEFITTERS LOCAL 537	09/01/2016	\$50.19	\$9.70	\$18.14	\$0.00	\$78.03
	03/01/2017	\$51.19	\$9.70	\$18.14	\$0.00	\$79.03

**Apprentice - PIPEFITTER - Local 537**

**Effective Date - 09/01/2016**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$20.08	\$9.70	\$7.50	\$0.00	\$37.28
2	45	\$22.59	\$9.70	\$18.14	\$0.00	\$50.43
3	60	\$30.11	\$9.70	\$18.14	\$0.00	\$57.95
4	70	\$35.13	\$9.70	\$18.14	\$0.00	\$62.97
5	80	\$40.15	\$9.70	\$18.14	\$0.00	\$67.99

**Effective Date - 03/01/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$20.48	\$9.70	\$7.50	\$0.00	\$37.68
2	45	\$23.04	\$9.70	\$18.14	\$0.00	\$50.88
3	60	\$30.71	\$9.70	\$18.14	\$0.00	\$58.55
4	70	\$35.83	\$9.70	\$18.14	\$0.00	\$63.67
5	80	\$40.95	\$9.70	\$18.14	\$0.00	\$68.79

**Notes:**

\*\* 1:3; 3:15; 1:10 thereafter / Steps are 1 yr.  
Refrig/AC Mechanic \*\*1:1;1:2;2:4;3:6;4:8;5:10;6:12;7:14;8:17;9:20;10:23(Max)

**Apprentice to Journeyworker Ratio:\*\***

PIPELAYER LABORERS - ZONE 2	06/01/2016	\$31.90	\$7.45	\$12.65	\$0.00	\$52.00
	12/01/2016	\$32.65	\$7.45	\$12.65	\$0.00	\$52.75

For apprentice rates see "Apprentice- LABORER"

PLUMBERS & GASFITTERS PLUMBERS & GASFITTERS LOCAL 12	09/01/2016	\$51.69	\$11.32	\$15.46	\$0.00	\$78.47
	03/01/2017	\$52.69	\$11.32	\$15.46	\$0.00	\$79.47



**Classification**

**Effective Date   Base Wage   Health   Pension   Supplemental Unemployment   Total Rate**

**Apprentice - PLUMBER/GASFITTER - Local 12**

**Effective Date - 09/01/2016**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$18.09	\$11.32	\$5.74	\$0.00	\$35.15
2	40	\$20.68	\$11.32	\$6.49	\$0.00	\$38.49
3	55	\$28.43	\$11.32	\$8.73	\$0.00	\$48.48
4	65	\$33.60	\$11.32	\$10.23	\$0.00	\$55.15
5	75	\$38.77	\$11.32	\$11.72	\$0.00	\$61.81

**Effective Date - 03/01/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$18.44	\$11.32	\$5.74	\$0.00	\$35.50
2	40	\$21.08	\$11.32	\$6.49	\$0.00	\$38.89
3	55	\$28.98	\$11.32	\$8.73	\$0.00	\$49.03
4	65	\$34.25	\$11.32	\$10.23	\$0.00	\$55.80
5	75	\$39.52	\$11.32	\$11.72	\$0.00	\$62.56

**Notes:**

\*\* 1:2; 2:6; 3:10; 4:14; 5:19/Steps are 1 yr  
Step4 with lic\$58.50 Step5 with lic\$65.36

**Apprentice to Journeyworker Ratio:\*\***

PNEUMATIC CONTROLS (TEMP.) <i>PIPEFITTERS LOCAL 537</i>	09/01/2016	\$50.19	\$9.70	\$18.14	\$0.00	\$78.03
	03/01/2017	\$51.19	\$9.70	\$18.14	\$0.00	\$79.03

For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"

PNEUMATIC DRILL/TOOL OPERATOR <i>LABORERS - ZONE 2</i>	06/01/2016	\$31.90	\$7.45	\$12.65	\$0.00	\$52.00
	12/01/2016	\$32.65	\$7.45	\$12.65	\$0.00	\$52.75

For apprentice rates see "Apprentice- LABORER"

POWDERMAN & BLASTER <i>LABORERS - ZONE 2</i>	06/01/2016	\$32.65	\$7.45	\$12.65	\$0.00	\$52.75
	12/01/2016	\$33.40	\$7.45	\$12.65	\$0.00	\$53.50

For apprentice rates see "Apprentice- LABORER"

POWER SHOVEL/DERRICK/TRENCHING MACHINE <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2016	\$44.23	\$10.00	\$15.15	\$0.00	\$69.38
	12/01/2016	\$45.48	\$10.00	\$15.15	\$0.00	\$70.63
	06/01/2017	\$46.48	\$10.00	\$15.15	\$0.00	\$71.63
	12/01/2017	\$47.48	\$10.00	\$15.15	\$0.00	\$72.63

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

PUMP OPERATOR (CONCRETE) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2016	\$44.23	\$10.00	\$15.15	\$0.00	\$69.38
	12/01/2016	\$45.48	\$10.00	\$15.15	\$0.00	\$70.63
	06/01/2017	\$46.48	\$10.00	\$15.15	\$0.00	\$71.63
	12/01/2017	\$47.48	\$10.00	\$15.15	\$0.00	\$72.63

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

PUMP OPERATOR (DEWATERING, OTHER) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2016	\$30.40	\$10.00	\$15.15	\$0.00	\$55.55
	12/01/2016	\$31.27	\$10.00	\$15.15	\$0.00	\$56.42
	06/01/2017	\$31.96	\$10.00	\$15.15	\$0.00	\$57.11
	12/01/2017	\$32.65	\$10.00	\$15.15	\$0.00	\$57.80

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
READY-MIX CONCRETE DRIVER <i>TEAMSTERS LOCAL 170</i>	05/01/2016	\$24.72	\$9.67	\$7.89	\$0.00	\$42.28
	12/01/2016	\$24.75	\$9.67	\$7.89	\$0.00	\$42.31
	01/01/2017	\$24.75	\$9.96	\$7.89	\$0.00	\$42.60
	02/02/2017	\$24.81	\$9.96	\$7.98	\$0.00	\$42.75
	03/01/2017	\$24.84	\$9.96	\$8.07	\$0.00	\$42.87
	04/01/2017	\$24.88	\$9.96	\$8.17	\$0.00	\$43.01
	05/01/2017	\$24.92	\$9.96	\$8.26	\$0.00	\$43.14
	12/01/2017	\$24.95	\$9.96	\$8.26	\$0.00	\$43.17
	01/01/2018	\$24.95	\$10.24	\$8.26	\$0.00	\$43.45
	02/02/2018	\$25.01	\$10.24	\$8.36	\$0.00	\$43.61
	03/01/2018	\$25.04	\$10.24	\$8.46	\$0.00	\$43.74
	05/01/2018	\$25.09	\$10.24	\$8.56	\$0.00	\$43.89
	12/01/2018	\$25.12	\$10.24	\$8.56	\$0.00	\$43.92
	01/01/2019	\$25.12	\$10.41	\$8.56	\$0.00	\$44.09
	12/01/2019	\$25.15	\$10.41	\$8.56	\$0.00	\$44.12
	01/01/2020	\$25.15	\$10.46	\$8.56	\$0.00	\$44.17
RECLAIMERS <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2016	\$43.81	\$10.00	\$15.15	\$0.00	\$68.96
	12/01/2016	\$45.04	\$10.00	\$15.15	\$0.00	\$70.19
	06/01/2017	\$46.03	\$10.00	\$15.15	\$0.00	\$71.18
	12/01/2017	\$47.02	\$10.00	\$15.15	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
RESIDENTIAL WOOD FRAME (All Other Work) <i>CARPENTERS -ZONE 2 (Residential Wood)</i>	04/01/2015	\$25.25	\$9.80	\$16.82	\$0.00	\$51.87
RESIDENTIAL WOOD FRAME CARPENTER ** ** The Residential Wood Frame Carpenter classification applies only to the construction of new, wood frame residences that do not exceed four stories including the basement. <i>CARPENTERS -ZONE 2 (Residential Wood)</i> As of 9/1/09 Carpentry work on wood-frame residential WEATHERIZATION projects shall be paid the RESIDENTIAL WOOD FRAME CARPENTER rate.	04/01/2015	\$25.30	\$7.00	\$6.31	\$0.00	\$38.61

**Apprentice - CARPENTER (Residential Wood Frame) - Zone 2**

**Effective Date - 04/01/2015**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$15.18	\$7.00	\$0.00	\$0.00	\$22.18
2	60	\$15.18	\$7.00	\$0.00	\$0.00	\$22.18
3	65	\$16.45	\$7.00	\$6.31	\$0.00	\$29.76
4	70	\$17.71	\$7.00	\$6.31	\$0.00	\$31.02
5	75	\$18.98	\$7.00	\$6.31	\$0.00	\$32.29
6	80	\$20.24	\$7.00	\$6.31	\$0.00	\$33.55
7	85	\$21.51	\$7.00	\$6.31	\$0.00	\$34.82
8	90	\$22.77	\$7.00	\$6.31	\$0.00	\$36.08

**Notes:**

**Apprentice to Journeyworker Ratio:1:5**

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
RIDE-ON MOTORIZED BUGGY OPERATOR <i>LABORERS - ZONE 2</i>	06/01/2016	\$31.90	\$7.45	\$12.65	\$0.00	\$52.00
	12/01/2016	\$32.65	\$7.45	\$12.65	\$0.00	\$52.75
For apprentice rates see "Apprentice- LABORER"						
ROLLER/SPREADER/MULCHING MACHINE <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2016	\$43.81	\$10.00	\$15.15	\$0.00	\$68.96
	12/01/2016	\$45.04	\$10.00	\$15.15	\$0.00	\$70.19
	06/01/2017	\$46.03	\$10.00	\$15.15	\$0.00	\$71.18
	12/01/2017	\$47.02	\$10.00	\$15.15	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
ROOFER (Inc.Roofers Waterproofing &Roofers Damproofg) <i>ROOFERS LOCAL 33</i>	08/01/2016	\$41.11	\$11.00	\$13.00	\$0.00	\$65.11
	02/01/2017	\$42.26	\$11.00	\$13.00	\$0.00	\$66.26
	08/01/2017	\$43.36	\$11.00	\$13.00	\$0.00	\$67.36
	02/01/2018	\$44.51	\$11.00	\$13.00	\$0.00	\$68.51
	08/01/2018	\$45.61	\$11.00	\$13.00	\$0.00	\$69.61
	02/01/2019	\$46.76	\$11.00	\$13.00	\$0.00	\$70.76

**Apprentice - ROOFER - Local 33**

**Effective Date - 08/01/2016**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.56	\$11.00	\$3.44	\$0.00	\$35.00
2	60	\$24.67	\$11.00	\$13.00	\$0.00	\$48.67
3	65	\$26.72	\$11.00	\$13.00	\$0.00	\$50.72
4	75	\$30.83	\$11.00	\$13.00	\$0.00	\$54.83
5	85	\$34.94	\$11.00	\$13.00	\$0.00	\$58.94

