

**NOTICE TO CONTRACTORS  
CLASSIFIED LEGAL ADVERTISEMENT**

**COMMONWEALTH OF MASSACHUSETTS  
EXECUTIVE OFFICE FOR HEALTH AND HUMAN SERVICES  
DEPARTMENT OF MENTAL HEALTH  
OFFICE OF ENGINEERING AND FACILITIES MANAGEMENT**

**General Bids Submission Deadline: 1:00 P.M. Friday September 10, 2021**

**The Category of Work is: HVAC-Piping– Heating Coils/Condensate Pumps**

**Project Name: 2022-036 Improvements to East and West Wing Fan Rooms in  
Goss Building**

**Project Location: Taunton State Hospital 60 Hodges Avenue, Taunton, MA. 02780**

**Estimated Construction Cost: Base Bid East Wing: \$70,000 +Add Alternate West Wing  
Total \$140,000**

**Contractor to remove existing pre-heat coils and associated piping in the East and West Fan Rooms. Furnish and install two new heating coils, associated piping, steam traps, and new condensate return pumps with complete piping and electrical work in each fan room. All work to be in accordance with plans and specifications. Completion of work to be by 11/30/21.**

Minimum rates of wages to be paid on the project have been determined by the Commissioner of the Division of Occupational Safety under the provisions of Sections 26 and 27, Chapter 149 of the General Laws and will be included in the bid package.

Proposals will ONLY be submitted online via COMMBUYS website by the General Bids Submission Deadline date on forms furnished by the Department of Mental Health (DMH) and clearly identified as a bid, endorsed with the name and address of the bidder, and the project name.

Each general bid proposal must include an uploaded photocopy of a bid **deposit of 5%** of the total bid amount to COMMBUYS, including all alternates, in the form of a bid bond, a certified, treasurer's, or cashier's check issued by a responsible bank or trust company made payable to the Commonwealth of Massachusetts. The Department reserves the right to waive any informality in or reject any or all Bids if it is in the public interest to do so.

Plans and Specifications will **ONLY** be available at COMMBUYS from **08/25/21** until bid opening as amended. Bid must be submitted electronically on COMMBUYS by the General Bids Submission Deadline date above. If you have any questions or concerns with using COMMBUYS, please contact the COMMBUYS help desk at 617-720-3197 (8am - 5pm EST Monday thru Friday).

**Pre-Bid Conference:** A Pre Bid Conference will be held on **Thursday, at 10:00 AM, 09/02/2021** at **60 Hodges Avenue, Taunton, MA 02130**. Contractors should meet the Project Engineer at the Goss Building Lobby located on the same property. After attending the site visit, all bidding questions must be submitted by email to: [gerald.mccullough@massmail.gov](mailto:gerald.mccullough@massmail.gov) by **5:00 PM Friday 09/3/21** with responses available by addendum on COMMBUYS. Note: Mandatory attendance is NOT required if Contractor is familiar with Goss Bldg. and project requirements.

**Work to be completed within ninety (90) calendar days of Notice to Proceed.**

**DEPARTMENT OF MENTAL HEALTH  
BROOKE DOYLE, COMMISSIONER**

DEPARTMENT OF MENTAL HEALTH  
OFFICE OF ENGINEERING AND FACILITIES MANAGEMENT  
167 LYMAN STREET  
WESTBOROUGH, MASSACHUSETTS 01581

DMH Project #2022-036  
***IMPROVEMENTS TO EAST AND WEST WING FAN ROOMS  
IN GOSS BUILDING***  
***AT***  
***TAUNTON STATE HOSPITAL***  
***60 HODGES AVE. TAUNTON, MA 02780***

**NOTICE OF PRE-BID CONFERENCE**  
**NOTE: Mandatory attendance is NOT required IF**  
**Contractor is familiar with Goss Bldg. and project**  
**requirements.**

ALL CONTRACTORS INTERESTED IN BIDDING ON THIS  
PROJECT ARE HEREBY NOTIFIED OF A PRE-BID  
CONFERENCE AND WALK-THROUGH. COVID PRECAUTION &  
PREScreenING ARE REQUIRED PRIOR TO ENTERING THE  
GOSS BUILDING

ON

THURSDAY 9/2/2021 AT 10:00AM  
AT  
TAUNTON STATE HOSPITAL  
60 HODGES AVENUE  
TAUNTON, MA 02780

CONTRACTORS ARE TO MEET THE DMH PROJECT  
ENGINEER AT THE GOSS BUILDING LOBBY LOCATED ON  
THE SAME PROPERTY.



## BID PACKAGE

### PART I

## INSTRUCTIONS TO BIDDERS

### For Projects with no Filed Sub Bidders

**2022-036 Improvements to East and West Wing Fan Rooms In Goss Building at  
Taunton State Hospital  
60 Hodges Ave. Taunton, MA 02780**

#### Instructions to Bidders

**Attachment A:**  
Minimum Wage Rates

**Attachment B: Forms Used During Bidding**  
Form for General Bid



## COMMONWEALTH OF MASSACHUSETTS INSTRUCTIONS TO BIDDERS

**Awarding Authority:**

Department of Mental Health  
Office of Facilities Management  
Hadley Building  
167 Lyman Street  
Westborough, MA 01581  
508-616-2248

**Project Title:** **2022-036 Improvements to East and West Wing Fan Rooms In Goss Building at Taunton State Hospital 60 Hodges Ave. Taunton, MA 02780**

**Category of Work:** **HVAC – Piping-Heating Coils/Condensate Pumps**

**Project Description and Scope:**

Contractor to remove existing pre-heat coils and associated piping in the East and West Fan Rooms. Furnish and install two new heating coils, associated piping, steam traps, and new condensate return pumps with complete piping and electrical work in each fan room. All work to be in accordance with plans and specifications. Completion of work to be by 11/30/21.

**Deadline for filing General bids is at: 1:00 PM Friday September 10, 2021**

The minimum wage rate requirements for this Contract are located in Attachment A to these Instructions to Bidders.

Pursuant to M.G.L. c. 30, §39S(a) (2) all employees to be employed on the project must have successfully completed a course in construction safety and health approved by OSHA and of at least 10 hours in duration.

The Contractor must provide written verification as detailed in the General Conditions of compliance with Federal Department of Homeland Security Requirements, including but not limited to the Employment Eligibility Verification (Form I-9) Process.

Bid forms for this Contract are located in Attachment B to these Instructions to Bidders.

**COVID-19 Precaution Notice: Anyone attending site viewing(s) will be required to follow state and city precaution guidelines by wearing the necessary face mask and practicing safe distancing.**

The estimated time for completion of the Work is ninety **(90) calendar days**, and will be specified in Article 2 of the Owner - Contractor Agreement for the successful bidder. Liquidated damages for failure to complete work on time is \$500 per day, and will be stated in Article 7 of the Owner - Contractor Agreement.

Bidding Documents must be obtained via COMMBUYS website. If you need assistance with COMMBUYS, please call the COMMBUYS help desk at (617) 720-3197.

COMMBUYS Job Aids for Vendors on how to use COMMBUYS are available by clicking the link below.

**<https://www.mass.gov/service-details/job-aids-for-vendors>**

The filed subtrades for this project are as follows: **(not applicable)**

As used herein, capitalized terms shall have the meaning assigned to them in the General Conditions of the Contract and the Owner - Contractor Agreement unless the context clearly indicates otherwise.

## **SECTION I - BIDDER'S REPRESENTATION**

**1.1** Each general bidder or sub-bidder (hereinafter sometimes referred to as "Bidder) by making a bid or sub-bid (hereinafter sometimes referred to as "Bid") represents and warrants that Bidder has visited and examined the Site and the Contract Documents, that Bidder is familiar with the local conditions under which the Work is to be performed, that Bidder has correlated personal observations with the requirements of the Contract Documents, and that where the Contract Documents require, in any part of the Work, a given result to be produced, the Contract Documents are adequate and that Bidder will produce the required result within the Bid price and that the Bid is made in accordance therewith.

**1.2** Failure to so examine the Contract Documents and the Site will not relieve any Bidder from any obligation under the Bid as submitted. Neither the Commonwealth nor the Designer will be responsible for errors, omissions and/or charges for extra work arising from Bidder's failure to familiarize itself with the Contract Documents or existing conditions.

## **SECTION 2 -- GENERAL BIDDERS - CERTIFICATE OF ELIGIBILITY AND UPDATE STATEMENT (NOT APPLICABLE)**

**2.1 (not applicable)** Every general bidder must submit the following with its general bid:  
--A Prime/General Contractor Certificate of Eligibility issued by the Division of Capital Asset Management and Maintenance (DCAMM), showing that the Bidder has been approved to bid

on projects for the category of work required and that the Bidder has a single project limit in an amount no lower than the amount of its Bid including all "add" alternates.

--A fully completed Prime/General Contractor Update Statement.

**2.2 (not applicable)** It is the Bidder's responsibility to obtain the necessary forms from DCAMM and to submit its Application for Certificate of Eligibility so as to allow sufficient time for DCAMM's evaluation of the application and issuance of a Certificate of Eligibility prior to the deadline for bidding.

**2.3 (not applicable)** The Prime/General Contractor Update Statement is not a public record as defined in M.G.L. c. 4, § 7 and will not be open to public inspection.

### **SECTION 3 – FILED SUB-BIDDERS - CERTIFICATE OF ELIGIBILITY AND UPDATE STATEMENT (NOT APPLICABLE)**

**3.1 (not applicable)** Every filed sub-bidder must submit the following with each filed sub-bid:  
--A Sub-Bidder Certificate of Eligibility issued by the Division of Capital Asset Management and Maintenance (DCAMM) for that sub-bid trade, showing that the sub-bidder has been approved to bid on projects of the category of work required.  
--A fully completed Sub-Bidder Update Statement.

**3.2 (not applicable)** It is the sub-bidder's responsibility to obtain the necessary forms from DCAMM and to submit its Application for Sub-bidder Certificate of Eligibility so as to allow sufficient time for DCAMM's evaluation of the application and issuance of a Sub-Bidder Certificate of Eligibility prior to the deadline for bidding.

**3.3 (not applicable)** The Sub-Bidder Update Statement is not a public record as defined in M.G.L. c. 4, §7 and will not be open to public inspection.

### **SECTION 4 -- REQUESTS FOR INTERPRETATION**

**4.1 Any questions by prospective Bidders concerning interpretation of the Contract Documents must be E-mailed to [gerald.mccullough@mass.gov](mailto:gerald.mccullough@mass.gov) by Friday September 3, 2021 by 5:00PM.** The Awarding Authority will post any addenda or written interpretations on COMMBUYS that it deems necessary to Bidders at least 48 hours before the General Bids Submission Deadline Date. Bidders may NOT rely upon oral communications or interpretations from the Awarding Authority or the Designer and the Awarding Authority shall not be bound by them.

**4.2** It is the sole responsibility of the Bidder to ascertain the existence of any addenda issued by the Awarding Authority on COMMBUYS, by Bidder.

**4.3** Wherever in the Contract Documents reference is made to Massachusetts General Laws, it shall be construed to include all amendments thereto effective as of the date of the issuance of the invitation to bid on the proposed work.

## **SECTION 5 -- PREPARATION OF BIDS; ALTERNATES**

**5.1** General Bids shall be submitted on the Form for General Bid included in Attachment B to these Instructions to Bidders.