**Effective Date - 02/01/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.13	\$11.00	\$3.44	\$0.00	\$35.57
2	60	\$25.36	\$11.00	\$13.00	\$0.00	\$49.36
3	65	\$27.47	\$11.00	\$13.00	\$0.00	\$51.47
4	75	\$31.70	\$11.00	\$13.00	\$0.00	\$55.70
5	85	\$35.92	\$11.00	\$13.00	\$0.00	\$59.92

**Notes: \*\* 1:5, 2:6-10, the 1:10; Reroofing: 1:4, then 1:1**  
Step 1 is 2000 hrs.; Steps 2-5 are 1000 hrs.

**Apprentice to Journeyworker Ratio:\*\***

ROOFER SLATE / TILE / PRECAST CONCRETE <i>ROOFERS LOCAL 33</i>	08/01/2016	\$41.36	\$11.00	\$13.00	\$0.00	\$65.36
	02/01/2017	\$42.51	\$11.00	\$13.00	\$0.00	\$66.51
	08/01/2017	\$43.61	\$11.00	\$13.00	\$0.00	\$67.61
	02/01/2018	\$44.76	\$11.00	\$13.00	\$0.00	\$68.76
	08/01/2018	\$45.86	\$11.00	\$13.00	\$0.00	\$69.86
	02/01/2019	\$47.01	\$11.00	\$13.00	\$0.00	\$71.01

For apprentice rates see "Apprentice- ROOFER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
SHEETMETAL WORKER <i>SHEETMETAL WORKERS LOCAL 17 - A</i>	08/01/2016	\$43.31	\$10.70	\$23.07	\$2.31	\$79.39
	02/01/2017	\$44.41	\$10.70	\$23.07	\$2.31	\$80.49
	08/01/2017	\$45.51	\$10.70	\$23.07	\$2.31	\$81.59
	02/01/2018	\$46.66	\$10.70	\$23.07	\$2.31	\$82.74

**Apprentice - SHEET METAL WORKER - Local 17-A**

**Effective Date - 08/01/2016**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$17.32	\$10.70	\$5.24	\$0.00	\$33.26
2	40	\$17.32	\$10.70	\$5.24	\$0.00	\$33.26
3	45	\$19.49	\$10.70	\$10.31	\$1.21	\$41.71
4	45	\$19.49	\$10.70	\$10.31	\$1.21	\$41.71
5	50	\$21.66	\$10.70	\$11.21	\$1.31	\$44.88
6	50	\$21.66	\$10.70	\$11.46	\$1.31	\$45.13
7	60	\$25.99	\$10.70	\$13.02	\$1.49	\$51.20
8	65	\$28.15	\$10.70	\$13.93	\$1.58	\$54.36
9	75	\$32.48	\$10.70	\$15.74	\$1.77	\$60.69
10	85	\$36.81	\$10.70	\$17.05	\$1.94	\$66.50

**Effective Date - 02/01/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$17.76	\$10.70	\$5.24	\$0.00	\$33.70
2	40	\$17.76	\$10.70	\$5.24	\$0.00	\$33.70
3	45	\$19.98	\$10.70	\$10.31	\$1.23	\$42.22
4	45	\$19.98	\$10.70	\$10.31	\$1.23	\$42.22
5	50	\$22.21	\$10.70	\$11.21	\$1.32	\$45.44
6	50	\$22.21	\$10.70	\$11.46	\$1.33	\$45.70
7	60	\$26.65	\$10.70	\$13.02	\$1.51	\$51.88
8	65	\$28.87	\$10.70	\$13.93	\$1.61	\$55.11
9	75	\$33.31	\$10.70	\$15.74	\$1.79	\$61.54
10	85	\$37.75	\$10.70	\$17.05	\$1.97	\$67.47

**Notes:**

Steps are 6 mos.

**Apprentice to Journeyworker Ratio:1:4**

SIGN ERECTOR <i>PAINTERS LOCAL 35 - ZONE 2</i>	06/01/2013	\$25.81	\$7.07	\$7.05	\$0.00	\$39.93
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**Classification**

**Effective Date   Base Wage   Health   Pension   Supplemental Unemployment   Total Rate**

**Apprentice - SIGN ERECTOR - Local 35 Zone 2**

**Effective Date - 06/01/2013**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$12.91	\$7.07	\$0.00	\$0.00	\$19.98
2	55	\$14.20	\$7.07	\$2.45	\$0.00	\$23.72
3	60	\$15.49	\$7.07	\$2.45	\$0.00	\$25.01
4	65	\$16.78	\$7.07	\$2.45	\$0.00	\$26.30
5	70	\$18.07	\$7.07	\$7.05	\$0.00	\$32.19
6	75	\$19.36	\$7.07	\$7.05	\$0.00	\$33.48
7	80	\$20.65	\$7.07	\$7.05	\$0.00	\$34.77
8	85	\$21.94	\$7.07	\$7.05	\$0.00	\$36.06
9	90	\$23.23	\$7.07	\$7.05	\$0.00	\$37.35

**Notes:**  
Steps are 4 mos.

**Apprentice to Journeyworker Ratio:1:1**

SPECIALIZED EARTH MOVING EQUIP < 35 TONS <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	08/01/2016	\$32.44	\$10.91	\$10.08	\$0.00	\$53.43
	12/01/2016	\$32.44	\$10.91	\$10.89	\$0.00	\$54.24
SPECIALIZED EARTH MOVING EQUIP > 35 TONS <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	08/01/2016	\$32.73	\$10.91	\$10.08	\$0.00	\$53.72
	12/01/2016	\$32.73	\$10.91	\$10.89	\$0.00	\$54.53
SPRINKLER FITTER <i>SPRINKLER FITTERS LOCAL 550 - (Section A) Zone 1</i>	03/01/2016	\$54.43	\$8.67	\$16.80	\$0.00	\$79.90
	10/01/2016	\$55.53	\$8.67	\$16.80	\$0.00	\$81.00
	03/01/2017	\$56.53	\$8.67	\$16.80	\$0.00	\$82.00

**Classification**

**Effective Date   Base Wage   Health   Pension   Supplemental Unemployment   Total Rate**

**Apprentice - SPRINKLER FITTER - Local 550 (Section A) Zone 1**

**Effective Date - 03/01/2016**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$19.05	\$8.67	\$8.55	\$0.00	\$36.27
2	40	\$21.77	\$8.67	\$8.55	\$0.00	\$38.99
3	45	\$24.49	\$8.67	\$8.55	\$0.00	\$41.71
4	50	\$27.22	\$8.67	\$8.55	\$0.00	\$44.44
5	55	\$29.94	\$8.67	\$8.55	\$0.00	\$47.16
6	60	\$32.66	\$8.67	\$8.55	\$0.00	\$49.88
7	65	\$35.38	\$8.67	\$8.55	\$0.00	\$52.60
8	70	\$38.10	\$8.67	\$8.55	\$0.00	\$55.32
9	75	\$40.82	\$8.67	\$8.55	\$0.00	\$58.04
10	80	\$43.54	\$8.67	\$8.55	\$0.00	\$60.76

**Effective Date - 10/01/2016**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$19.44	\$8.67	\$8.55	\$0.00	\$36.66
2	40	\$22.21	\$8.67	\$8.55	\$0.00	\$39.43
3	45	\$24.99	\$8.67	\$8.55	\$0.00	\$42.21
4	50	\$27.77	\$8.67	\$8.55	\$0.00	\$44.99
5	55	\$30.54	\$8.67	\$8.55	\$0.00	\$47.76
6	60	\$33.32	\$8.67	\$8.55	\$0.00	\$50.54
7	65	\$36.09	\$8.67	\$8.55	\$0.00	\$53.31
8	70	\$38.87	\$8.67	\$8.55	\$0.00	\$56.09
9	75	\$41.65	\$8.67	\$8.55	\$0.00	\$58.87
10	80	\$44.42	\$8.67	\$8.55	\$0.00	\$61.64

**Notes:** Apprentice entered prior 9/30/10:  
40/45/50/55/60/65/70/75/80/85  
Steps are 850 hours

**Apprentice to Journeyworker Ratio:1:3**

<b>STEAM BOILER OPERATOR</b> <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2016	\$43.81	\$10.00	\$15.15	\$0.00	\$68.96
	12/01/2016	\$45.04	\$10.00	\$15.15	\$0.00	\$70.19
	06/01/2017	\$46.03	\$10.00	\$15.15	\$0.00	\$71.18
	12/01/2017	\$47.02	\$10.00	\$15.15	\$0.00	\$72.17

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

<b>TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN</b> <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2016	\$43.81	\$10.00	\$15.15	\$0.00	\$68.96
	12/01/2016	\$45.04	\$10.00	\$15.15	\$0.00	\$70.19
	06/01/2017	\$46.03	\$10.00	\$15.15	\$0.00	\$71.18
	12/01/2017	\$47.02	\$10.00	\$15.15	\$0.00	\$72.17

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

<b>TERRAZZO FINISHERS</b> <i>BRICKLAYERS LOCAL 3 - MARBLE &amp; TILE</i>	08/01/2016	\$49.70	\$10.18	\$19.22	\$0.00	\$79.10
	02/01/2017	\$50.27	\$10.18	\$19.22	\$0.00	\$79.67

**Classification**

**Effective Date   Base Wage   Health   Pension   Supplemental Unemployment   Total Rate**

**Apprentice - TERRAZZO FINISHER - Local 3 Marble & Tile**

**Effective Date - 08/01/2016**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.85	\$10.18	\$19.22	\$0.00	\$54.25
2	60	\$29.82	\$10.18	\$19.22	\$0.00	\$59.22
3	70	\$34.79	\$10.18	\$19.22	\$0.00	\$64.19
4	80	\$39.76	\$10.18	\$19.22	\$0.00	\$69.16
5	90	\$44.73	\$10.18	\$19.22	\$0.00	\$74.13

**Effective Date - 02/01/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.14	\$10.18	\$19.22	\$0.00	\$54.54
2	60	\$30.16	\$10.18	\$19.22	\$0.00	\$59.56
3	70	\$35.19	\$10.18	\$19.22	\$0.00	\$64.59
4	80	\$40.22	\$10.18	\$19.22	\$0.00	\$69.62
5	90	\$45.24	\$10.18	\$19.22	\$0.00	\$74.64

**Notes:**

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**Apprentice to Journeyworker Ratio:1:3**

TEST BORING DRILLER <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2016	\$37.20	\$7.45	\$14.00	\$0.00	\$58.65
	12/01/2016	\$38.20	\$7.45	\$14.00	\$0.00	\$59.65
For apprentice rates see "Apprentice- LABORER"						
TEST BORING DRILLER HELPER <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2016	\$35.92	\$7.45	\$14.00	\$0.00	\$57.37
	12/01/2016	\$36.92	\$7.45	\$14.00	\$0.00	\$58.37
For apprentice rates see "Apprentice- LABORER"						
TEST BORING LABORER <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2016	\$35.80	\$7.45	\$14.00	\$0.00	\$57.25
	12/01/2016	\$36.80	\$7.45	\$14.00	\$0.00	\$58.25
For apprentice rates see "Apprentice- LABORER"						
TRACTORS/PORTABLE STEAM GENERATORS <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2016	\$43.81	\$10.00	\$15.15	\$0.00	\$68.96
	12/01/2016	\$45.04	\$10.00	\$15.15	\$0.00	\$70.19
	06/01/2017	\$46.03	\$10.00	\$15.15	\$0.00	\$71.18
	12/01/2017	\$47.02	\$10.00	\$15.15	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TRAILERS FOR EARTH MOVING EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	08/01/2016	\$33.02	\$10.91	\$10.08	\$0.00	\$54.01
	12/01/2016	\$33.02	\$10.91	\$10.89	\$0.00	\$54.82
TUNNEL WORK - COMPRESSED AIR <i>LABORERS (COMPRESSED AIR)</i>	06/01/2016	\$48.08	\$7.45	\$14.40	\$0.00	\$69.93
	12/01/2016	\$49.08	\$7.45	\$14.40	\$0.00	\$70.93
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE) <i>LABORERS (COMPRESSED AIR)</i>	06/01/2016	\$50.08	\$7.45	\$14.40	\$0.00	\$71.93
	12/01/2016	\$51.08	\$7.45	\$14.40	\$0.00	\$72.93
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR <i>LABORERS (FREE AIR TUNNEL)</i>	06/01/2016	\$40.15	\$7.45	\$14.40	\$0.00	\$62.00
	12/01/2016	\$41.15	\$7.45	\$14.40	\$0.00	\$63.00
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TUNNEL WORK - FREE AIR (HAZ. WASTE) <i>LABORERS (FREE AIR TUNNEL)</i>	06/01/2016	\$42.15	\$7.45	\$14.40	\$0.00	\$64.00
	12/01/2016	\$43.15	\$7.45	\$14.40	\$0.00	\$65.00
For apprentice rates see "Apprentice- LABORER"						
VAC-HAUL <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	08/01/2016	\$32.44	\$10.91	\$10.08	\$0.00	\$53.43
	12/01/2016	\$32.44	\$10.91	\$10.89	\$0.00	\$54.24
VOICE-DATA-VIDEO TECHNICIAN <i>ELECTRICIANS LOCAL 96</i>	12/01/2015	\$26.83	\$8.41	\$12.35	\$0.00	\$47.59

**Apprentice - VOICE-DATA-VIDEO TECHNICIAN - Local 96**

**Effective Date - 12/01/2015**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$13.42	\$8.41	\$3.78	\$0.00	\$25.61
2	55	\$14.76	\$8.41	\$3.82	\$0.00	\$26.99
3	60	\$16.10	\$8.41	\$12.03	\$0.00	\$36.54
4	65	\$17.44	\$8.41	\$12.07	\$0.00	\$37.92
5	70	\$18.78	\$8.41	\$12.11	\$0.00	\$39.30
6	75	\$20.12	\$8.41	\$12.15	\$0.00	\$40.68
7	80	\$21.46	\$8.41	\$12.19	\$0.00	\$42.06
8	85	\$22.81	\$8.41	\$12.23	\$0.00	\$43.45

**Notes:**

**Apprentice to Journeyworker Ratio:1:1**

WAGON DRILL OPERATOR <i>LABORERS - ZONE 2</i>	06/01/2016	\$31.90	\$7.45	\$12.65	\$0.00	\$52.00
	12/01/2016	\$32.65	\$7.45	\$12.65	\$0.00	\$52.75
For apprentice rates see "Apprentice- LABORER"						
WASTE WATER PUMP OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2016	\$44.23	\$10.00	\$15.15	\$0.00	\$69.38
	12/01/2016	\$45.48	\$10.00	\$15.15	\$0.00	\$70.63
	06/01/2017	\$46.48	\$10.00	\$15.15	\$0.00	\$71.63
	12/01/2017	\$47.48	\$10.00	\$15.15	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
WATER METER INSTALLER <i>PLUMBERS &amp; GASFITTERS LOCAL 12</i>	09/01/2016	\$51.69	\$11.32	\$15.46	\$0.00	\$78.47
	03/01/2017	\$52.69	\$11.32	\$15.46	\$0.00	\$79.47
For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"						
<b>Outside Electrical - East</b>						
CABLE TECHNICIAN (Power Zone) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/28/2016	\$26.61	\$7.50	\$1.80	\$0.00	\$35.91
	09/03/2017	\$27.14	\$7.75	\$1.81	\$0.00	\$36.70
For apprentice rates see "Apprentice- LINEMAN"						
CABLEMAN (Underground Ducts & Cables) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/28/2016	\$37.70	\$7.50	\$8.87	\$0.00	\$54.07
	09/03/2017	\$38.45	\$7.75	\$9.53	\$0.00	\$55.73
For apprentice rates see "Apprentice- LINEMAN"						
DRIVER / GROUNDMAN CDL <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/28/2016	\$31.05	\$7.50	\$8.89	\$0.00	\$47.44
	09/03/2017	\$31.66	\$7.75	\$9.44	\$0.00	\$48.85
For apprentice rates see "Apprentice- LINEMAN"						
DRIVER / GROUNDMAN -Inexperienced (<2000 Hrs) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/28/2016	\$24.39	\$7.50	\$1.73	\$0.00	\$33.62
	09/03/2017	\$24.88	\$7.75	\$1.75	\$0.00	\$34.38



Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- LINEMAN"						
EQUIPMENT OPERATOR (Class A CDL) OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	08/28/2016	\$37.70	\$7.50	\$12.95	\$0.00	\$58.15
	09/03/2017	\$38.45	\$7.75	\$13.61	\$0.00	\$59.81
For apprentice rates see "Apprentice- LINEMAN"						
EQUIPMENT OPERATOR (Class B CDL) OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	08/28/2016	\$33.26	\$7.50	\$9.63	\$0.00	\$50.39
	09/03/2017	\$33.92	\$7.75	\$10.21	\$0.00	\$51.88
For apprentice rates see "Apprentice- LINEMAN"						
GROUNDMAN OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	08/28/2016	\$24.39	\$7.50	\$1.73	\$0.00	\$33.62
	09/03/2017	\$24.88	\$7.75	\$1.75	\$0.00	\$34.38
For apprentice rates see "Apprentice- LINEMAN"						
GROUNDMAN -Inexperienced (<2000 Hrs.) OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	08/28/2016	\$19.96	\$7.50	\$1.60	\$0.00	\$29.06
	09/03/2017	\$20.35	\$7.75	\$1.61	\$0.00	\$29.71
For apprentice rates see "Apprentice- LINEMAN"						
JOURNEYMAN LINEMAN OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	08/28/2016	\$44.35	\$7.50	\$15.83	\$0.00	\$67.68
	09/03/2017	\$45.23	\$7.75	\$16.61	\$0.00	\$69.59

**Apprentice - LINEMAN (Outside Electrical) - East Local 104**

**Effective Date - 08/28/2016**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$26.61	\$7.50	\$3.30	\$0.00	\$37.41
2	65	\$28.83	\$7.50	\$3.36	\$0.00	\$39.69
3	70	\$31.05	\$7.50	\$3.43	\$0.00	\$41.98
4	75	\$33.26	\$7.50	\$5.00	\$0.00	\$45.76
5	80	\$35.48	\$7.50	\$5.06	\$0.00	\$48.04
6	85	\$37.70	\$7.50	\$5.13	\$0.00	\$50.33
7	90	\$39.92	\$7.50	\$7.20	\$0.00	\$54.62

**Effective Date - 09/03/2017**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$27.14	\$7.75	\$3.31	\$0.00	\$38.20
2	65	\$29.40	\$7.75	\$3.38	\$0.00	\$40.53
3	70	\$31.66	\$7.75	\$3.45	\$0.00	\$42.86
4	75	\$33.92	\$7.75	\$5.02	\$0.00	\$46.69
5	80	\$36.18	\$7.75	\$5.09	\$0.00	\$49.02
6	85	\$38.45	\$7.75	\$5.15	\$0.00	\$51.35
7	90	\$40.71	\$7.75	\$7.22	\$0.00	\$55.68

**Notes:**

**Apprentice to Journeyworker Ratio:1:2**

TELEDATA CABLE SPLICER OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	01/01/2016	\$28.98	\$4.25	\$3.12	\$0.00	\$36.35
TELEDATA LINEMAN/EQUIPMENT OPERATOR OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	01/01/2016	\$27.31	\$4.25	\$3.07	\$0.00	\$34.63
TELEDATA WIREMAN/INSTALLER/TECHNICIAN OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	01/01/2016	\$27.31	\$4.25	\$3.07	\$0.00	\$34.63

<b>Classification</b>	<b>Effective Date</b>	<b>Base Wage</b>	<b>Health</b>	<b>Pension</b>	<b>Supplemental Unemployment</b>	<b>Total Rate</b>
TREE TRIMMER <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	01/31/2016	\$18.51	\$3.55	\$0.00	\$0.00	\$22.06
This classification applies only to tree work done: (a) for a utility company, R.E.A. cooperative, or railroad or coal mining company, and (b) for the purpose of operating, maintaining, or repairing the utility company's equipment, and (c) by a person who is using hand or mechanical cutting methods and is not on the ground. This classification does not apply to wholesale tree removal.						
TREE TRIMMER GROUNDMAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	01/31/2016	\$16.32	\$3.55	\$0.00	\$0.00	\$19.87
This classification applies only to tree work done: (a) for a utility company, R.E.A. cooperative, or railroad or coal mining company, and (b) for the purpose of operating, maintaining, or repairing the utility company's equipment, and (c) by a person who is using hand or mechanical cutting methods and is on the ground. This classification does not apply to wholesale tree removal.						

**Additional Apprentices Information:**

Minimum wage rates for apprentices employed on public works projects are listed above as a percentage of the pre-determined hourly wage rate established by the Commissioner under the provisions of the M.G.L. c. 149, ss. 26-27D. Apprentice ratios are established by the Division of Apprenticeship Training pursuant to M.G.L. c. 23, ss. 11E-11L.

All apprentices must be registered with the Division of Apprenticeship Training in accordance with M.G.L. c. 23, ss. 11E-11L.

All steps are six months (1000 hours.)

Ratios are expressed in allowable number of apprentices to journeymen or fraction thereof, unless otherwise specified.

\*\* Multiple ratios are listed in the comment field.