**5.2** All entries on the Bid form shall be typewritten or in ink.

**5.3** Where so indicated on the Bid form, sums shall be expressed in both words and numerals. Where there is a discrepancy between the Bid sum expressed in words and the Bid sum expressed in figures, the Bid sum expressed in words shall control unless the intention of the Bidder clearly is otherwise as determined by the Awarding Authority in its sole discretion.

**5.4** Each general Bidder shall acknowledge all required alternates in Section C on the Form for General Bid by entering the dollar amount of addition or subtraction necessitated by the alternate. General Bidders shall enter on the Form for General Bid a single amount for each alternate that shall consist of the sub-Bidders' amounts and the amount for work performed by the general Bidder.

**5.5** If an alternate includes work within the Bidder's scope of work and does not involve a change in the cost of the Bid, the Bidder shall so indicate by writing "No Change" or "N/C" or "0" in the space provided for that alternate.

**5.6** The lowest Bidder will be determined on the basis of the sum of the base Bid and the accepted alternates.

**5.7 (not applicable)** If the space for indicating a requirement for payment and performance bonds for filed subcontractors is left blank by the general Bidder on the Form for General Bid, the Awarding Authority shall interpret this as a "No."

**5.8 (not applicable)** Costs for subcontractors' bond premiums shall be paid for by the general Contractor in accordance with M.G.L. c. 149, § 44F unless the project is a project in which contractor and subcontractor prequalification are required pursuant to M.G.L. 149, §§ 44D1/2 or 44D3/4.

**5.9 (not applicable)** If the general Bidders are instructed to carry an amount for a given subtrade listed under Item 2, general Bidders shall list the subtrade and the amount provided by the Awarding Authority. The line under "bonds required" on the Form for General Bid should be left blank or marked "N/A" in order for subsection 5.10 to apply.

**5.10 (not applicable)** Upon solicitation of a subcontractor to perform the work required with respect to a subtrade referenced in subsection 5.9, the general Bidder's Contract Price shall be adjusted by the following: a) the difference between the subcontract amount and the amount

carried in the general Bid; b) the total cost of the subcontractor's bonds, if the general Bidder requires such bonds after the solicitation is completed and if the general Bidder complied with 5.9 above; c) the documented increased costs for the general Bidder's bonds, if any, attributable to the incremental difference between the amount carried for the given subtrade and the actual subcontract amount.

**5.11 (not applicable)** Overhead and profit for supervision of the subtrade mentioned in subsections 5.9 and 5.10 above shall be included by all general Bidders in Item 1 of the subdivision of the Contract Price. No additional overhead or profit will be paid on the incremental difference between the amount carried for the subtrade and the subcontract amount as stated in M.G.L. c. 149, § 44F(4)(a)(2).

**5.12 (not applicable)** Sub-Bidders should not list Paragraph E sub-subcontractors unless requested to do so by the Awarding Authority.

**5.13** Each general Bid and each Bid of a filed subcontractor must be accompanied by a bid deposit in the form of a bid bond; cash; or a check certified by, or a treasurer's or cashier's check issued by, a responsible bank or trust company, payable to the Commonwealth of Massachusetts. Any bid bond shall be (a) in a form satisfactory to the Awarding Authority, (b) with a surety company qualified to do business in the Commonwealth and (c) conditioned upon the faithful performance by the principal of the agreements contained in the Bid.

**5.14** The amount of such bid deposit shall be **5% five per cent** of the value of the Bid including alternates.

## **SECTION 6 - SUBMISSION OF BIDS**

**6.1** Each general Bid, **including a photo copy of the bid deposit** shall be uploaded into COMMBUY'S.

**General Bid for:**

**Project Title:** **2022-036 Improvements to East and West Wing Fan Rooms In Goss Building**  
**at**  
**Taunton State Hospital**  
**60 Hodges Ave. Taunton, MA 02780**

**General Bidders name, business address, and telephone number.**

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**6.2** All Bids must be received by the Awarding Authority via the COMMBUYS Website no later than the **Deadline for Filing General Bid date** specified on page two of these Instructions to Bidders. Any Bid received after this deadline date and time will not be accepted.

## **SECTION 7 - WITHDRAWAL OF BIDS; REJECTION OF BIDS**

**7.1** Any Bid may be withdrawn prior by emailing Gerald McCullough at [gerald.mccullough@mass.gov](mailto:gerald.mccullough@mass.gov) prior to the **Deadline for filing General Bid date on page two**.

**7.2** A Bidder may withdraw its Bid without penalty by emailing Gerald McCullough at [gerald.mccullough@mass.gov](mailto:gerald.mccullough@mass.gov) at any time up to the time of Award as defined below in subsection 9.1 only upon demonstrating to the satisfaction of the Awarding Authority that a death or disability has occurred or a bona fide clerical or mechanical error of a substantial nature was made during the preparation of the bid. Failure to demonstrate conclusively that a bona fide clerical or mechanical error of a substantial nature was made may result in forfeiture of the Bid deposit.

**7.3** The Awarding Authority reserves the right to waive any informality in or to reject any and all Bids if it is in the public interest to do so. Without limiting the foregoing, the Awarding Authority reserves the right to reject unit prices which it deems unduly high or unduly low as unbalanced.

## **SECTION 8 - MBE AND WBE PARTICIPATION (not applicable)**

## **SECTION 9 -- CONTRACT AWARD**

**9.1** "Award" means the determination, selection, and notification of the lowest, responsible and eligible Bidder by the Awarding Authority.

**9.2** The Awarding Authority will award the Contract within thirty (30) days, Saturdays, Sundays, and legal holidays excluded after the opening of Bids in accordance with M.G.L. c.149 §44A.

**9.3** The Contract will be awarded to the lowest responsible and eligible Bidder as determined by the Awarding Authority, except in the event of substitution as provided under M.G.L. c.149, §§44E and 44F, in which cases the procedure as required by said sections shall govern the award of the Contract.

**9.4** As used herein, the term "lowest responsible and eligible Bidder" shall mean the general Bidder whose Bid is the lowest of those Bidders who, in the Awarding Authority's opinion, are ready, willing and able to comply with all requirements of the Contract Documents and demonstrably possess the skill, ability, and integrity necessary for the faithful performance of the Work, based on the determination of past performance and financial soundness under (i) M.G.L. c.149 §44A and following sections, (ii) the rules, regulations, orders, guidelines and policies

promulgated from time to time by the Commissioner of the Division of Capital Asset Management and Maintenance ("DCAMM") and (iii) any other relevant criteria that the Commissioner may prescribe. If the Awarding Authority determines that any non-filed subcontractor chosen by a Bidder is not qualified or responsible, then the Bidder shall obtain another subcontractor satisfactory to Awarding Authority and the contract price shall not be adjusted.

**9.5** The general Bid price shall be the price set forth in paragraph C of the Form for General Bid. No general Bid shall be rejected (i) because the sum of the prices set forth in Item 1 and 2 does not equal the general Bid price set forth in said paragraph C or (ii) because of one or more errors in setting forth the name, the sub-Bid price of a sub-Bidder, or the total of Item 2, provided that the sub-Bidder or sub-Bidders designated are clearly identifiable, or (iii) because the plans and specifications do not accompany the Bid or are not submitted with the Bid.

**9.6** Should the Contract Documents require submission of special data to accompany the Bid, the Awarding Authority reserves the right to rule the Bidder's failure to submit such data an informality and to receive said data subsequently within a reasonable time as set by the Awarding Authority, provided that no such ruling shall result in an unfair advantage to the Bidder.

**9.7** The Awarding Authority also reserves the right to reject any sub-Bid if it determines that such sub-Bid does not represent the Bid of a person competent to perform the work as specified, or if fewer than three sub-Bids are received for a sub-trade, and the Bid prices are not reasonable for acceptance without further competition.

**9.8** If the Awarding Authority decides to reject all general Bids or if the Awarding Authority does not receive any general Bids, the Awarding Authority may retain and use the sub-Bids received for a second opening of general Bids; provided, however, that there are no changes in the work involved for the subtrades for which the sub-Bids are so retained and used; and provided, further, that the Awarding Authority shall obtain the consent of each sub-Bidder included in any award of a general Contract made pursuant to the second opening of general Bids if such award is not made within ninety days, Saturdays, Sundays and legal holidays excluded, after the opening of such sub-Bids.

## **SECTION 10 - EXECUTION OF CONTRACTS**

**10.1** If a selected filed sub-Bidder fails, within five days, Saturdays, Sundays and legal holidays excluded, after presentation of a Subcontract by the general Bidder to which the Contract was awarded, to perform its agreement to execute a Subcontract in the form provided by the Awarding Authority with such general Bidder contingent upon the execution of the general Contract, and, if requested to do so by such general Bidder in the general Bid, to furnish a 100% payment bond and 100% performance bond as stated in its filed sub-Bid, such general Bidder and the Awarding Authority shall select from the other filed sub-Bids duly filed with the Awarding Authority for such subtrade and not rejected the lowest responsible and eligible filed sub-Bidder at the amount named in its filed sub-Bid as so filed against whose standing and ability the general Contractor makes no objection, and the Contract price shall be adjusted by the difference between the amount of such filed sub-bid and the amount of the sub-bid of the delinquent filed sub-Bidder.

**10.2** Upon receipt of the Award, the general Bidder awarded the Contract shall submit a properly executed original of each of the following documents prior to execution of the Contract by the Awarding Authority. All such documents shall be in the form prescribed by the Awarding Authority.

- Owner-Contractor Agreement
- 50% Payment Bond with power of attorney attached
- Certificates of Insurance evidencing coverages in amounts required by the Contract Documents
- Any other documents that the Awarding Authority may reasonably require in connection with the Contractor's execution of the Contract.
  
- Written representation by the General Contractor to the effect that it has presented subcontracts to all selected filed sub-Bidders and a statement as to whether or not each such selected filed sub-Bidder has executed its subcontract such that the Awarding Authority may release the Bid deposit with respect to the same. **Misrepresentation of the foregoing shall render the general Contractor liable to the Awarding Authority for the sum of any Bid deposit released by the Awarding Authority with respect to a filed sub-Bidder that fails to execute its subcontract.**

**10.3** Please note that **no part of the General Contractor's work may be subcontracted without the prior written approval of the Awarding Authority.** If the General Contractor desires to subcontract any part of the Work, other than work covered by Item 2, filed sub-Bidders, the General Contractor must promptly forward to the Awarding Authority a list in triplicate designating the work to be performed and the name of each proposed subcontractor for approval by the Awarding Authority. Approved subcontractors are eligible for direct payments under M.G.L. 30, § 39F, as amended. Material suppliers not involving site labor need not be submitted for approval.

## **SECTION 11 - RETURN OF BID DEPOSITS**

**11.1** If no award is made, upon the expiration of the time prescribed in M.G.L. c. 149, § 44A for making an award; except that, if any general Bidder fails to perform its agreement to execute the Contract and furnish a 50% Payment Bond as stated in its Bid, then said general Bidder's Bid deposit shall become the property of the Commonwealth as liquidated damages; provided that the amount of the Bid deposit that becomes the property of the Commonwealth shall not exceed the difference between the Contractor's Bid price and the Bid price of the next lowest responsible and eligible Bidder; and provided further that, in the case of death, disability, bona fide clerical or mechanical error of a substantial nature, or other similar unforeseen circumstances affecting the general Bidder, such general Bidder's Bid deposit shall be returned.