\*\*\* APP to JM; 1:1, 2:2, 2:3, 3:4, 4:4, 4:5, 4:6, 5:7, 6:7, 6:8, 6:9, 7:10, 8:10, 8:11, 8:12, 9:13, 10:13, 10:14, etc.

\*\*\*\* APP to JM; 1:1, 1:2, 2:3, 2:4, 3:5, 4:6, 4:7, 5:8, 6:9, 6:10, 7:11, 8:12, 8:13, 9:14, 10:15, 10:16, etc.

## **SECTION 01.23.00 ALTERNATES**

### **1.01 SCOPE OF THE WORK**

- A.** This Section lists the Alternates which appear in the Contract Documents. Consult the individual sections of the detailed requirements of each Alternate.
- B.** Bid prices for each Alternate shall include overhead, profit, and all other expenses incidental to the Work under each Alternate.
- C.** The Contractor and Subcontractors shall be responsible for examining the scope of each Alternate generally defined herein and for recognizing modifications to the Work caused by the Alternates and including the cost thereof in the bid price.
- D.** The Contractor's alternate amount shall include the net change in cost to perform all of the work described in the Alternate.

#### **ALTERNATE NO. 1**

- A.** Upgrade of the boiler controls with a new controller that includes outdoor temperature reset, warm weather shutdown and DHW zone controls.

#### **ALTERNATE NO. 2**

- A.** Replacement of the existing main circulator with a new high efficiency, variable speed circulator.

**END OF ALTERNATES  
01.23.00**

**SECTION 23 00 01**

**HEATING, VENTILATION, AND AIR CONDITIONING**

**PART 1: GENERAL**

**1.1 GENERAL REQUIREMENTS**

- A. The BIDDING REQUIREMENTS, CONTRACT FORMS, and CONTRACT CONDITIONS as listed in the Table of Contents, and applicable parts of Division 1 - GENERAL REQUIREMENTS, shall be included in and made a part of this Section.
- B. Examine all other Sections of the Specifications for requirements that affect work under this Section whether or not such work is specifically mentioned in this Section.
- C. Coordinate work of this Section with that of all other trades affecting, or affected by, this Section. Cooperate with such trades to assure the steady progress of all work under the contract.

**1.2 EXAMINATION OF SITE AND DOCUMENTS**

- A. Bidders are expected to examine and to be thoroughly familiar with all contract documents and with the conditions under which work will be carried out. The Awarding Authority (Owner) will not be responsible for errors, omissions and/or charges for extra work arising from General Contractor's or Filed Subcontractor's failure to familiarize themselves with the Contract Documents or existing conditions. By submitting a bid, the Bidder agrees and warrants that he has had the opportunity to examine the site and the Contract Documents, that he is familiar with the conditions and requirements of both and where they require, in any part of the work a given result to be produced, that the Contract Documents are adequate and that he will produce the required results.
- B. Pre-Bid Conference: Bidders are encouraged to attend a Pre-Bid conference; refer to ADVERTISEMENT FOR BIDS for time and date.

**1.3 SCOPE OF WORK**

- A. Included in this Section is the furnishing of all labor, materials, equipment and accessories required to provide a complete installation of the work described herein and on the Drawings. Build the work of other trades into the work of this Section as required.
- B. Give notices, file plans, obtain permits and licenses and obtain necessary approvals from authorities having jurisdiction, as required to perform work in accordance with all legal requirements and with Specifications, Drawings, Addenda, all of which are part of Contract Documents.
- C. The work under this Section consists of:
  - 1. Removal of existing non-electric control valves and piping to facilitate installation of new motorized valves. Work includes temporary removal and reinstallation of baseboard enclosure covers, and drain down and re-filling of hydronic heating system to facilitate work.
  - 2. Programmable Thermostats
  - 3. Motorized Zone Valves
  - 4. Controls and Wiring
  - 5. Piping and Fittings

6. Valves and Unions
7. Piping Accessories
8. Hydronic Specialties
9. Pipe Hangers and Supports
10. Alternate No. 1 - Boiler Controller
11. Alternate No. 2 - Variable Speed Pump
12. Mechanical Identification
13. Provide Close-Out procedures per Division 1.

**1.4 ALTERNATES**

- A. Alternate No. 1: Upgrade boiler controls with a new controller that includes outdoor temperature reset, warm weather shutdown and DHW zone controls
- B. Alternate No. 2: Replacement of the existing main circulator with a new high efficiency, variable speed circulator.

**1.5 RELATED WORK IN OTHER SECTIONS**

- A. The following work is not included in this Section and will be performed under other Sections:
  1. Electrical, Section 26 00 01

**1.6 ITEMS SUPPLIED UNDER OTHER SECTIONS FOR INSTALLATION BY THIS SECTION**

- A. None

**1.7 ITEMS SUPPLIED UNDER THIS SECTION FOR INSTALLATION BY OTHER SECTIONS**

- A. Control transformers. Line voltage side wiring by EC.

**1.8 QUALITY ASSURANCE**

- A. Perform work in strict accordance with rules, regulations, standards, codes, ordinances, and laws of local, state, and Federal governments, and other authorities having lawful jurisdiction, and be responsible for compliance therewith. Such authorities include but are not limited to the following:
  1. Local and state building, plumbing, mechanical, electrical, fire, and health department and public safety codes.
  2. International Energy Conservation Code (IECC 2009)
  3. The International Mechanical Code (IMC 2009)
  4. National Fire Protection Association (NFPA).
  5. American Insurance Association (A.I.A.)
  6. Occupational Safety and Health Act (OSHA).
  7. Factory Mutual Association (FM).
  8. Sheet Metal and Air Conditioning National Contractors Association (SMACNA).
  9. Material and equipment shall be Underwriter's Laboratory (UL), ASME and AGA approved, as applicable, for intended service.

- B. When two or more codes, regulations, etc. conflict with each other or with Contract Documents, the more severe requirement shall govern conduct of work. The Engineer may relax this requirement at his sole discretion when such relaxation does not violate ruling of any authority having jurisdiction. Approval for such relaxation must be obtained in writing.
- C. Most recent editions of applicable specifications and publications of the following organizations form part of the Contract Documents.
  - 1. American National Standards Institute (ANSI).
  - 2. American Society of Mechanical Engineers (ASME).
  - 3. National Electric Manufacturers Association (NEMA).
  - 4. American Society for Testing and Materials (ASTM).
  - 5. American Society for Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE).
  - 6. Sheet Metal and Air Conditioning National Contractors Association (SMACNA).
  - 7. National Insulation Manufacturers Association (NIMA).

### **1.9 SUBMITTALS**

- A. Submit the following in accordance with Conditions of the Contract and Division-1 Specification Sections.
- B. Material and equipment requiring Shop Drawings or Product Data submittal shall include but shall not be limited to:
  - 1. Programmable Thermostats
  - 2. Motorized Zone Valves
  - 3. Controls and Wiring
  - 4. Piping and Fittings
  - 5. Valves and Unions
  - 6. Piping Accessories
  - 7. Hydronic Specialties
  - 8. Pipe Hangers and Supports
  - 9. Alternate No. 1 - Boiler Controller
  - 10. Alternate No. 2 - Variable Speed Pump
- C. Submit manufacturer's installation instructions, service manuals, parts lists. under applicable provisions.
- D. Submit a line item schedule of values for review prior to equipment submittals and for use in the requisition process.

### **1.10 OPERATION AND MAINTENANCE MANUALS**

- A. The following paragraphs supplement Division 1.
- B. Submit manufacturer's descriptive literature, operating instructions, and maintenance and repair data under applicable provisions.
- C. Provide O&M Manual, three copies in three ring binders marked on the cover with the name of the project and the date of final completion. Each binder shall be divided with labeled tab dividers for the following:
  - 1. Contact information for the installing contractor and the 24-hour service provider.

2. Equipment Warranties,
3. Approved submittals,
4. Operations and maintenance manuals parts lists.

#### **1.11 GUARANTEES AND WARRANTIES**

- A. The provisions under Conditions of the Contract and Division 1 are included.
- B. Guarantee work of this Section in writing for one year from date of Substantial Completion.
  1. Defects in materials, equipment, workmanship or installation that develop within this period shall be repaired and replaced promptly to the Engineer's satisfaction at no cost to owner.
  2. Written guarantee shall stipulate that damage caused in making necessary repairs and replacements shall be corrected at no cost to Owner.
  3. The HVAC systems will be considered substantially complete only after the system has been fully tested and balanced and the engineer has signed off on the completed test and balance forms.
- C. Guarantee shall include provision of 24-hour service for complete system during guarantee period at no cost to Owner.
  1. Choice of service organization shall be subject to Owner's approval.
- D. Submit written guarantee to the Engineer through Contractor before final payment.
- E. Transfer individual equipment and material guarantees, which are still in force to Owner at end of guarantee period.

#### **1.12 CONTRACT DOCUMENTS**

- A. Work to be performed under this Section is shown on the accompanying drawings.
- B. Listing of drawings does not limit responsibility of determining full extent of work required by Contract Documents.
  1. Refer to Architectural, Plumbing, Electrical, Structural and other drawings on file, as well as other specifications sections, which indicate type of construction in which the work must be installed.
  2. Locations shown on Drawings shall be checked against general and detailed drawings of the construction proper.
- C. Drawings are diagrammatic and indicate general arrangements of systems and work included in Contract.
  1. Drawings are not intended to specify or to show every offset, fitting, or component; however, Contract Documents require components and materials, whether or not indicated or specified, as necessary to make installations fully complete and operational.
- D. Questions regarding drawings or specifications shall be addressed to the Engineer in writing prior to Award of Contract.
  1. Otherwise the Engineer's interpretation of meaning and intent of drawings and specifications shall be final.

#### **1.13 DISCREPANCIES IN DOCUMENTS**

- A. Where Drawings or Specifications indicate discrepancies or unclarities, advise the Engineer in writing before Award of Contract.

1. Otherwise, the Engineer's interpretation of documents shall be final; no additional compensation shall be permitted due to discrepancies or unclarities thus resolved.
- B. Where drawings or specifications do not coincide with recommendations of manufacturer of material or piece of equipment, alert the Engineer in writing before installation of item in question.
  1. Otherwise, make changes in installation, as the Engineer requires without additional cost to owner.
- C. When specifications and drawings are in conflict with each other, or with Contract Documents, the more severe (costly) requirement shall be provided as part of the base bid work.
  1. The Engineer may relax this requirement at his sole discretion when such relaxation does not violate ruling of any authority having jurisdiction.
  2. Approval for such relaxation must be obtained in writing.

#### **1.14 RECORD DRAWINGS**

- A. Provide Record and Drawings per Division 1 and requirements below.

### **PART 2: PRODUCTS**

#### **2.1 PROGRAMMABLE THERMOSTATS**

- A. Provide solid state programmable thermostats with digital display.
- B. Thermostat shall include the following features:
  1. independent programming for 7 days, with optional 5 day - 2 day.
  2. Backlit digital display
  3. Push button user interface
  4. Adaptive Intelligent Recovery
  5. Adjustable range stops – coordinate setpoint limits with owner
  6. Minimum 1 stage heat
  7. 24V power with battery backup
- C. Check to ensure that motorized control valves and thermostat are compatible and provide required interfaces, resistors or other components to ensure proper function.
- D. Provide sample thermostat for Owner review after receiving approved submittal and before purchasing thermostats for the project. Do not purchase thermostats until receiving written approval from the Owner for the selected thermostat.
- E. Thermostat shall be Honeywell FocusPro TH6000 (TH6110D), or equal by White-Rodgers or LUX.

#### **2.2 MOTORIZED ZONE VALVES**

- A. Motorized 2-way Zone Valve
  1. Provide motorized 2-way valve where indicated on drawings. Valve shall be a compact design to fit within baseboard enclosure.
  2. Valve Body
    - a. Valve shall be a ball valve style with 2-position (on-off) function.



- b. Valve body to be two-way configuration with forged brass body construction and brass ball.
  - c. Valve can be installed in any direction or orientation
  - d. Pipe connections shall be either sweat connection or NPT connection
3. Actuator
- a. Actuator shall be a gear driven electronic actuator operating on 24V AC
  - b. Actuator shall be electrically compatible with selected thermostat.
  - c. LED indicator to show function
  - d. Manual override button
  - e. Snap-in connection to valve stem
- B. Motorized 2-way zone valve shall be the Zone Sentry series valves as manufactured by Taco, or equivalent by Honeywell or Belimo.

### **2.3 CONTROLS AND WIRING**

- A. Provide control transformers to support low voltage zone controls. Transformers shall be selected to support the connected load. Transformers shall be 120V/24Vac and include circuit breaker, mounting foot, and single threaded hub. Unit shall be TR series by Functional Devices, or equal.
- B. Low voltage control cabling shall include multi conductor 18 gauge copper wiring listed per UL13. Wiring shall be class 2, power limited cable, with paralleled solid copper insulated conductors enclosed in a PVC jacket. Select number of conductors as required. Thermostat wiring shall as manufactured by Cerrowire, Southwire or equal.

### **2.4 ALTERNATE NO. 1 - BOILER CONTROLLER**

- A. Provide boiler controller, sensors, line voltage and control wiring to operate a single boiler using outdoor temperature reset.
- B. Scope shall include removal of the existing two zone switching relay (Argo ARM series) and provide control connections to the existing boiler controls (Weil McLain GV90+5).
- C. Provide wiring, programming and startup. Control functions shall include:
  - 1. start/stop signal to boiler
  - 2. outdoor temperature reset of supply water temperature
  - 3. DHW zone control including setpoint control, pump control and reset override
  - 4. warm weather shut down of space heat
- D. Outdoor temperature reset shall be programmed for low supply water temperature to encourage condensing conditions. Initial setpoints shall include supply water at 180°F at 6°F outdoor, and 110°F at 60°F outdoor.
- E. Scope shall include one owner training session at initial startup. Provide two return visits during the heating season to adjust settings to provide adequate heating using the lowest possible supply water temperature.
- F. Controller shall be Tekmar model 260, or equal by Heat Timer or Taco.

### **2.5 ALTERNATE NO. 2 - VARIABLE SPEED PUMP**

- A. Provide speed-controlled, in-line, wet-rotor circulators meeting the performance identified in the pump schedule on the drawings.

- B. Unit shall include an integral controller that can be set for: 3 fixed speed settings, 3 constant pressure settings, or an AutoAdapt mode that automatically adjusts for optimum flow.
- C. The pump shall have the following features:
  - 1. Efficient permanent magnet motor design
  - 2. LED display indicating flow, watts and mode selection
  - 3. inline design with flange connections
  - 4. electric line cord or conduit connections.
- D. Variable speed pump shall be Alpha series as manufactured by Grundfos, or Xylem/B&G, or Wilo.

**2.6 PIPING AND FITTINGS**

- A. Unless otherwise noted, all piping fittings, including nipples, shall be new material absolutely perfect throughout, scale free, and of the best grade guaranteed full weight. All steel pipe shall be as manufactured by National Tube Co., Youngstown Sheet & Tube Co., Bethlehem Steel Co.. Copper tubing shall be as manufactured by Bridgeport Brass, American Brass, Revere Copper and Brass. The manufacturer's name or brand shall be rolled or stamped on each length of pipe and nipple. All piping shall conform to American Standards Association "Code for Pressure Piping"
- B. Schedule of Pipe Fitting Materials

SERVICE	MATERIAL	JOINTS	FITTINGS
Hydronic	PEX	compression	PEX type
Hydronic	Copper Type - L	Copper Soldered	Wrought Copper

**2.7 VALVES AND UNIONS**

- A. Isolation Valves:
  - 1. Up to 2 Inches:
    - a. Provide bronze two-piece, ¼ turn, full port ball valve with chrome-plated brass ball, blowout proof stem and lever handle.
    - b. Valve shall have PTFE seats and stem packing seal.
    - c. Rated for 600 PSIG WOG service.
    - d. As manufactured by Apollo, Watts, Jenkins or approved equal.
  - 2. Install ball or butterfly valves for all shut-off, bypass and to isolate equipment, part of systems, or vertical risers.
- B. Unions:
  - 1. 2 inch and smaller shall be ground joint type, all brass body, with bronze seat.

**2.8 HYDRONIC SPECIALTIES**

- A. Air Vents
  - 1. The top of main forced hot water supply and return risers shall be provided with an automatic air vent.
  - 2. Air vents shall be "Spirotop" automatic air vent as manufactured by Spirotherm, Inc. or approved equal.

3. Float Type: Brass or semi-steel body, copper or plastic float, stainless steel valve and valve seat; unit shall allow manual disassembly for repair or float replacement; suitable for system operating temperature and pressure; with isolating valve.
  4. Provide isolation valve for each vent to allow work on the vent without requiring system drainage.
- B. Dielectric Connections:
1. Connections shall be of copper alloy and ferrous materials with threaded, solder-joint, plain, or weld-neck end connections that match piping system materials.
  2. Insulating material shall be suitable for system fluid, pressure, and temperature.
  3. Dielectric Unions: Factory-fabricated, union assembly, for 250-psig minimum working pressure at 180 deg F.
  4. Dielectric Flanges: Factory-fabricated, companion-flange assembly, for 150-psig minimum working pressure as required to suit system pressures.
  5. Dielectric-Flange Kits: Companion-flange assembly for field assembly. Include flanges, full-face- or ring-type neoprene or phenolic gasket, phenolic or polyethylene bolt sleeves, phenolic washers, and steel backing washers.
    - a. Separate companion flanges and steel bolts and nuts shall have 150-psig minimum working pressure where required to suit system pressures.
  6. Dielectric Couplings: Galvanized-steel coupling with inert and noncorrosive, thermoplastic lining; threaded ends; and 300-psig minimum working pressure at 225 deg F.
  7. Dielectric Nipples: Electroplated steel nipple with inert and noncorrosive, thermoplastic lining; plain, threaded, or grooved ends; and 300-psig minimum working pressure at 225 deg F.
  8. All piping connections between dissimilar materials shall use dielectric connection where materials are joined.

## 2.9 PIPING ACCESSORIES

- A. The Contractor is expected to furnish and install all accessories, valves, fittings, specialties, and similar items commonly used for installations of this type. This includes, but is not necessarily limited to shut-off valves to isolate components for repair or replacement, safety controls usually associated with these system types, connection to controls as required, and any other items that the contractor deems suitable or desirable for the installation.

## 2.10 MECHANICAL IDENTIFICATION

- A. Provide identification of all new mechanical systems. Colors per ANSI/ASME A13.1 unless otherwise specified.
- B. Controls: Identify control panels and major control components outside panels with embossed phenolic nameplates.
- C. Valves: Identify control valves with tags.

## 2.11 AUTOMATIC TEMPERATURE CONTROLS

- A. Supply and install all materials necessary to connect control components factory supplied as part of equipment controlled, unless specified otherwise.
- B. Provide shop drawings and product data submittals indicating controls and their schematic layout. Include sequences of operation, wiring diagrams, etc.

- C. Control Wiring (less than 30 VAC): Low voltage thermostat and control wiring shall be run concealed. Fish wiring within walls and ceilings. Cut and patch as specified in other section.

### **PART 3: EXECUTION**

#### **3.1 SPECIAL RESPONSIBILITIES**

- A. Coordination: Cooperate and coordinate with other trades in executing work of this section as described hereunder.
  - 1. Perform work so that progress of entire project including work of other trades whether involved in work of this or other Sections shall not be interfered with or delayed.
  - 2. Provide information as requested on items furnished under this Section which shall be installed under other Sections.
  - 3. Obtain detailed information from manufacturers of equipment to be provided under this Section as to proper methods of installation.
  - 4. Obtain final roughing dimensions or other information as needed for complete installation of all items furnished under other Sections or by Owner.
  - 5. Keep fully informed as to shape, size and position of openings required for material or equipment to be provided under this and other Sections.
    - a. Give full information so that openings required by work of this Section may be coordinated with other work and other openings may be provided for in advance.
    - b. In case of failure to provide necessary and sufficient information in proper time, trade involved will be required to do cutting and patching or have same done, at own expense and to full satisfaction of Engineer.
  - 6. Notify Engineer of location and extent of piping, ductwork and equipment of other trades which interferes with the work of this section.
    - a. In coordination with and with approval of Engineer, relocate such piping, wiring and equipment to permit new work to be provided as required by Contract Documents.
- B. Maintenance of equipment and systems: Provide maintenance for mechanical equipment and systems until final acceptance by Engineer and Owner, and take such measures as necessary to ensure adequate protection of equipment and material during delivery, storage, installation and shutdown conditions.
  - 1. This responsibility shall include provisions required to meet conditions incidental to delays pending final test of systems and equipment under seasonal conditions.
- C. Use of Premises: Use of premises shall be restricted as directed in Division 1 and as required below.
  - 1. As required, during progress of work, remove and properly dispose of resultant dirt and debris, and keep premises reasonably clean.
    - a. Upon completion of work, remove equipment and unused material provided for work, and put building and premises in neat and clean condition, and do cleaning and washing required to provide acceptable appearance and operation of equipment, to satisfaction of Engineer, and as specified under paragraph "CLEANING".
  - 2. Conduct work so as not to interfere with functioning of existing sewers and water and gas mains.