**11.2** If a selected sub-Bidder fails to perform its agreement to execute a sub-contract with the general Bidder selected as the general Contractor, contingent upon the execution of the General Contract, and, if requested to do so in the general Bid by such general Bidder, to furnish a

Performance and Payment Bonds as stated in its sub-Bid in accordance with M.G.L. c. 149, § 44F(2), the Bid deposit of such sub-Bidder shall become the property of the Commonwealth as liquidated damages, provided that the amount of the Bid deposit that shall become the property of the Commonwealth shall not exceed the difference between its sub-Bid price and the sub-Bid price of the next lowest responsible and eligible sub-Bidder.

**11.3** In addition to the provisions for the return of Bid deposits as provided above, upon receipt of a Bid Bond in an amount not less than the amount of the required Bid deposit, the Awarding Authority shall return any Bid deposit of a Bidder forthwith after the public opening of Bids.

## ATTACHMENT A

### PREVAILING WAGE SCHEDULE/OSHA 10 HRS ACKNOWLEDGEMENT

**The minimum wage rates provided in the following pages have been provided by the Division of Occupational Safety of the Massachusetts Department of Labor and Workforce Development. The Awarding Authority is not responsible for errors or omissions in such wage rates.**

M.G.L. c. 149, §§ 26 and 27 provide as follows:

*". . . Payments by employers to health and welfare plans, pension plans and supplementary unemployment benefit plans under collective bargaining agreements or understandings between organized labor and employers shall be included for the purpose of establishing minimum wage rates as herein provided.*

*. . . The aforesaid rates of wages in the schedule of wage rates shall include payments by employers to health and welfare plans, pension plans and supplementary unemployment benefit plans as provided in said section twenty-six, and such payments shall be considered as payments to persons under this section performing work as herein provided. Any employer engaged in the construction of such works who does not make payments to a health and welfare plan, a pension plan and a supplementary unemployment benefit plan, where such payments are included in said rates of wages, shall pay the amount of said payments directly to each employee engaged in said construction"*

#### **Wage Request Number: 20210816-032**

The undersigned hereby certifies that it is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work; that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; and that it will comply fully with all laws and regulations applicable to awards made subject to section 39M of Chapter 30 of the General Laws.

**Bidder acknowledges receipt of the most recent prevailing wage rates and has incorporated said rates into their proposed bid(s).**

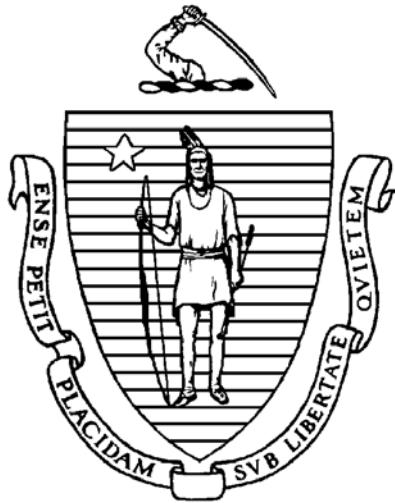
**Signature:** \_\_\_\_\_

**Name and Title:** \_\_\_\_\_

**ATTACHMENT B:**  
**Forms Used During Bidding**

- 1) Form for General Bid
- 2) Bidder Check list
- 3) Prevailing Wage Schedule/OSHA 10 Hours Acknowledgement

**Executive Office for Health and Human Services  
Department of Mental Health  
Office of Facilities Management  
Hadley Building  
167 Lyman Street  
Westborough, MA 01581  
Telephone: (508) 616-2248**



**COMMONWEALTH OF MASSACHUSETTS  
FORM FOR GENERAL BID**

**2022-036 Improvements to East and West Wing Fan Rooms In Goss Building at  
Taunton State Hospital  
60 Hodges Ave. Taunton, MA 02780**

The following **must** be uploaded into **COMMBUYS** as part of this bid:

1. A photo copy of the Bid deposit meeting the requirements of Section 5.13 and 5.14 of the Instructions to Bidders uploaded into COMMBUYS.
2. (Not Applicable) Complete Statement of Prior Relevant Experience, Facilities, Equipment, References and any other information called for as further set forth in Project Specifications.
3. Prevailing Wage Schedule/OSHA 10 Hours Acknowledgement (See Attachment A)

## **FORM FOR GENERAL BID**

To the Awarding Authority: **DEPARTMENT OF MENTAL HEALTH (DMH)**

A. The undersigned proposes to furnish all labor and materials required for

Project Name: **2022-036 Improvements to East and West Wing Fan Rooms  
In Goss Building at  
Taunton State Hospital  
60 Hodges Ave. Taunton, MA 02780**

in accordance with the accompanying plans and specifications prepared by DMH, for the contract price specified below, subject to additions and deductions according to the terms of the specifications.

B. This bid includes addenda numbered: (please indicate by checking the box of each addenda number)

No. 1       No. 2       No. 3       No. 4       No. 5       No. 6

C. The proposed base contract price (East Wing Fan Room) is:

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(total base bid amount in words East Wing Fan Room)

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

For West Wing Fan Room Alternate No. 1: Add \$\_\_\_\_\_ Subtract \$\_\_\_\_\_

Name of General Bidder: \_\_\_\_\_

D. The undersigned agrees that, if it is selected as general contractor, it will within five days, Saturdays, Sundays and legal holidays excluded, after presentation thereof by the awarding authority, execute a contract in accordance with the terms of this bid and furnish a 50% payment bond from a surety company qualified to do business under the laws of the Commonwealth and satisfactory to the awarding authority and each in the sum of the contract price, the premiums for which are to be paid by the general contractor and are included in the contract price.

<b>Bid Amount</b>	<b>Payment Bond Required</b>	<b>Performance Bond Required</b>
Bid up to \$150,000	50% Payment Bond	No Performance Bond Required
Bid over \$150,000	100% Payment Bond	100% Performance Bond

The undersigned hereby certifies that it is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work; that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; and that it will comply fully with all laws and regulations applicable to awards made subject to section 39M of Chapter 30 of the General Laws.

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

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

The undersigned further certifies under penalties of perjury that the undersigned is not debarred from doing public construction work under any law, rule or regulation of the federal government.

The undersigned hereby declares that the undersigned has carefully examined the Advertisement, Instructions to Bidders, Owner - Contractor Agreement, General Conditions of the Contract, Special Conditions (if any), Plans and Specifications, all other Contract Documents, and also the Site upon which the proposed work is to be performed. The undersigned further declares that in regard to the conditions affecting the work to be done and the labor and materials needed, this proposal is based solely on the undersigned's own investigation and research and not in reliance upon any representation of any employee, officer or agent of the Commonwealth.

The undersigned further certifies under the penalties of perjury that:

- 1) this bid is in all respects bona fide, fair and made without collusion or fraud with any other person;
- 2) we are the only persons interested in this proposal;
- 3) that it is made without any connection with any other person making any bid for the same work and without directly or indirectly influencing or attempting to influence any other person to bid to refrain from bidding or to influence the amount of the bid of any other person or corporation;
- 4) that no person acting for, or employed by, the Commonwealth of Massachusetts is directly or indirectly interested in this proposal, or in any contract which be made under it, or in expected profits to arise therefrom.

As used above the word "person" shall mean natural person, joint venture, partnership, corporation or other business or legal entity.

The undersigned certifies that it shall comply with the provisions of the Equal Employment Opportunity, Non-Discrimination, and Affirmative Action Program set forth in the General Conditions of the Contract.

Should the Contract Documents require submission of special data to accompany the bid, the Awarding Authority reserves the right to rule the bidder's failure to submit such data an informality and to receive said data subsequently within a reasonable time as set by the Awarding Authority.

Date \_\_\_\_\_, 2021.

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(Name of General Bidder)

By \_\_\_\_\_  
(Typed/Printed Name of Person & Title)

By \_\_\_\_\_  
(Signed Name of Person)

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(Business Address, City, State)

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(Telephone Number)

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(E-mail address)

The following information is furnished by the Bidder for the information of the Department of Mental Health.

Bidders Vendor Code / FEIN # \_\_\_\_\_

Is Bidder a corporation? \_\_\_\_\_ If so, incorporated in what state? \_\_\_\_\_

President \_\_\_\_\_

Secretary or Clerk \_\_\_\_\_

Treasurer \_\_\_\_\_

If Bidder is a foreign corporation, is it registered to do business in Massachusetts? \_\_\_\_\_

If Bidder is a foreign corporation and is selected, Bidder is required under M.G.L. c. 30, s. 39L to obtain from the Massachusetts Secretary of State, One Ashburton Place, 17th floor, a certificate stating that the corporation is registered to do business in Massachusetts, and to furnish said certificate to the awarding authority prior to the award.

Is Bidder a general partnership or joint venture? \_\_\_\_\_ If so, name each partner or venturer \_\_\_\_\_

Is Bidder a limited partnership? \_\_\_\_\_

Is Bidder registered in Massachusetts? \_\_\_\_\_ If so, name each general partner \_\_\_\_\_

If Bidder is a foreign limited partnership and is selected, Bidder is required under M.G.L. c. 30, s. 39L to obtain from the Massachusetts Secretary of State, One Ashburton Place, 17th floor, a certificate stating that the partnership is registered to do business in Massachusetts, and to furnish said certificate to the awarding authority prior to the award.

For each general partner or venturer that is a corporation, provide the following information (use additional sheets if necessary):

Name of corporation \_\_\_\_\_

State of incorporation \_\_\_\_\_

President \_\_\_\_\_

Secretary or Clerk \_\_\_\_\_

Treasurer \_\_\_\_\_

Name of corporation \_\_\_\_\_

State of incorporation \_\_\_\_\_

President \_\_\_\_\_

Secretary or Clerk \_\_\_\_\_

Treasurer \_\_\_\_\_

Is Bidder an individual? \_\_\_\_\_

Residence Address \_\_\_\_\_

Name under which Bidder does business \_\_\_\_\_

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

If selected Bidder is an individual doing business under a different name then Bidder must furnish evidence of any required DBA filing.

## BIDDER CHECKLIST

**This is not a contract document. It is provided to help bidders avoid common mistakes that can result in the rejection of bids. It does not modify the Contract Documents.**

**\*\*\*Please note that all BID documents must be uploaded into COMMBUY'S\*\*\***

**To ensure that your bids are acceptable to the Department, and are not rejected due to errors or omissions, we are providing this Checklist for your convenience. It does not modify the Contract Documents.**

- 1. Have you used the correct bid form provided in Attachment B (and Attachment C if applicable) to the Instructions to Bidders?
- 2. Have you properly identified the project, architect, etc., on your bid form?
- 3. Have you acknowledged receipt of the most current prevailing Wage Rates and/or Truck Rates which have been provided by the Awarding Authority? (Done by completing the bottom of Attachment A in this Part 1 packet.)
- 4. Are your bid amounts, as expressed in figures and words, consistent?  
**The amount expressed in words will control.**
- 5. Have you acknowledged all addenda issued by placing the number of each addenda on the Bid Form and followed the instructions contained in each one?
- 6. If you are a General Bidder, have you responded to every alternate? If you are a sub-bidder, have you responded to all of those alternates identified as applying to the filed sub-bid section you are bidding on?
- 7. If you are a general bidder or a sub-bidder affected by an alternate and an alternate price is requested and you estimate that there is no change in price, did you indicate by writing "no change", "N/C", or "0"? Failure to provide a price, no change, N/C or 0 for an alternate by general bidders and sub-bidders when identified as part of a sub-bidders scope of work will result in rejection of your bid.
- 8. ~~If you are a sub bidder and the alternate does not affect your category of work, have you left the alternate blank or written "N/A" and only "N/A"?~~
- 9. ~~If you are a sub bidder and the bid documents request that you supply the name of the firm(s) that will do certain work identified as sub subcontract paragraph E work, have you completed the Paragraph E section?~~
- 10. Have you added any information not called for, acknowledged an addendum that does not exist, or provided a price for an alternate not identified as part of your scope of work which can result in rejection of your bid?
- 11. Is your Bid Form **SIGNED** and dated?
  
- 12. **BID DEPOSITS**
  - a. **Have you uploaded your Bid Deposit onto COMMBUY'S and FEDEXed your original bid bond to arrive prior to the bid opening date?**
  - b. Is your bid deposit, if in the form of a bid bond, issued from a bonding company licensed to do business in the Commonwealth of Massachusetts? **Is it signed by the contractor and the bonding company?**
  - c. Is your bid deposit made payable to the Commonwealth of Massachusetts? **Bid deposits made payable to any other entity may cause the bid to be rejected.**
  - d. Is your bid deposit five (5%) of the highest possible bid amount, considering all alternates being accepted in order?
- 13. ~~If you are a General Contractor, have you included your current DCAMM Certificate of Eligibility and a completed, signed DCAMM Update Statement?~~
- 14. ~~If you are a Sub Contractor, have you included your current Certificate of Eligibility and a completed, signed DCAMM Update Statement?~~
- 15. Are all of your bid materials **uploaded into COMMBUY'S** exactly as provided in the Instructions to Bidders?
- 16. Your bid **MUST** be **uploaded into COMMBUY'S** prior to the deadline!

## DOCUMENTS TO UPLOAD TO COMMBUYS CHECKLIST

- 1. **GENERAL BID FORM (PART 1 Attachment B)**
- 2. ~~SUB BID FORM (PART 1 Attachment C NOT APPLICABLE)~~
- 3. **WAGE RATES ACKNOWLEDGEMENT (PART 1 ATTACHMENT A)**  
(Complete the bottom of Attachment A in this Part 1 packet.)
- 4. **5% BID BOND**
- 5. ~~GENERAL CONTRACTOR DCAMM UPDATE STATEMENT~~
- 6. ~~GENERAL CONTRACTOR DCAMM CERTIFICATE OF ELIGIBILITY~~
- 7. ~~SUB CONTRACTOR DCAMM UPDATE STATEMENT (NOT APPLICABLE)~~
- 8. ~~SUB CONTRACTOR DCAMM CERTIFICATE OF ELIGIBILITY (NOT APPLICABLE)~~
- 9. ~~GENERAL CONTRACTOR CHPT. 30 MassDOT PREQUALIFICATION STATEMENT (NOT APPLICABLE)~~



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

CHARLES D. BAKER  
Governor

KARYN E. POLITO  
Lt. Governor

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

ROSLIN ACOSTA  
Secretary  
MICHAEL FLANAGAN  
Director

**Awarding Authority:** Dept. of Mental Health-Facilities Management and Engineering  
**Contract Number:** 2022-036 **City/Town:** TAUNTON  
**Description of Work:** Goss Bld. - Remove existing pre-heat coils and associated piping in the east & west fan rooms. F & I two new pre-heat coils & associated piping & steam traps plus a new condensate return pump complete.  
**Job Location:** 60 Hodges Ave. Taunton, MA.

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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 criminal penalties.

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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>	08/01/2021	\$35.95	\$13.41	\$14.82	\$0.00	\$64.18
	12/01/2021	\$35.95	\$13.41	\$16.01	\$0.00	\$65.37
(3 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	08/01/2021	\$36.02	\$13.41	\$14.82	\$0.00	\$64.25
	12/01/2021	\$36.02	\$13.41	\$16.01	\$0.00	\$65.44
(4 & 5 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	08/01/2021	\$36.14	\$13.41	\$14.82	\$0.00	\$64.37
	12/01/2021	\$36.14	\$13.41	\$16.01	\$0.00	\$65.56
ADS/SUBMERSIBLE PILOT <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2020	\$103.05	\$9.40	\$23.12	\$0.00	\$135.57
For apprentice rates see "Apprentice- PILE DRIVER"						
AIR TRACK OPERATOR <i>LABORERS - ZONE 2</i>	06/01/2021	\$35.75	\$8.60	\$16.64	\$0.00	\$60.99
	12/01/2021	\$36.66	\$8.60	\$16.64	\$0.00	\$61.90
	06/01/2022	\$37.56	\$8.60	\$16.64	\$0.00	\$62.80
	12/01/2022	\$38.41	\$8.60	\$16.64	\$0.00	\$63.65
	06/01/2023	\$39.31	\$8.60	\$16.64	\$0.00	\$64.55
	12/01/2023	\$40.21	\$8.60	\$16.64	\$0.00	\$65.45
For apprentice rates see "Apprentice- LABORER"						
AIR TRACK OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY &amp; HIGHWAY)</i>	06/01/2021	\$35.75	\$8.60	\$16.64	\$0.00	\$60.99
	12/01/2021	\$36.66	\$8.60	\$16.64	\$0.00	\$61.90
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
ASBESTOS WORKER (PIPES & TANKS) <i>HEAT &amp; FROST INSULATORS LOCAL 6 (SOUTHERN MASS)</i>	12/01/2020	\$38.10	\$12.80	\$9.45	\$0.00	\$60.35
ASPHALT RAKER <i>LABORERS - ZONE 2</i>	06/01/2021	\$35.25	\$8.60	\$16.64	\$0.00	\$60.49
	12/01/2021	\$36.16	\$8.60	\$16.64	\$0.00	\$61.40
	06/01/2022	\$37.06	\$8.60	\$16.64	\$0.00	\$62.30
	12/01/2022	\$37.91	\$8.60	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.81	\$8.60	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.71	\$8.60	\$16.64	\$0.00	\$64.95
For apprentice rates see "Apprentice- LABORER"						
ASPHALT RAKER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY &amp; HIGHWAY)</i>	06/01/2021	\$35.25	\$8.60	\$16.64	\$0.00	\$60.49
	12/01/2021	\$36.16	\$8.60	\$16.64	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2021	\$50.73	\$13.75	\$15.80	\$0.00	\$80.28
	12/01/2021	\$51.88	\$13.75	\$15.80	\$0.00	\$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BACKHOE/FRONT-END LOADER <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2021	\$50.73	\$13.75	\$15.80	\$0.00	\$80.28
	12/01/2021	\$51.88	\$13.75	\$15.80	\$0.00	\$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BARCO-TYPE JUMPING TAMPER <i>LABORERS - ZONE 2</i>	06/01/2021	\$35.25	\$8.60	\$16.64	\$0.00	\$60.49
	12/01/2021	\$36.16	\$8.60	\$16.64	\$0.00	\$61.40
	06/01/2022	\$37.06	\$8.60	\$16.64	\$0.00	\$62.30
	12/01/2022	\$37.91	\$8.60	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.81	\$8.60	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.71	\$8.60	\$16.64	\$0.00	\$64.95
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
BLOCK PAVER, RAMMER / CURB SETTER	06/01/2021	\$35.75	\$8.60	\$16.64	\$0.00	\$60.99
<i>LABORERS - ZONE 2</i>	12/01/2021	\$36.66	\$8.60	\$16.64	\$0.00	\$61.90
	06/01/2022	\$37.56	\$8.60	\$16.64	\$0.00	\$62.80
	12/01/2022	\$38.41	\$8.60	\$16.64	\$0.00	\$63.65
	06/01/2023	\$39.31	\$8.60	\$16.64	\$0.00	\$64.55
	12/01/2023	\$40.21	\$8.60	\$16.64	\$0.00	\$65.45
For apprentice rates see "Apprentice- LABORER"						
BLOCK PAVER, RAMMER / CURB SETTER (HEAVY & HIGHWAY)	06/01/2021	\$35.75	\$8.60	\$16.64	\$0.00	\$60.99
<i>LABORERS - ZONE 2 (HEAVY &amp; HIGHWAY)</i>	12/01/2021	\$36.66	\$8.60	\$16.64	\$0.00	\$61.90
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
BOILER MAKER	01/01/2020	\$46.10	\$7.07	\$17.98	\$0.00	\$71.15
<i>BOILERMAKERS LOCAL 29</i>						

**Apprentice - BOILERMAKER - Local 29**

**Effective Date -** 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	65	\$29.97	\$7.07	\$11.69	\$0.00	\$48.73
2	65	\$29.97	\$7.07	\$11.69	\$0.00	\$48.73
3	70	\$32.27	\$7.07	\$12.59	\$0.00	\$51.93
4	75	\$34.58	\$7.07	\$13.49	\$0.00	\$55.14
5	80	\$36.88	\$7.07	\$14.38	\$0.00	\$58.33
6	85	\$39.19	\$7.07	\$15.29	\$0.00	\$61.55
7	90	\$41.49	\$7.07	\$16.18	\$0.00	\$64.74
8	95	\$43.80	\$7.07	\$17.09	\$0.00	\$67.96

**Notes:**

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

BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING)	08/01/2021	\$55.01	\$11.39	\$21.57	\$0.00	\$87.97
<i>BRICKLAYERS LOCAL 3 (FOXBORO)</i>	02/01/2022	\$55.59	\$11.39	\$21.57	\$0.00	\$88.55

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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**Apprentice - BRICK/PLASTER/CEMENT MASON - Local 3 Foxboro**

**Effective Date - 08/01/2021**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$27.51	\$11.39	\$21.57	\$0.00	\$60.47
2	60	\$33.01	\$11.39	\$21.57	\$0.00	\$65.97
3	70	\$38.51	\$11.39	\$21.57	\$0.00	\$71.47
4	80	\$44.01	\$11.39	\$21.57	\$0.00	\$76.97
5	90	\$49.51	\$11.39	\$21.57	\$0.00	\$82.47

**Effective Date - 02/01/2022**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$27.80	\$11.39	\$21.57	\$0.00	\$60.76
2	60	\$33.35	\$11.39	\$21.57	\$0.00	\$66.31
3	70	\$38.91	\$11.39	\$21.57	\$0.00	\$71.87
4	80	\$44.47	\$11.39	\$21.57	\$0.00	\$77.43
5	90	\$50.03	\$11.39	\$21.57	\$0.00	\$82.99