- a. Extreme care shall be observed to prevent debris from entering piping. Confer with Engineer as to disruption of water service or other utilities due to testing or connection of new work to existing.
- D. Superintendence: Keep superintendent or foreman on site during progress of work. Instructions given to such representative by Engineer shall be binding of Contractor.
  - 1. Do not change representative without prior notification to Engineer.
- E. Inspections by Engineer: Undertaking of periodic inspections by Engineer or designated agent shall not be construed as supervision of actual construction, nor make either responsible for providing safe place for performance of work of various trades or suppliers, or for visitors or occupants, or make either responsible for omission of safety devices called for by codes, ordinances, or specifications of manufacturer of equipment supplied.
- F. Surveys and Measurements
  - 1. Base measurements, both horizontal and vertical, on reference points established by Contractor and be responsible for correct laying out of work.
  - 2. In event of discrepancy between actual measurements and those indicated, notify Engineer in writing and do not proceed with work until Engineer has issued written instructions.

**3.2 PIPE HANGERS AND SUPPORTS**

- A. Hangers shall be arranged to maintain the required grading and pitch of piping, to prevent vibrations, and to provide free, guided, expansion and contraction between anchors.
- B. Support riser piping independently of connected horizontal piping.
- C. Place a hanger within 12 inches of each horizontal elbow.
- D. Where several pipes can be installed in parallel and at same elevation, provide multiple or trapeze hangers. Trapeze hangers shall be spaced according to the smallest pipe size, or install intermediate supports according to schedule in this section.
- E. Install hangers to provide minimum 1/2 inch space between finished covering and adjacent work.
- F. Horizontal piping shall be supported in accordance with MSS SP-69 and as follows:

PIPE SIZE	MAX. HANGER SPACING	HANGER DIAMETER
1/2 to 1-1/4 inch	6'-0"	3/8"
1-1/2 to 2 inch	10'-0"	3/8"
2-1/2 to 3 inch	10'-0"	1/2"

- G. Support vertical piping at each floor but no more than ten-foot intervals.
- H. Provide means of preventing dissimilar metal contact such as plastic coated hangers, copper colored epoxy paint, or non adhesive isolation. Galvanized felt isolators sized for copper tubing may also be used.
- I. Do not support piping from other pipes, ductwork or other equipment that is not building structure.

**3.3 MATERIALS AND WORKMANSHIP**

- A. Work shall be executed in workmanlike manner and shall present neat and mechanical appearance when completed.
  - 1. Ductwork and piping shall run concealed except in mechanical rooms and areas where no hung ceiling exists unless otherwise shown on drawings.

2. Material and equipment shall be installed according to manufacturer's recommended best practice such that completed installation shall operate safely and without leakage, undue wear, noise, vibration, corrosion, or water hammer.
3. Use of dielectric couplings between dissimilar materials is mandatory. Work shall be properly and effectively protected, and pipe openings shall be temporarily closed to prevent obstruction and damage prior to completion.
- B. Fully insure workmen and work as required.
- C. Except as otherwise noted, material or equipment mentioned in these Specifications or on Drawings shall be furnished new.
  1. Provide supplies, appliances and connections necessary for complete and operational installation.
  2. Equipment shall be provided with components required or recommended by OSHA and applicable NFPA documents, and shall be UL approved where applicable.
  3. Protection facilities including expanded metal guards over belt drives and couplings shall be provided in conformance with OSHA standards and all other applicable regulations.
- D. Notwithstanding any reference in Specifications or on Drawings to material or piece of equipment by name, make or catalog number, such reference shall be interpreted as establishing type, function, and standard of quality desired and shall not be construed as limiting competition.
- E. Finish of materials, components and equipment shall not be less than industry good practice. When material or equipment is visible or subject to corrosive or atmospheric conditions, finish shall be as approved by Engineer.
- F. Owner shall not be responsible for material and equipment prior to testing and acceptance.

### **3.4 BULLETINS, MANUALS AND INSTRUCTIONS**

- A. Obtain at time of purchase of equipment, three copies of operation, lubrication and maintenance manuals for all items.
  1. Assemble literature in coordinated manuals with additional information describing combined operation of field-assembled units, including as-built wiring diagrams.
  2. Manual shall contain names and addresses of manufacturers and local representatives who stock or furnish repair parts for items or equipment.
- B. Furnish three copies of manuals to Engineer for approval and distribution to Owner.
  1. Deliver manuals no less than 30 days prior to acceptance of equipment to permit Owner's personnel to become familiar with equipment and operation prior to acceptance.
- C. Operating instructions: Upon completion of installation or when Owner accepts portions of building and equipment for operational use, instruct Owner's operating personnel in any or all parts of various systems.
  1. Such instructions shall cover period of control such as will take mechanical equipment through complete cycle.
  2. Make adjustments under actual operating condition. Provide a minimum of three separate training sessions, each of up to one days duration.

### **3.5 CONTINUITY OF SERVICES**

- A. Do not interrupt existing or temporary services without Owner's approval and coordination with the GC.

- B. Schedule interruptions in advance, according to Owner's instructions. Submit, in writing, with request for interruption, methods proposed to minimize the length of interruption.
- C. Interruptions shall be scheduled at such times of the day and work so that they have minimal impact on Owner's operations.

### **3.6 PIPING AND FITTINGS**

- A. Install piping as required for a complete installation. Conform to the best practice of the trade.
  - 1. See drawings for correct pipe sizing and locations.
  - 2. Pipe materials and fitting materials shall be as indicated in Schedule of Pipe and Fitting Materials.
  - 3. After completion, fill, clean, drain and refill systems; pressure test boiler piping.
- B. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.
- C. Install valves with stems upright or horizontal, not inverted.
- D. Install unions at equipment that does not have flanged connections between equipment and isolation valves.
- E. Install piping such that air can be purged and water can be drained. Provide automatic air vents where specified. Provide manual coin style air vents at all high point locations of piping which do not have automatic air vents. (High Point shall be defined as any pipe section which is higher than local surrounding piping such that air will migrate to this location and will need to be purged).

### **3.7 JOINTS AND CONNECTIONS**

- A. Joints and connections shall be permanent and shall be gas-and water-tight. Jointing shall be types specified for service indicated. Joints and connections shall meet requirements of manufacturers best recommended practice. All transitions between different piping materials shall be made using approved adapters. Adapters for transitions between two types of piping materials shall be manufactured for purpose intended.

### **3.8 EXPANSION PROVISIONS**

- A. Installation of piping must allow for expansion using offsets, loops, swing joints, expansion joints, etc. as shown and as necessary to prevent undue strain.

### **3.9 SYSTEM CLEANING**

- A. Piping
  - 1. After piping has been pressure tested and approved for tightness, clean and flush piping.
    - a. Refill with clean water and repeat until system is cleaned of residual dirt and oil.
    - b. Remove, inspect, and clean strainer screens.
    - c. Inspect, remove sludge, and flush low points with clean water after cleaning process is completed.

### **3.10 TESTING, INSPECTION, BALANCING AND ADJUSTING**

- A. Hydronic Piping Systems
  - 1. Leak tests shall be conducted in accordance with ANSI B31.9 "Building Service Piping" and as specified herein.

2. Test system to 1.5 times working pressure, but not less than 100 psig.
  - a. Pipe shall be capable of holding test pressure for a minimum of fifteen (15) minutes with no perceivable pressure reduction.
  - b. Test shall be conducted using compressed air.
3. Test shall be documented by the contractor and written report shall be provided to the engineer.
4. Equipment shall be valved off or removed during test if equipment pressure rating is less than test pressure.
5. Where more than one pipe is being installed and tested, testing shall be performed individually unless otherwise approved by Engineer.
6. Leaks discovered during testing shall be repaired at no cost to Owner; retest system.

**END OF SECTION**



**SECTION 26 00 01**

**ELECTRICAL**

**PART 1: GENERAL**

**1.1 GENERAL REQUIREMENTS**

- A. Include the General Conditions of the Contract and Division 1, General Requirements, as part of this Section.
- B. Examine all other Sections of the Specifications for requirements that affect work under this Section whether or not such work is specifically mentioned in this Section.
- C. Coordinate work of this Section with that of all other trades affecting, or affected by, this Section. Cooperate with such trades to assure the steady progress of all work under the contract.

**1.2 SCOPE OF WORK**

- A. Included in this Section is the furnishing of all labor, materials, equipment and accessories required to provide a complete installation of the work described herein and on the Drawings. Build the work of other trades into the work of this Section as required.
- B. Electrical work shall include, but not be limited to, the following systems:
  - 1. Selective demolition including cutting, capping and making safe branch circuits serving areas to be renovated.
  - 2. Lock out/tag out to facilitate demolition work.
  - 3. Wires, cables and raceways
  - 4. Wiring Devices
  - 5. All grounding required by the Massachusetts Electrical Code
  - 6. Operating and maintenance manuals
  - 7. Record drawings
  - 8. Testing

**1.3 RELATED WORK UNDER OTHER SECTIONS**

- A. Examine Contract Documents for requirements that affect Work of this Section. Other Specification Sections that directly relate to Work of this Section include, but are not limited to the following:
  - 1. 23 00 01 Heating, Ventilation, and Air Conditioning (HVAC)
    - a. All temperature control wiring below 30 volts shall be furnished and installed by the HVAC Contractor, unless shown otherwise.

**1.4 QUALITY ASSURANCE**

- A. Perform work in strict accordance with rules, regulations, standards, codes, ordinances, and laws of local, state, and Federal governments, and other authorities having lawful jurisdiction, and be responsible for compliance therewith. Such authorities include but are not limited to the following:
  - 1. Installation shall comply in all details with the Massachusetts Electrical Code with its latest revisions and all prevailing federal, state and local codes.

2. All material and equipment shall be Underwriters' Laboratories, Inc. listed, where a standard has been established.
3. Manufacturers' names and nomenclature facilitates descriptions of certain materials and equipment, and are used to establish type, quality and function.
4. Unless otherwise specified, all work shall be manufactured, tested and installed in accordance with the latest editions of applicable publications and standards of the following organizations:
  5. American Society for Testing and Material (ASTM).
  6. Underwriters' Laboratories, Inc. (U.L.)
  7. Insulated Power Cable Engineers Association (IPCEA).
  8. National Electrical Manufacturers Association (NEMA).
  9. Institute of Electrical and Electronic Engineers (IEEE).
  10. American National Standards Institute (ANSI).
  11. National Fire Protection Association (NFPA).
  12. National Electrical Code (NEC).
  13. Massachusetts Electrical Code (MEC).
  14. Americans with Disabilities Act (ADA), Public Law 101-336.
  15. Commonwealth of Massachusetts State Building Code (SBC)
  16. Insulated Cable Engineers Association (ICEA)
- B. Should specifications, Engineers' instructions, laws, ordinances or public authority require any special tests or approvals, arrange for these and give the Engineer timely notice. If the inspection is by another authority other than the Engineer, notify the Engineer of the dates fixed for such inspection.
- C. Where reference is made to Codes and Standards, these shall be interpreted as minimum requirements. Requirements in excess of these codes and standards may be indicated on the Drawings or in the Specifications and shall be so included in the contract work. Compliance with such code requirements only shall not be construed as fulfillment of the contract work, where the plans and/or Specifications indicate additional work which may exceed such code standards.