**Notes:**

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

BULLDOZER/GRADER/SCRAPER <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2021	\$50.19	\$13.75	\$15.80	\$0.00	\$79.74
	12/01/2021	\$51.33	\$13.75	\$15.80	\$0.00	\$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
CAISSON & UNDERPINNING BOTTOM MAN <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2021	\$41.82	\$8.60	\$17.72	\$0.00	\$68.14
	12/01/2021	\$42.83	\$8.60	\$17.72	\$0.00	\$69.15
For apprentice rates see "Apprentice- LABORER"						
CAISSON & UNDERPINNING LABORER <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2021	\$40.67	\$8.60	\$17.72	\$0.00	\$66.99
	12/01/2021	\$41.68	\$8.60	\$17.72	\$0.00	\$68.00
For apprentice rates see "Apprentice- LABORER"						
CAISSON & UNDERPINNING TOP MAN <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2021	\$40.67	\$8.60	\$17.72	\$0.00	\$66.99
	12/01/2021	\$41.68	\$8.60	\$17.72	\$0.00	\$68.00
For apprentice rates see "Apprentice- LABORER"						
CARBIDE CORE DRILL OPERATOR <i>LABORERS - ZONE 2</i>	06/01/2021	\$35.25	\$8.60	\$16.64	\$0.00	\$60.49
	12/01/2021	\$36.16	\$8.60	\$16.64	\$0.00	\$61.40
	06/01/2022	\$37.06	\$8.60	\$16.64	\$0.00	\$62.30
	12/01/2022	\$37.91	\$8.60	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.81	\$8.60	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.71	\$8.60	\$16.64	\$0.00	\$64.95
For apprentice rates see "Apprentice- LABORER"						
CARPENTER <i>CARPENTERS -ZONE 2 (Eastern Massachusetts)</i>	03/01/2021	\$43.54	\$9.40	\$18.95	\$0.00	\$71.89
	09/01/2021	\$44.19	\$9.40	\$18.95	\$0.00	\$72.54
	03/01/2022	\$44.79	\$9.40	\$18.95	\$0.00	\$73.14
	09/01/2022	\$45.44	\$9.40	\$18.95	\$0.00	\$73.79
	03/01/2023	\$46.04	\$9.40	\$18.95	\$0.00	\$74.39

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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**Apprentice - CARPENTER - Zone 2 Eastern MA**

**Effective Date - 03/01/2021**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.77	\$9.40	\$1.73	\$0.00	\$32.90
2	60	\$26.12	\$9.40	\$1.73	\$0.00	\$37.25
3	70	\$30.48	\$9.40	\$13.76	\$0.00	\$53.64
4	75	\$32.66	\$9.40	\$13.76	\$0.00	\$55.82
5	80	\$34.83	\$9.40	\$15.49	\$0.00	\$59.72
6	80	\$34.83	\$9.40	\$15.49	\$0.00	\$59.72
7	90	\$39.19	\$9.40	\$17.22	\$0.00	\$65.81
8	90	\$39.19	\$9.40	\$17.22	\$0.00	\$65.81

**Effective Date - 09/01/2021**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.10	\$9.40	\$1.73	\$0.00	\$33.23
2	60	\$26.51	\$9.40	\$1.73	\$0.00	\$37.64
3	70	\$30.93	\$9.40	\$13.76	\$0.00	\$54.09
4	75	\$33.14	\$9.40	\$13.76	\$0.00	\$56.30
5	80	\$35.35	\$9.40	\$15.49	\$0.00	\$60.24
6	80	\$35.35	\$9.40	\$15.49	\$0.00	\$60.24
7	90	\$39.77	\$9.40	\$17.22	\$0.00	\$66.39
8	90	\$39.77	\$9.40	\$17.22	\$0.00	\$66.39

**Notes:**

% Indentured After 10/1/17; 45/45/55/55/70/70/80/80

Step 1&2 \$30.72/ 3&4 \$36.75/ 5&6 \$55.37/ 7&8 \$61.45

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

CARPENTER WOOD FRAME CARPENTERS-ZONE 3 (Wood Frame)	04/01/2021	\$23.16	\$7.21	\$4.80	\$0.00	\$35.17
	04/01/2022	\$23.66	\$7.21	\$4.80	\$0.00	\$35.67
	04/01/2023	\$24.16	\$7.21	\$4.80	\$0.00	\$36.17

All Aspects of New Wood Frame Work

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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**Apprentice - CARPENTER (Wood Frame) - Zone 3**

**Effective Date - 04/01/2021**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$13.90	\$7.21	\$0.00	\$0.00	\$21.11
2	60	\$13.90	\$7.21	\$0.00	\$0.00	\$21.11
3	65	\$15.05	\$7.21	\$0.00	\$0.00	\$22.26
4	70	\$16.21	\$7.21	\$0.00	\$0.00	\$23.42
5	75	\$17.37	\$7.21	\$3.80	\$0.00	\$28.38
6	80	\$18.53	\$7.21	\$3.80	\$0.00	\$29.54
7	85	\$19.69	\$7.21	\$3.80	\$0.00	\$30.70
8	90	\$20.84	\$7.21	\$3.80	\$0.00	\$31.85

**Effective Date - 04/01/2022**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$14.20	\$7.21	\$0.00	\$0.00	\$21.41
2	60	\$14.20	\$7.21	\$0.00	\$0.00	\$21.41
3	65	\$15.38	\$7.21	\$0.00	\$0.00	\$22.59
4	70	\$16.56	\$7.21	\$0.00	\$0.00	\$23.77
5	75	\$17.75	\$7.21	\$3.80	\$0.00	\$28.76
6	80	\$18.93	\$7.21	\$3.80	\$0.00	\$29.94
7	85	\$20.11	\$7.21	\$3.80	\$0.00	\$31.12
8	90	\$21.29	\$7.21	\$3.80	\$0.00	\$32.30

**Notes:**

% Indentured After 10/1/17; 45/45/55/55/70/70/80/80

Step 1&2 \$17.63/ 3&4 \$19.95/ 5&6 \$27.22/ 7&8 \$29.54

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

CEMENT MASONRY/PLASTERING BRICKLAYERS LOCAL 3 (FOXBORO)	01/01/2020	\$44.67	\$12.75	\$22.41	\$0.62	\$80.45
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**Apprentice - CEMENT MASONRY/PLASTERING - Foxboro**

**Effective Date - 01/01/2020**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.34	\$12.75	\$15.41	\$0.00	\$50.50
2	60	\$26.80	\$12.75	\$17.41	\$0.62	\$57.58
3	65	\$29.04	\$12.75	\$18.41	\$0.62	\$60.82
4	70	\$31.27	\$12.75	\$19.41	\$0.62	\$64.05
5	75	\$33.50	\$12.75	\$20.41	\$0.62	\$67.28
6	80	\$35.74	\$12.75	\$21.41	\$0.62	\$70.52
7	90	\$40.20	\$12.75	\$22.41	\$0.62	\$75.98

**Notes:**

Steps 3,4 are 500 hrs. All other steps are 1,000 hrs.

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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CHAIN SAW OPERATOR <i>LABORERS - ZONE 2</i>	06/01/2021	\$35.25	\$8.60	\$16.64	\$0.00	\$60.49
	12/01/2021	\$36.16	\$8.60	\$16.64	\$0.00	\$61.40
	06/01/2022	\$37.06	\$8.60	\$16.64	\$0.00	\$62.30
	12/01/2022	\$37.91	\$8.60	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.81	\$8.60	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.71	\$8.60	\$16.64	\$0.00	\$64.95
For apprentice rates see "Apprentice- LABORER"						
CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2021	\$51.73	\$13.75	\$15.80	\$0.00	\$81.28
	12/01/2021	\$52.88	\$13.75	\$15.80	\$0.00	\$82.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
COMPRESSOR OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2021	\$33.40	\$13.75	\$15.80	\$0.00	\$62.95
	12/01/2021	\$34.19	\$13.75	\$15.80	\$0.00	\$63.74
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DELEADER (BRIDGE) <i>PAINTERS LOCAL 35 - ZONE 2</i>	01/01/2021	\$52.06	\$8.25	\$22.75	\$0.00	\$83.06

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

**Effective Date - 01/01/2021**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.03	\$8.25	\$0.00	\$0.00	\$34.28
2	55	\$28.63	\$8.25	\$6.16	\$0.00	\$43.04
3	60	\$31.24	\$8.25	\$6.72	\$0.00	\$46.21
4	65	\$33.84	\$8.25	\$7.28	\$0.00	\$49.37
5	70	\$36.44	\$8.25	\$19.39	\$0.00	\$64.08
6	75	\$39.05	\$8.25	\$19.95	\$0.00	\$67.25
7	80	\$41.65	\$8.25	\$20.51	\$0.00	\$70.41
8	90	\$46.85	\$8.25	\$21.63	\$0.00	\$76.73

**Notes:**

Steps are 750 hrs.

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

DEMO: ADZEMAN <i>LABORERS - ZONE 2</i>	06/01/2021	\$40.82	\$8.60	\$17.57	\$0.00	\$66.99
	12/01/2021	\$41.83	\$8.60	\$17.57	\$0.00	\$68.00
	06/01/2022	\$42.83	\$8.60	\$17.57	\$0.00	\$69.00
	12/01/2022	\$43.83	\$8.60	\$17.57	\$0.00	\$70.00
	06/01/2023	\$44.83	\$8.60	\$17.57	\$0.00	\$71.00
	12/01/2023	\$46.08	\$8.60	\$17.57	\$0.00	\$72.25
For apprentice rates see "Apprentice- LABORER"						
DEMO: BACKHOE/LOADER/HAMMER OPERATOR <i>LABORERS - ZONE 2</i>	06/01/2021	\$41.82	\$8.60	\$17.57	\$0.00	\$67.99
	12/01/2021	\$42.83	\$8.60	\$17.57	\$0.00	\$69.00
	06/01/2022	\$43.83	\$8.60	\$17.57	\$0.00	\$70.00
	12/01/2022	\$44.83	\$8.60	\$17.57	\$0.00	\$71.00
	06/01/2023	\$45.83	\$8.60	\$17.57	\$0.00	\$72.00
	12/01/2023	\$47.08	\$8.60	\$17.57	\$0.00	\$73.25
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DEMO: BURNERS <i>LABORERS - ZONE 2</i>	06/01/2021	\$41.57	\$8.60	\$17.57	\$0.00	\$67.74
	12/01/2021	\$42.58	\$8.60	\$17.57	\$0.00	\$68.75
	06/01/2022	\$43.58	\$8.60	\$17.57	\$0.00	\$69.75
	12/01/2022	\$44.58	\$8.60	\$17.57	\$0.00	\$70.75
	06/01/2023	\$45.58	\$8.60	\$17.57	\$0.00	\$71.75
	12/01/2023	\$46.83	\$8.60	\$17.57	\$0.00	\$73.00
For apprentice rates see "Apprentice- LABORER"						
DEMO: CONCRETE CUTTER/SAWYER <i>LABORERS - ZONE 2</i>	06/01/2021	\$41.82	\$8.60	\$17.57	\$0.00	\$67.99
	12/01/2021	\$42.83	\$8.60	\$17.57	\$0.00	\$69.00
	06/01/2022	\$43.83	\$8.60	\$17.57	\$0.00	\$70.00
	12/01/2022	\$44.83	\$8.60	\$17.57	\$0.00	\$71.00
	06/01/2023	\$45.83	\$8.60	\$17.57	\$0.00	\$72.00
	12/01/2023	\$47.08	\$8.60	\$17.57	\$0.00	\$73.25
For apprentice rates see "Apprentice- LABORER"						
DEMO: JACKHAMMER OPERATOR <i>LABORERS - ZONE 2</i>	06/01/2021	\$41.57	\$8.60	\$17.57	\$0.00	\$67.74
	12/01/2021	\$42.58	\$8.60	\$17.57	\$0.00	\$68.75
	06/01/2022	\$43.58	\$8.60	\$17.57	\$0.00	\$69.75
	12/01/2022	\$44.58	\$8.60	\$17.57	\$0.00	\$70.75
	06/01/2023	\$45.58	\$8.60	\$17.57	\$0.00	\$71.75
	12/01/2023	\$46.83	\$8.60	\$17.57	\$0.00	\$73.00
For apprentice rates see "Apprentice- LABORER"						
DEMO: WRECKING LABORER <i>LABORERS - ZONE 2</i>	06/01/2021	\$40.82	\$8.60	\$17.57	\$0.00	\$66.99
	12/01/2021	\$41.83	\$8.60	\$17.57	\$0.00	\$68.00
	06/01/2022	\$42.83	\$8.60	\$17.57	\$0.00	\$69.00
	12/01/2022	\$43.83	\$8.60	\$17.57	\$0.00	\$70.00
	06/01/2023	\$44.83	\$8.60	\$17.57	\$0.00	\$71.00
	12/01/2023	\$46.08	\$8.60	\$17.57	\$0.00	\$72.25
For apprentice rates see "Apprentice- LABORER"						
DIRECTIONAL DRILL MACHINE OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2021	\$50.19	\$13.75	\$15.80	\$0.00	\$79.74
	12/01/2021	\$51.33	\$13.75	\$15.80	\$0.00	\$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DIVER <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2020	\$68.70	\$9.40	\$23.12	\$0.00	\$101.22
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2020	\$49.07	\$9.40	\$23.12	\$0.00	\$81.59
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2020	\$73.60	\$9.40	\$23.12	\$0.00	\$106.12
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER/SLURRY (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2020	\$103.05	\$9.40	\$23.12	\$0.00	\$135.57
For apprentice rates see "Apprentice- PILE DRIVER"						
DRAWBRIDGE OPERATOR (Construction) <i>DRAWBRIDGE - SEIU LOCAL 888</i>	07/01/2020	\$26.77	\$6.67	\$3.93	\$0.16	\$37.53
ELECTRICIAN <i>ELECTRICIANS LOCAL 223</i>	09/01/2020	\$43.66	\$10.90	\$14.66	\$0.00	\$69.22