## 1.5 SUBMITTALS

- A. Submit the following in accordance with Conditions of the Contract and Division 1 Specification Sections:
- B. Data sheets shall include, but are not necessarily limited to, the following items:
  1. Wires, cables and raceways
  2. Wiring Devices
  3. Operating and maintenance manuals
  4. Record drawings
  5. Test results
  6. Guarantee
- C. The acceptance of systems, equipment and data sheets is a general approval subject to the contract Drawings, Specifications, and verification of all measurements at the job. Acceptance does not relieve the Electrical Contractor from the responsibility of data sheet

errors or omissions. Quantity of items indicated on submittal is the responsibility of the Electrical Contractor.

#### **1.6 DELIVERY, STORAGE AND HANDLING**

- A. The Electrical Contractor shall be responsible for all materials delivered to the site in connection with the work and pay all charges for cartage, scaffolds, planking, rigging and erecting. Take every precaution necessary to protect equipment and installation, in addition to plugging and protecting open ends of all pipes, outlet boxes, panelboxes and junction boxes. All equipment shall be stored in a clean, dry place to preserve the quality of materials being use. Equipment and/or materials damaged during construction shall be replaced at no additional cost to the Owner.
- B. All materials and equipment required by this Specification shall be new, clean and free from defects at the time of installation. The Manufacturer's and Underwriters' label shall appear on all material and equipment, unless otherwise approved in writing by the Owner.

#### **1.7 GUARANTEES AND WARRANTIES**

- A. The provisions under Conditions of the Contract and Division 1 are included.
- B. Manufacturers shall provide their standard guarantee for work under this Section. However, such guarantees shall be in addition to and not in lieu of all other liabilities which the manufacturer and Contractor may have by law or by other provisions of the Contract Documents.
- C. All material, items of equipment and workmanship furnished under this Section shall carry for this standard warranty against all defects in material and workmanship. Any fault due to defective or improper material, equipment, workmanship or design which may develop shall be made good forthwith, by and at the expense of the Electrical Contractor, including all other damage done to areas, materials and other systems resulting from this failure.
- D. Electrical Contractor shall guarantee that all elements of the systems are of sufficient capacity to meet the specified performance requirements as set forth herein or as indicated.
- E. Upon receipt of notice from the Owner indicating failure of any part of the systems or equipment during the guarantee period, the affected part or parts shall be replaced by the Electrical Contractor at no cost to the Owner.
- F. Furnish, before the final payment is made, a written guarantee covering the above requirements for a period of two years.

#### **1.8 RECORD DRAWINGS**

- A. In accordance with requirements, furnish and keep in the job at all times, two (2) complete and separate sets of blackline prints of the electrical work on which shall be clearly, neatly and accurately noted, promptly as the work progresses, all electrical changes, revisions and additions to the work. Wherever work is installed otherwise than as shown on the Contract Drawings, such changes shall be noted.
- B. At the conclusion of work, prepare Record Drawings in accordance with General Conditions.

#### **1.9 OPERATING INSTRUCTIONS AND MAINTENANCE MANUALS**

- A. Instruct, to the Owner's satisfaction, such persons as the Owner designates, in the proper operation and maintenance of the systems and their parts.
- B. Furnish operating and maintenance manuals and forward same to the Engineer for transmittal to the Owner.

- C. Operating instructions shall be specific for each system and shall include copies of posted specific instructions.
- D. For maintenance purposes, provide shop drawings, parts lists, specifications, and manufacturer's maintenance bulletins for each piece of equipment.
- E. Provide name, address and telephone number of the manufacturer's representative and service company for each piece of equipment so that service or spare parts can be readily obtained.

#### **1.10 WORKMANSHIP**

- A. The entire work provided in this Specification shall be constructed and finished in every respect in a workmanlike and substantial manner. Equipment shall be securely installed plumb and/or level. No electrical equipment shall be supported by work of other trades.
- B. Obtain detailed information from the manufacturers of apparatus as to the proper method of installing and connecting equipment. Obtain all information from the General Contractor and other Subcontractors which may be necessary to facilitate work and the completion of the whole project.
- C. Remove daily all rubbish and debris and all refuse from workmen's lunches and at completion, remove all their surplus materials, and leave the work in clean condition acceptable to the Engineer.

#### **1.11 PROTECTION**

- A. This Contractor shall be responsible for the electrical work and equipment until finally inspected, tested and accepted. Carefully store materials and equipment which are not immediately installed after delivery to site.

#### **1.12 DRAWINGS**

- A. The drawings are generally diagrammatic and are intended to convey the scope of work and indicate general arrangements of equipment, ducts, conduits, piping and fixtures. The locations of all items shown on the Drawings or called for in the Specifications that are not definitely fixed by dimensions, are approximate only.
- B. The drawings showing layout of the electrical systems indicated the approximate location of existing outlets and equipment. The outlets, as shown on the drawings, are not intended to show the routing of the wire. The final determination as to the routing shall be governed by field conditions. This shall not be construed to mean the design of the system may change. It merely refers to the exact run of raceway between two points.

#### **1.13 PERMITS, LAWS, ORDINANCES & CODES**

- A. The Electrical Contractor shall give all necessary notices, obtain all permits in connection with the work of this trade. Associated fees will be paid by the Owner. The EC shall file all necessary plans, prepare all necessary documents and obtain all necessary approvals of state authorities, all local town, city, or county departments having jurisdiction; obtain all required certificates of inspection for his work.
- B. The Electrical Contractor shall include in the work, without extra cost to the Owner, any labor, materials, services, apparatus, drawings in addition to Contract Drawings and Documents, in order to comply with all applicable laws, ordinances, rules and regulations whether or not shown on the drawings and/or specified.

#### **1.14 DEFINITIONS**

- A. "This Contractor" means specifically the Electrical Contractor working under this Section of the Specifications.

- B. "Furnish and Install" means to supply, erect, install and connect up, complete for regular operation, the particular item referred to, unless otherwise specified.
- C. "Install" means to mount, erect and connect up, complete for regular operation, the particular item referred to, unless otherwise specified.
- D. "Piping" includes, in addition to pipe, all fittings, boxes, hangers and other accessories relating to such piping.
- E. "Provide" means to furnish and install.
- F. "Concealed" means hidden from sight as in trenches, chases, furred spaces, shafts, hung ceilings, embedded into construction, ground or concealed as defined above.

#### **1.15 GROUNDING**

- A. A complete grounding system shall be furnished and installed in full compliance with the latest edition of the NEC.
- B. The equipment and materials required under this Section are included under PART 2 - PRODUCTS.
- C. Ground all systems and equipment in accordance with the best industry practice. Size all conductors per the latest addition of the NEC.
- D. Conductors utilized for grounding and bonding shall have type "THHN" or better insulation, color coded green.
- E. For each feeder or run of lighting and appliance branch circuitry, include equipment and raceway grounding conductors run within the raceways. The indicated quantities of conductors do not include the ground wires.
- F. Provide supplementary ground bonding where metallic conduits terminate at metal clad equipment (or at the metal pull box of equipment) for which a ground bus is specified. Accomplish this by equipping the conduits with bushings of the grounding type connected individually by means of jumpers to the ground bus.

#### **1.16 NEUTRAL WIRING**

- A. For 120 volt branch circuit wiring to receptacles, common neutrals shall not be permitted.
- B. Individual neutral conductors shall be installed within the raceways and be run with the branch circuit.
- C. Conductors utilized for neutral wiring shall have type " THHN" or better insulation, color coded white.

### **PART 2: PRODUCTS**

#### **2.1 GENERAL**

- A. All materials and equipment necessary to make the installation complete in every detail shall be furnished and installed under this Contract, whether or not specifically indicated on the Drawings or specified herein. All materials and equipment shall be new.
- B. It is the intent of the Specifications that one manufacturer be selected, not a combination, for any particular classification of material; for example, all wire of one manufacturer, all switches of one manufacturer, etc., except specific material classifications in which delivery time becomes a problem. The Engineer may give specific exemption from the requirements.

- C. Where materials, equipment, apparatus, or other products are specified by manufacturer, brand name, type or catalog number, such designation is to establish standards of performance, quality, type and style.

## **2.2 PULL BOXES, WIREWAYS AND CHANNELS**

- A. Pull boxes shall be code gauge galvanized steel with screw covers to match. Pull boxes and wireways shall be as shown on Drawings and/or as required by NEC and/or job conditions, with steel barriers separating systems.
- B. Wireways shall be galvanized steel, manufactured standard sections and fittings, with combination hinged and screw covers.
- C. Steel channel supports shall be minimum 1 $\frac{5}{8}$  inch mold strip steel with minimum 105 inch wall thickness, Unistrut P1000, Kindorf, Husky Products, or equal.
- D. Steel support rods or support bolts for conduits shall be  $\frac{1}{8}$ " diameter for each inch or fraction thereof of diameter of conduit size, but no rod or bolt shall be less than  $\frac{1}{4}$  "in diameter.
- E. Metal conduit fittings shall be of cast malleable iron, cadmium plated with neoprene gaskets and cast malleable iron covers. Fittings shall be as manufactured by Steel City, Appleton, or RACO.

## **2.3 OUTLET BOXES AND ACCESSORIES**

- A. Provide galvanized sheet steel outlet boxes for all outlets unless otherwise noted. Provide single gang "Old Work" style boxes for retrofit.
- B. Fixture outlet boxes shall have  $\frac{3}{8}$ " solid male fixture studs and auxiliary fixture stems shall be supported from  $\frac{3}{8}$ " male fixture studs.
- C. All outlet boxes for concealed work shall be galvanized, stamped steel; those for fixtures, furnished with a fixture stud.
- D. Outlet boxes shall be of size and type to accommodate (1) structural conditions, (2) size and number of raceways, conductors or cables entering, and (3) devices or fixtures for which they are required.
- E. Install blank plates on all outlet boxes, in which no apparatus is installed, which do not integrally provide a cover for the box.
- F. Special care shall be taken to set all boxes correctly square and true with the building finish.
- G. Outlet boxes and accessories shall be as manufactured by Steel City, Appleton, Raco, or equal.

## **2.4 RACEWAYS**

- A. Electric metallic tubing shall be electrogalvanized or sheradized steel. EMT shall be used in all exposed areas which are not subject to physical abuse. Couplings and connectors for electrical metallic tubing shall be galvanized steel set-screw. Tubing shall be as manufactured by Pyle National, Allied Tube and Conduit Corp., Wheatland Tube Company, or equal.
- B. Flexible metal conduit shall be type MC aluminum armor cable with current carrying conductors as required. MC cable shall also have full size separate copper grounding conductor. Flexible conduit shall be used above hung ceiling areas, in wall partitions and in other concealed areas not subject to moisture or physical abuse.
- C. Flexible conduit shall be manufactured by American Flexible Conduit, Eastern Wiring Conduit, International Metal Hose Company, or equal.

- D. Liquid-tight flexible metal conduit shall be galvanized steel with separate copper grounding conductor. The outer jacket shall be an extruded, moisture and oil proof, covering of polyvinyl chloride. Liquid-tight flexible metal conduit shall be used for the final connections to motors and other equipment are subject to an oil or moisture type environment. Liquid-tight flexible metal conduit shall be manufactured by American Flexible Conduit, Eastern Wiring Conduit, International Metal Hose Company, or equal.
- E. Galvanized Rigid Steel Conduit (GRC) shall be made of zinc coated steel. GRC conduit shall be installed as shown on the drawings, as specified, and in all areas subject to physical abuse.
- F. Steel support rods or support bolts for conduits shall be  $\frac{1}{8}$ " diameter for each inch or fraction thereof of diameter of conduit size, but no rod or bolt shall be less than  $1\frac{1}{4}$ " in diameter.
- G. For 20 ampere branch circuit wiring furnish and install the number of individual conduits required to limit the number of conductors in each conduit to a number which will not require derating to a value below 100 percent of the current rating of the circuit overcurrent protective device.

## 2.5 WIRE AND CABLE

- A. Branch circuits shall be type NM wiring methods with copper conductors.
- B. Wiring shall be minimum of #12 AWG solid copper.
- C. Provide single conductor wire and cable with 600V insulation. Wire size #8 AWG and larger shall be stranded. Wire of size smaller than #8 AWG shall be solid. Conductors shall be soft drawn copper with conductivity of not less than 98% of ANSI Standard for annealed copper.
- D. Wire and cable shall be Type THWN-THHN building wire, 600V, rated for 75°C in wet locations and 90°C in dry locations.
- E. All wire and cable shall be copper, no aluminum is permitted.
- F. Wire and cable shall be manufactured by American Flexible Conduit, General Cable Co., and Southwire Company.

## 2.6 WIRING DEVICES

- A. General
  - 1. All wiring devices shall be of a single manufacturer, as manufactured by Pass and Seymour, Hubbell, or Cooper/Arrow Hart. Manufacturers listed below establish minimum requirements. Coordinate color with Engineer for wiring devices and wiring device plates.
- B. Single Pole Switches
  - 1. Wall switches shall be of the quiet toggle type, single pole, rated at 15 Amperes-120 Volt. Switch shall be rated per UL-20 for motor loads up to 1/2hp at 120VAC (12A max). Switches shall be commercial grade Pass & Seymour CD15AC series, or equal.
- C. Tamper-Resistant Receptacles - 15A rated
  - 1. Receptacles shall be commercial grade, tamper resistant, duplex type, polarized slot with side wired terminals, grounded as required, and rated at 15 Amperes-125 Volts. Receptacles shall be Pass & Seymour 3232TRNAW or equal.
- D. Ground Fault Circuit Interrupter (GFCI) Receptacles
  - 1. GFCI receptacles shall be commercial grade, tamper resistant, duplex type, polarized slot with back wire clamp wire terminals, rated at 20 Amperes-125 Volts.

2. Unit shall have a Class A rated GFCI with LED trip indicator light, dual direction test and reset buttons.
3. Receptacles shall be Pass & Seymour 2095 or equal.

## **2.7 WIRING DEVICE PLATES**

- A. Provide wall plates for all receptacles, switches, blank junction boxes and special purpose outlets.
- B. Device plates shall be flexible polycarbonate or nylon construction.
- C. Device plates shall have color-matched mounting screws and conform to UL, CSA and NEMA standards.
- D. Device plates shall be by same manufacturer as devices.

## **PART 3: EXECUTION**

### **3.1 SERVICE TO THE FACILITY**

- A. Electrical power outages must be minimized as not to interfere with the buildings operation. The time and duration of any power outage must be approved by and scheduled with the building owner/authority. The Electrical Contractor shall notify the owner/authority at least ten calendar days from the date of proposed power outage in the facility.

### **3.2 DEMOLITION, RELOCATION AND REMOVAL OF EXISTING WIRING**

- A. The Electrical Contractor shall provide all electrical demolition, relocation of circuits and removal of existing wiring necessary for the electrical work.

### **3.3 SPECIAL COORDINATION INSTRUCTIONS**

- A. Coordination with work of other trades is required. The following special instructions shall also be carefully noted:
  1. Locations and mounting height of all wall outlets shall be verified with the Engineer prior to roughing-in.
  2. All duplex convenience and power receptacles shall be mounted vertically with the grounding post to the bottom as the outlet is viewed from the front.
  3. All miscellaneous hardware and support accessories, including support rods, nuts, bolts, screws, and other such items, shall be of a galvanized or cadmium plated finish, or of other approved rust-inhibiting coatings. Care should be taken that fixtures shall not be installed on both sides of existing or new building expansion joints.
  4. The Electrical Contractor shall provide all materials, equipment and workmanship to provide for adequate protection of all electrical equipment during the course of construction of the project.
  5. The Electrical Contractor shall furnish and install approved insulation at terminal connection points for all electrical conducting materials, such as transformer terminals, terminal studs, and at any other special locations as directed by the Engineer.
  6. Prior to installation of conduit and wire, the Electrical Contractor shall coordinate wiring requirements with actual equipment supplied.



### **3.4 CUTTING, PATCHING AND DRILLING**

- A. The Electrical Contractor shall perform plaster cutting and channeling and drilling necessary for the installation of electrical work through walls, floors and ceiling construction.
- B. The General Contractor shall be responsible for all patching which shall match existing base materials in looks and color.

### **3.5 COOPERATION AND WORK PROGRESS**

- A. The Electrical work shall be carried on under the usual construction conditions, in conjunction with all other work at the site. The Electrical Contractor shall cooperate with the Engineer and all Contractors and equipment suppliers working on the site, coordinate the work, and proceed in a manner so as not to delay the progress of the project.
- B. The Electrical Contractor has a responsibility to coordinate the exact mounting arrangement and location of equipment indicated on the Drawings to allow for proper space requirements for equipment access, operation and maintenance.
- C. It shall be the responsibility of the Electrical Contractor to coordinate the delivery of electrical equipment to the project prior to the time installation of equipment will be required.

### **3.6 INSTALLATION OF WIRING & CONDUIT**

- A. In general, all conduits shall be run concealed unless otherwise indicated to be run exposed. Unless otherwise indicated, all wiring shall be 2-#12 and 1-#12 ground, 1/2"C.
- B. Conduit ends shall be cut square, threaded and reamed to remove burrs and sharp edges. Offsets and bends for changes in elevation of exposed conduit runs shall be made at walls or beams and not in open spaces between walls or beams. Conduits shall be routed so as not to interfere with the operation or maintenance of any equipment. The entire job shall be done in a neat and workmanlike manner, as approved by the Engineer. Steel supports or racks shall be galvanized steel channel and fittings. Supports shall be manufactured by Unistrut, Kindorf, Husky Products Company, or equal.
- C. Exposed conduits shall be run parallel to, or at right angles to, the walls of the building, and all bends shall be made with standard conduit ells or conduits bent to, not less than, the same radius. Horizontal runs of exposed conduits shall be close to ceiling beams, passing over water or other piping where possible and shall be supported by pipe straps or by other approved means, not more than 5' apart. Installation of exposed conduits in finished areas of the building shall be checked with the Engineers for layout before installation to conform to the pattern of the structural members, and when completed, is to present the most unobtrusive appearance possible. No exposed conduits will be permitted on walls or partitions in public areas, unless specifically noted.
- D. Conduits shall not be installed within 3" of hot water pipes, or appliances, except where crossing is unavoidable and, in that case, the conduit shall be kept at least 1 from covering or pipe crossed.
- E. Conduits shall be supported on approved type galvanized wall brackets, ceiling trapeze, strap hangers or pipe straps, secured by means of toggle bolts on hollow masonry units or expansion bolts in concrete or brick.
- F. In general, no splices or joints will be permitted in either feeder or branches except at outlets or accessible junction boxes.
- G. All splices in wire #8 AWG and smaller shall be standard pigtail, made mechanically tight and insulated with proper thickness of insulating tape. Wire splicing nuts as manufactured by Minnesota Mining and Manufacturing Company (Scotch Lock) or Ideal wire nuts may be used, subject to the local wire inspector.

- H. Wire #6 and larger shall be connected to panels and apparatus by means of approved lugs or connectors. Connectors shall be solderless type, sufficiently large to enclose all strands of the conductor and securely fastened.
- I. Provide all required branch circuit wiring for electrical devices and lighting fixtures. Designations shown on drawings are diagrammatic only. Circuit numbers beside receptacles and lighting fixtures convey that a complete branch circuit is required back to electrical panelboard. Switch control letters adjacent to lighting fixtures indicate branch wiring required from lighting fixture to light switch or dimmer.

### **3.7 COLOR CODING**

- A. Review existing color conventions used within the existing building for conformity.
- B. Provide same color coding for switch legs as corresponding phase conductor. Provide colored plastic tape of specified color code identification for large size conductors available only in black.

### **3.8 SLEEVES, INSERTS AND SUPPORTS**

- A. Furnish and install all inserts, conduit hangers, anchors and steel supports necessary for the support and installation of all electrical equipment.
- B. Where openings are required in walls and floors for the passing of raceways the Electrical Contractor shall furnish the General Contractor with the necessary information regarding dimensions and locations so that he may install suitable concrete stops to provide these openings. Such openings shall be by the General Contractor in such a manner so as not to interfere with the fireproof integrity of the building.
- C. The Electrical Contractor is responsible for the location of, and maintaining the proper position of sleeves, inserts and anchor bolts supplied and/or set in place. In the event that failure to do so requires cutting and patching of finished work, such work shall be done by the General Contractor at the Electrical Contractor's expense.

### **3.9 TESTS**

- A. Furnish all labor, material, instruments, supplies, and services and bear all costs for the accomplishment of tests herein specified. Correct all defects appearing under test, repeat the tests until no defects are disclosed. Leave the equipment clean and ready for use.
- B. The Electrical Contractor shall perform any test other than herein specified which may be specified by legal authorities or by agencies to whose requirements this work is to conform.

### **3.10 FINAL INSPECTION AND TEST**

- A. Prior to test, feeders and branches shall be continuous from service contact point to each outlet; all panels, feeders and devices connected and fuses in place. Test system free from short circuits and grounds with insulation resistances not less than outlines in the National Electrical Code. Provide testing equipment necessary and conduct test in presence of the Owner's authorized representative.
- B. The final inspection and test shall include the following:
  - 1. Testing of the impedance of the grounding system.
  - 2. Testing of branch and feeder conductors for continuity.

**END OF SPECIFICATION**