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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**Apprentice - ELECTRICIAN - Local 223**

**Effective Date - 09/01/2020**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$17.46	\$10.90	\$0.52	\$0.00	\$28.88
2	45	\$19.65	\$10.90	\$0.59	\$0.00	\$31.14
3	50	\$21.83	\$10.90	\$0.65	\$0.00	\$33.38
4	55	\$24.01	\$10.90	\$6.28	\$0.00	\$41.19
5	60	\$26.20	\$10.90	\$6.77	\$0.00	\$43.87
6	65	\$28.38	\$10.90	\$7.24	\$0.00	\$46.52
7	70	\$30.56	\$10.90	\$7.73	\$0.00	\$49.19
8	75	\$32.75	\$10.90	\$8.21	\$0.00	\$51.86

**Notes:**

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

ELEVATOR CONSTRUCTOR ELEVATOR CONSTRUCTORS LOCAL 4	01/01/2021	\$63.47	\$15.88	\$19.31	\$0.00	\$98.66
	01/01/2022	\$65.62	\$16.03	\$20.21	\$0.00	\$101.86

**Apprentice - ELEVATOR CONSTRUCTOR - Local 4**

**Effective Date - 01/01/2021**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$31.74	\$15.88	\$0.00	\$0.00	\$47.62
2	55	\$34.91	\$15.88	\$19.31	\$0.00	\$70.10
3	65	\$41.26	\$15.88	\$19.31	\$0.00	\$76.45
4	70	\$44.43	\$15.88	\$19.31	\$0.00	\$79.62
5	80	\$50.78	\$15.88	\$19.31	\$0.00	\$85.97

**Effective Date - 01/01/2022**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$32.81	\$16.03	\$0.00	\$0.00	\$48.84
2	55	\$36.09	\$16.03	\$20.21	\$0.00	\$72.33
3	65	\$42.65	\$16.03	\$20.21	\$0.00	\$78.89
4	70	\$45.93	\$16.03	\$20.21	\$0.00	\$82.17
5	80	\$52.50	\$16.03	\$20.21	\$0.00	\$88.74

**Notes:**

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

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

ELEVATOR CONSTRUCTOR HELPER ELEVATOR CONSTRUCTORS LOCAL 4	01/01/2021	\$44.43	\$15.88	\$19.31	\$0.00	\$79.62
	01/01/2022	\$45.93	\$16.03	\$20.21	\$0.00	\$82.17

For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"

FENCE & GUARD RAIL ERECTOR (HEAVY & HIGHWAY) LABORERS - ZONE 2 (HEAVY & HIGHWAY)	06/01/2021	\$35.25	\$8.60	\$16.64	\$0.00	\$60.49
	12/01/2021	\$36.16	\$8.60	\$16.64	\$0.00	\$61.40

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	05/01/2021	\$45.88	\$13.50	\$15.70	\$0.00	\$75.08
	11/01/2021	\$46.88	\$13.50	\$15.70	\$0.00	\$76.08
	05/01/2022	\$48.03	\$13.50	\$15.70	\$0.00	\$77.23
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	05/01/2021	\$47.40	\$13.50	\$15.70	\$0.00	\$76.60
	11/01/2021	\$48.41	\$13.50	\$15.70	\$0.00	\$77.61
	05/01/2022	\$49.57	\$13.50	\$15.70	\$0.00	\$78.77
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	05/01/2021	\$22.91	\$13.50	\$15.70	\$0.00	\$52.11
	11/01/2021	\$23.51	\$13.50	\$15.70	\$0.00	\$52.71
	05/01/2022	\$24.18	\$13.50	\$15.70	\$0.00	\$53.38
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIRE ALARM INSTALLER <i>ELECTRICIANS LOCAL 223</i>	09/01/2020	\$43.66	\$10.90	\$14.66	\$0.00	\$69.22
For apprentice rates see "Apprentice- ELECTRICIAN"						
FIRE ALARM REPAIR / MAINTENANCE / COMMISSIONING <i>ELECTRICIANS LOCAL 223</i>	09/01/2020	\$36.86	\$10.90	\$12.45	\$0.00	\$60.21
	12/01/2021	\$37.50	\$10.90	\$12.45	\$0.00	\$61.85
	03/01/2022	\$38.14	\$10.90	\$12.45	\$0.00	\$62.54
For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"						
FIREMAN (ASST. ENGINEER) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2021	\$41.31	\$13.75	\$15.80	\$0.00	\$70.86
	12/01/2021	\$42.26	\$13.75	\$15.80	\$0.00	\$71.81
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FLAGGER & SIGNALER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY &amp; HIGHWAY)</i>	06/01/2021	\$24.50	\$8.60	\$16.64	\$0.00	\$49.74
	12/01/2021	\$24.50	\$8.60	\$16.64	\$0.00	\$49.74
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
FLOORCOVERER <i>FLOORCOVERERS LOCAL 2168 ZONE I</i>	03/01/2021	\$48.59	\$9.40	\$19.25	\$0.00	\$77.24
	09/01/2021	\$49.39	\$9.40	\$19.25	\$0.00	\$78.04
	03/01/2022	\$50.19	\$9.40	\$19.25	\$0.00	\$78.84

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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**Apprentice - FLOORCOVERER - Local 2168 Zone I**

**Effective Date - 03/01/2021**

Step	percent	Apprentice	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50		\$24.30	\$9.40	\$1.79	\$0.00	\$35.49
2	55		\$26.72	\$9.40	\$1.79	\$0.00	\$37.91
3	60		\$29.15	\$9.40	\$13.88	\$0.00	\$52.43
4	65		\$31.58	\$9.40	\$13.88	\$0.00	\$54.86
5	70		\$34.01	\$9.40	\$15.67	\$0.00	\$59.08
6	75		\$36.44	\$9.40	\$15.67	\$0.00	\$61.51
7	80		\$38.87	\$9.40	\$17.46	\$0.00	\$65.73
8	85		\$41.30	\$9.40	\$17.46	\$0.00	\$68.16

**Effective Date - 09/01/2021**

Step	percent	Apprentice	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50		\$24.70	\$9.40	\$1.79	\$0.00	\$35.89
2	55		\$27.16	\$9.40	\$1.79	\$0.00	\$38.35
3	60		\$29.63	\$9.40	\$13.88	\$0.00	\$52.91
4	65		\$32.10	\$9.40	\$13.88	\$0.00	\$55.38
5	70		\$34.57	\$9.40	\$15.67	\$0.00	\$59.64
6	75		\$37.04	\$9.40	\$15.67	\$0.00	\$62.11
7	80		\$39.51	\$9.40	\$17.46	\$0.00	\$66.37
8	85		\$41.98	\$9.40	\$17.46	\$0.00	\$68.84

**Notes:** Steps are 750 hrs.

% After 09/1/17; 45/45/55/55/70/70/80/80 (1500hr Steps)

Step 1&2 \$33.03/ 3&4 \$39.64/ 5&6 \$59.08/ 7&8 \$65.73

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

FORK LIFT/CHERRY PICKER <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2021	\$50.73	\$13.75	\$15.80	\$0.00	\$80.28
	12/01/2021	\$51.88	\$13.75	\$15.80	\$0.00	\$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GENERATOR/LIGHTING PLANT/HEATERS <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2021	\$33.40	\$13.75	\$15.80	\$0.00	\$62.95
	12/01/2021	\$34.19	\$13.75	\$15.80	\$0.00	\$63.74
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS) <i>GLAZIERS LOCAL 1333</i>	06/01/2020	\$39.18	\$10.80	\$10.45	\$0.00	\$60.43

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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**Apprentice - GLAZIER - Local 1333**

**Effective Date - 06/01/2020**

Step	percent	Apprentice	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50		\$19.59	\$10.80	\$1.80	\$0.00	\$32.19
2	56		\$22.04	\$10.80	\$1.80	\$0.00	\$34.64
3	63		\$24.49	\$10.80	\$2.45	\$0.00	\$37.74
4	69		\$26.94	\$10.80	\$2.45	\$0.00	\$40.19
5	75		\$29.39	\$10.80	\$3.15	\$0.00	\$43.34
6	81		\$31.83	\$10.80	\$3.15	\$0.00	\$45.78
7	88		\$34.28	\$10.80	\$10.45	\$0.00	\$55.53
8	94		\$36.73	\$10.80	\$10.45	\$0.00	\$57.98

**Notes:**

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

HOISTING ENGINEER/CRANES/GRADALLS OPERATING ENGINEERS LOCAL 4	06/01/2021	\$50.73	\$13.75	\$15.80	\$0.00	\$80.28
	12/01/2021	\$51.88	\$13.75	\$15.80	\$0.00	\$81.43

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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**Apprentice - OPERATING ENGINEERS - Local 4**

**Effective Date - 06/01/2021**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$27.90	\$13.75	\$0.00	\$0.00	\$41.65
2	60	\$30.44	\$13.75	\$15.80	\$0.00	\$59.99
3	65	\$32.97	\$13.75	\$15.80	\$0.00	\$62.52
4	70	\$35.51	\$13.75	\$15.80	\$0.00	\$65.06
5	75	\$38.05	\$13.75	\$15.80	\$0.00	\$67.60
6	80	\$40.58	\$13.75	\$15.80	\$0.00	\$70.13
7	85	\$43.12	\$13.75	\$15.80	\$0.00	\$72.67
8	90	\$45.66	\$13.75	\$15.80	\$0.00	\$75.21

**Effective Date - 12/01/2021**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$28.53	\$13.75	\$0.00	\$0.00	\$42.28
2	60	\$31.13	\$13.75	\$15.80	\$0.00	\$60.68
3	65	\$33.72	\$13.75	\$15.80	\$0.00	\$63.27
4	70	\$36.32	\$13.75	\$15.80	\$0.00	\$65.87
5	75	\$38.91	\$13.75	\$15.80	\$0.00	\$68.46
6	80	\$41.50	\$13.75	\$15.80	\$0.00	\$71.05
7	85	\$44.10	\$13.75	\$15.80	\$0.00	\$73.65
8	90	\$46.69	\$13.75	\$15.80	\$0.00	\$76.24

**Notes:**

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

HVAC (DUCTWORK) SHEETMETAL WORKERS LOCAL 17 - A	08/01/2021	\$51.95	\$13.80	\$25.60	\$2.74	\$94.09
	02/01/2022	\$53.70	\$13.80	\$25.60	\$2.79	\$95.89
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (ELECTRICAL CONTROLS) ELECTRICIANS LOCAL 223	09/01/2020	\$43.66	\$10.90	\$14.66	\$0.00	\$69.22
For apprentice rates see "Apprentice- ELECTRICIAN"						
HVAC (TESTING AND BALANCING - AIR) SHEETMETAL WORKERS LOCAL 17 - A	08/01/2021	\$51.95	\$13.80	\$25.60	\$2.74	\$94.09
	02/01/2022	\$53.70	\$13.80	\$25.60	\$2.79	\$95.89
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (TESTING AND BALANCING -WATER) PLUMBERS & PIPEFITTERS LOCAL 51	08/31/2020	\$44.69	\$10.15	\$19.80	\$0.00	\$74.64
	08/30/2021	\$46.69	\$10.15	\$19.80	\$0.00	\$76.64
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HVAC MECHANIC PLUMBERS & PIPEFITTERS LOCAL 51	08/31/2020	\$44.69	\$10.15	\$19.80	\$0.00	\$74.64
	08/30/2021	\$46.69	\$10.15	\$19.80	\$0.00	\$76.64
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>	06/01/2021	\$35.75	\$8.60	\$16.64	\$0.00	\$60.99
	12/01/2021	\$36.66	\$8.60	\$16.64	\$0.00	\$61.90
	06/01/2022	\$37.56	\$8.60	\$16.64	\$0.00	\$62.80
	12/01/2022	\$38.41	\$8.60	\$16.64	\$0.00	\$63.65
	06/01/2023	\$39.31	\$8.60	\$16.64	\$0.00	\$64.55
	12/01/2023	\$40.21	\$8.60	\$16.64	\$0.00	\$65.45
For apprentice rates see "Apprentice- LABORER"						
HYDRAULIC DRILLS (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY &amp; HIGHWAY)</i>	06/01/2021	\$35.75	\$8.60	\$16.64	\$0.00	\$60.99
	12/01/2021	\$36.66	\$8.60	\$16.64	\$0.00	\$61.90
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
INSULATOR (PIPES & TANKS) <i>HEAT &amp; FROST INSULATORS LOCAL 6 (SOUTHERN MASS)</i>	09/01/2020	\$44.10	\$13.80	\$17.14	\$0.00	\$75.04
	09/01/2021	\$46.50	\$13.80	\$17.14	\$0.00	\$77.44
	09/01/2022	\$48.95	\$13.80	\$17.14	\$0.00	\$79.89

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

**Effective Date - 09/01/2020**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.05	\$13.80	\$12.42	\$0.00	\$48.27
2	60	\$26.46	\$13.80	\$13.36	\$0.00	\$53.62
3	70	\$30.87	\$13.80	\$14.31	\$0.00	\$58.98
4	80	\$35.28	\$13.80	\$15.25	\$0.00	\$64.33

**Effective Date - 09/01/2021**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.25	\$13.80	\$12.42	\$0.00	\$49.47
2	60	\$27.90	\$13.80	\$13.36	\$0.00	\$55.06
3	70	\$32.55	\$13.80	\$14.31	\$0.00	\$60.66
4	80	\$37.20	\$13.80	\$15.25	\$0.00	\$66.25

**Notes:**

Steps are 1 year

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

IRONWORKER/WELDER <i>IRONWORKERS LOCAL 37</i>	03/16/2021	\$42.46	\$7.70	\$17.10	\$0.00	\$67.26
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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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**Apprentice - IRONWORKER - Local 37**

**Effective Date - 03/16/2021**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	70	\$29.72	\$7.70	\$17.10	\$0.00	\$54.52
2	75	\$31.85	\$7.70	\$17.10	\$0.00	\$56.65
3	80	\$33.97	\$7.70	\$17.10	\$0.00	\$58.77
4	85	\$36.09	\$7.70	\$17.10	\$0.00	\$60.89
5	90	\$38.21	\$7.70	\$17.10	\$0.00	\$63.01
6	95	\$40.34	\$7.70	\$17.10	\$0.00	\$65.14

**Notes:**

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

JACKHAMMER & PAVING BREAKER OPERATOR LABORERS - ZONE 2	06/01/2021	\$35.25	\$8.60	\$16.64	\$0.00	\$60.49
	12/01/2021	\$36.16	\$8.60	\$16.64	\$0.00	\$61.40
	06/01/2022	\$37.06	\$8.60	\$16.64	\$0.00	\$62.30
	12/01/2022	\$37.91	\$8.60	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.81	\$8.60	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.71	\$8.60	\$16.64	\$0.00	\$64.95
For apprentice rates see "Apprentice- LABORER"						
LABORER LABORERS - ZONE 2	06/01/2021	\$35.00	\$8.60	\$16.64	\$0.00	\$60.24
	12/01/2021	\$35.91	\$8.60	\$16.64	\$0.00	\$61.15
	06/01/2022	\$36.81	\$8.60	\$16.64	\$0.00	\$62.05
	12/01/2022	\$37.66	\$8.60	\$16.64	\$0.00	\$62.90
	06/01/2023	\$38.56	\$8.60	\$16.64	\$0.00	\$63.80
	12/01/2023	\$39.46	\$8.60	\$16.64	\$0.00	\$64.70

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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**Apprentice - LABORER - Zone 2**

**Effective Date - 06/01/2021**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$21.00	\$8.60	\$16.64	\$0.00	\$46.24
2	70	\$24.50	\$8.60	\$16.64	\$0.00	\$49.74
3	80	\$28.00	\$8.60	\$16.64	\$0.00	\$53.24
4	90	\$31.50	\$8.60	\$16.64	\$0.00	\$56.74

**Effective Date - 12/01/2021**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$21.55	\$8.60	\$16.64	\$0.00	\$46.79
2	70	\$25.14	\$8.60	\$16.64	\$0.00	\$50.38
3	80	\$28.73	\$8.60	\$16.64	\$0.00	\$53.97
4	90	\$32.32	\$8.60	\$16.64	\$0.00	\$57.56

**Notes:**

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

LABORER (HEAVY & HIGHWAY)	06/01/2021	\$35.00	\$8.60	\$16.64	\$0.00	\$60.24
LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/01/2021	\$35.91	\$8.60	\$16.64	\$0.00	\$61.15

**Apprentice - LABORER (Heavy & Highway) - Zone 2**

**Effective Date - 06/01/2021**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$21.00	\$8.60	\$16.64	\$0.00	\$46.24
2	70	\$24.50	\$8.60	\$16.64	\$0.00	\$49.74
3	80	\$28.00	\$8.60	\$16.64	\$0.00	\$53.24
4	90	\$31.50	\$8.60	\$16.64	\$0.00	\$56.74

**Effective Date - 12/01/2021**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$21.55	\$8.60	\$16.64	\$0.00	\$46.79
2	70	\$25.14	\$8.60	\$16.64	\$0.00	\$50.38
3	80	\$28.73	\$8.60	\$16.64	\$0.00	\$53.97
4	90	\$32.32	\$8.60	\$16.64	\$0.00	\$57.56

**Notes:**

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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LABORER: CARPENTER TENDER <i>LABORERS - ZONE 2</i>	06/01/2021	\$35.00	\$8.60	\$16.64	\$0.00	\$60.24
	12/01/2021	\$35.91	\$8.60	\$16.64	\$0.00	\$61.15
	06/01/2022	\$36.81	\$8.60	\$16.64	\$0.00	\$62.05
	12/01/2022	\$37.66	\$8.60	\$16.64	\$0.00	\$62.90
	06/01/2023	\$38.56	\$8.60	\$16.64	\$0.00	\$63.80
	12/01/2023	\$39.46	\$8.60	\$16.64	\$0.00	\$64.70
For apprentice rates see "Apprentice- LABORER"						
LABORER: CEMENT FINISHER TENDER <i>LABORERS - ZONE 2</i>	06/01/2021	\$35.00	\$8.60	\$16.64	\$0.00	\$60.24
	12/01/2021	\$35.91	\$8.60	\$16.64	\$0.00	\$61.15
	06/01/2022	\$36.81	\$8.60	\$16.64	\$0.00	\$62.05
	12/01/2022	\$37.66	\$8.60	\$16.64	\$0.00	\$62.90
	06/01/2023	\$38.56	\$8.60	\$16.64	\$0.00	\$63.80
	12/01/2023	\$39.46	\$8.60	\$16.64	\$0.00	\$64.70
For apprentice rates see "Apprentice- LABORER"						
LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER <i>LABORERS - ZONE 2</i>	06/01/2021	\$35.09	\$8.60	\$16.70	\$0.00	\$60.39
	12/01/2021	\$36.00	\$8.60	\$16.70	\$0.00	\$61.30
	06/01/2022	\$36.90	\$8.60	\$16.70	\$0.00	\$62.20
	12/01/2022	\$37.75	\$8.60	\$16.70	\$0.00	\$63.05
	06/01/2023	\$38.65	\$8.60	\$16.70	\$0.00	\$63.95
	12/01/2023	\$39.55	\$8.60	\$16.70	\$0.00	\$64.85
For apprentice rates see "Apprentice- LABORER"						
LABORER: MASON TENDER <i>LABORERS - ZONE 2</i>	06/01/2021	\$35.25	\$8.60	\$16.64	\$0.00	\$60.49
	12/01/2021	\$36.16	\$8.60	\$16.64	\$0.00	\$61.40
	06/01/2022	\$37.06	\$8.60	\$16.64	\$0.00	\$62.30
	12/01/2022	\$37.91	\$8.60	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.81	\$8.60	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.71	\$8.60	\$16.64	\$0.00	\$64.95
For apprentice rates see "Apprentice- LABORER"						
LABORER: MASON TENDER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY &amp; HIGHWAY)</i>	06/01/2021	\$35.25	\$8.60	\$16.64	\$0.00	\$60.49
	12/01/2021	\$36.16	\$8.60	\$16.64	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
LABORER: MULTI-TRADE TENDER <i>LABORERS - ZONE 2</i>	06/01/2021	\$35.00	\$8.60	\$16.64	\$0.00	\$60.24
	12/01/2021	\$35.91	\$8.60	\$16.64	\$0.00	\$61.15
	06/01/2022	\$36.81	\$8.60	\$16.64	\$0.00	\$62.05
	12/01/2022	\$37.66	\$8.60	\$16.64	\$0.00	\$62.90
	06/01/2023	\$38.56	\$8.60	\$16.64	\$0.00	\$63.80
	12/01/2023	\$39.46	\$8.60	\$16.64	\$0.00	\$64.70
For apprentice rates see "Apprentice- LABORER"						
LABORER: TREE REMOVER <i>LABORERS - ZONE 2</i>	06/01/2021	\$35.00	\$8.60	\$16.64	\$0.00	\$60.24
	12/01/2021	\$35.91	\$8.60	\$16.64	\$0.00	\$61.15
	06/01/2022	\$36.81	\$8.60	\$16.64	\$0.00	\$62.05
	12/01/2022	\$37.66	\$8.60	\$16.64	\$0.00	\$62.90
	06/01/2023	\$38.56	\$8.60	\$16.64	\$0.00	\$63.80
	12/01/2023	\$39.46	\$8.60	\$16.64	\$0.00	\$64.70

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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LASER BEAM OPERATOR <i>LABORERS - ZONE 2</i>	06/01/2021	\$35.25	\$8.60	\$16.64	\$0.00	\$60.49
	12/01/2021	\$36.16	\$8.60	\$16.64	\$0.00	\$61.40
	06/01/2022	\$37.06	\$8.60	\$16.64	\$0.00	\$62.30
	12/01/2022	\$37.91	\$8.60	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.81	\$8.60	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.71	\$8.60	\$16.64	\$0.00	\$64.95
For apprentice rates see "Apprentice- LABORER"						
LASER BEAM OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY &amp; HIGHWAY)</i>	06/01/2021	\$35.25	\$8.60	\$16.64	\$0.00	\$60.49
	12/01/2021	\$36.16	\$8.60	\$16.64	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
MARBLE & TILE FINISHERS <i>BRICKLAYERS LOCAL 3 - MARBLE &amp; TILE</i>	08/01/2021	\$43.69	\$11.39	\$20.30	\$0.00	\$75.38
	02/01/2022	\$44.16	\$11.39	\$20.30	\$0.00	\$75.85

**Apprentice - MARBLE & TILE FINISHER - Local 3 Marble & Tile**

**Effective Date - 08/01/2021**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.85	\$11.39	\$20.30	\$0.00	\$53.54
2	60	\$26.21	\$11.39	\$20.30	\$0.00	\$57.90
3	70	\$30.58	\$11.39	\$20.30	\$0.00	\$62.27
4	80	\$34.95	\$11.39	\$20.30	\$0.00	\$66.64
5	90	\$39.32	\$11.39	\$20.30	\$0.00	\$71.01

**Effective Date - 02/01/2022**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.08	\$11.39	\$20.30	\$0.00	\$53.77
2	60	\$26.50	\$11.39	\$20.30	\$0.00	\$58.19
3	70	\$30.91	\$11.39	\$20.30	\$0.00	\$62.60
4	80	\$35.33	\$11.39	\$20.30	\$0.00	\$67.02
5	90	\$39.74	\$11.39	\$20.30	\$0.00	\$71.43

**Notes:**

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

MARBLE MASONS,TILELAYERS & TERRAZZO MECH <i>BRICKLAYERS LOCAL 3 - MARBLE &amp; TILE</i>	08/01/2021	\$57.17	\$11.39	\$22.24	\$0.00	\$90.80
	02/01/2022	\$57.74	\$11.39	\$22.24	\$0.00	\$91.37

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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**Apprentice - MARBLE-TILE-TERRAZZO MECHANIC - Local 3 Marble & Tile**

**Effective Date - 08/01/2021**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$28.59	\$11.39	\$22.24	\$0.00	\$62.22
2	60	\$34.30	\$11.39	\$22.24	\$0.00	\$67.93
3	70	\$40.02	\$11.39	\$22.24	\$0.00	\$73.65
4	80	\$45.74	\$11.39	\$22.24	\$0.00	\$79.37
5	90	\$51.45	\$11.39	\$22.24	\$0.00	\$85.08

**Effective Date - 02/01/2022**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$28.87	\$11.39	\$22.24	\$0.00	\$62.50
2	60	\$34.64	\$11.39	\$22.24	\$0.00	\$68.27
3	70	\$40.42	\$11.39	\$22.24	\$0.00	\$74.05
4	80	\$46.19	\$11.39	\$22.24	\$0.00	\$79.82
5	90	\$51.97	\$11.39	\$22.24	\$0.00	\$85.60

**Notes:**

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

MECH. SWEEPER OPERATOR (ON CONST. SITES) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2021	\$50.19	\$13.75	\$15.80	\$0.00	\$79.74
For apprentice rates see "Apprentice- OPERATING ENGINEERS"	12/01/2021	\$51.33	\$13.75	\$15.80	\$0.00	\$80.88
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MECHANICS MAINTENANCE <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2021	\$50.19	\$13.75	\$15.80	\$0.00	\$79.74
For apprentice rates see "Apprentice- OPERATING ENGINEERS"	12/01/2021	\$51.33	\$13.75	\$15.80	\$0.00	\$80.88
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MILLWRIGHT (Zone 2) <i>MILLWRIGHTS LOCAL 1121 - Zone 2</i>	03/01/2021	\$39.42	\$8.58	\$21.57	\$0.00	\$69.57
	01/03/2022	\$40.67	\$8.58	\$21.57	\$0.00	\$70.82
	01/02/2023	\$41.92	\$8.58	\$21.57	\$0.00	\$72.07

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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**Apprentice - MILLWRIGHT - Local 1121 Zone 2**

**Effective Date - 03/01/2021**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$21.68	\$8.58	\$5.72	\$0.00	\$35.98
2	65	\$25.62	\$8.58	\$17.93	\$0.00	\$52.13
3	75	\$29.57	\$8.58	\$18.98	\$0.00	\$57.13
4	85	\$33.51	\$8.58	\$20.01	\$0.00	\$62.10

**Effective Date - 01/03/2022**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$22.37	\$8.58	\$5.72	\$0.00	\$36.67
2	65	\$26.44	\$8.58	\$17.93	\$0.00	\$52.95
3	75	\$30.50	\$8.58	\$18.98	\$0.00	\$58.06
4	85	\$34.57	\$8.58	\$20.01	\$0.00	\$63.16

**Notes:** Step 1&2 Appr. indentured after 1/6/2020 receive no pension, but do receive annuity. (Step 1 \$5.72, Step 2 \$6.66)  
Steps are 2,000 hours

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

MORTAR MIXER <i>LABORERS - ZONE 2</i>	06/01/2021	\$35.25	\$8.60	\$16.64	\$0.00	\$60.49
	12/01/2021	\$36.16	\$8.60	\$16.64	\$0.00	\$61.40
	06/01/2022	\$37.06	\$8.60	\$16.64	\$0.00	\$62.30
	12/01/2022	\$37.91	\$8.60	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.81	\$8.60	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.71	\$8.60	\$16.64	\$0.00	\$64.95
For apprentice rates see "Apprentice- LABORER"						
OILER (OTHER THAN TRUCK CRANES,GRADALLS) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2021	\$23.40	\$13.75	\$15.80	\$0.00	\$52.95
	12/01/2021	\$23.98	\$13.75	\$15.80	\$0.00	\$53.53
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OILER (TRUCK CRANES, GRADALLS) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2021	\$28.26	\$13.75	\$15.80	\$0.00	\$57.81
	12/01/2021	\$28.94	\$13.75	\$15.80	\$0.00	\$58.49
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OTHER POWER DRIVEN EQUIPMENT - CLASS II <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2021	\$50.19	\$13.75	\$15.80	\$0.00	\$79.74
	12/01/2021	\$51.33	\$13.75	\$15.80	\$0.00	\$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PAINTER (BRIDGES/TANKS) <i>PAINTERS LOCAL 35 - ZONE 2</i>	01/01/2021	\$52.06	\$8.25	\$22.75	\$0.00	\$83.06

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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**Apprentice - PAINTER Local 35 - BRIDGES/TANKS**

**Effective Date - 01/01/2021**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.03	\$8.25	\$0.00	\$0.00	\$34.28
2	55	\$28.63	\$8.25	\$6.16	\$0.00	\$43.04
3	60	\$31.24	\$8.25	\$6.72	\$0.00	\$46.21
4	65	\$33.84	\$8.25	\$7.28	\$0.00	\$49.37
5	70	\$36.44	\$8.25	\$19.39	\$0.00	\$64.08
6	75	\$39.05	\$8.25	\$19.95	\$0.00	\$67.25
7	80	\$41.65	\$8.25	\$20.51	\$0.00	\$70.41
8	90	\$46.85	\$8.25	\$21.63	\$0.00	\$76.73

**Notes:**

Steps are 750 hrs.

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

PAINTER (SPRAY OR SANDBLAST, NEW) \*

01/01/2021      \$42.96      \$8.25      \$22.75      \$0.00      \$73.96

\* If 30% or more of surfaces to be painted are new construction,

NEW paint rate shall be used. PAINTERS LOCAL 35 - ZONE 2

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

**Effective Date - 01/01/2021**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.48	\$8.25	\$0.00	\$0.00	\$29.73
2	55	\$23.63	\$8.25	\$6.16	\$0.00	\$38.04
3	60	\$25.78	\$8.25	\$6.72	\$0.00	\$40.75
4	65	\$27.92	\$8.25	\$7.28	\$0.00	\$43.45
5	70	\$30.07	\$8.25	\$19.39	\$0.00	\$57.71
6	75	\$32.22	\$8.25	\$19.95	\$0.00	\$60.42
7	80	\$34.37	\$8.25	\$20.51	\$0.00	\$63.13
8	90	\$38.66	\$8.25	\$21.63	\$0.00	\$68.54

**Notes:**

Steps are 750 hrs.

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

PAINTER (SPRAY OR SANDBLAST, REPAINT)

01/01/2021      \$41.02      \$8.25      \$22.75      \$0.00      \$72.02

PAINTERS LOCAL 35 - ZONE 2

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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**Apprentice - PAINTER Local 35 Zone 2 - Spray/Sandblast - Repaint**

**Effective Date - 01/01/2021**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.51	\$8.25	\$0.00	\$0.00	\$28.76
2	55	\$22.56	\$8.25	\$6.16	\$0.00	\$36.97
3	60	\$24.61	\$8.25	\$6.72	\$0.00	\$39.58
4	65	\$26.66	\$8.25	\$7.28	\$0.00	\$42.19
5	70	\$28.71	\$8.25	\$19.39	\$0.00	\$56.35
6	75	\$30.77	\$8.25	\$19.95	\$0.00	\$58.97
7	80	\$32.82	\$8.25	\$20.51	\$0.00	\$61.58
8	90	\$36.92	\$8.25	\$21.63	\$0.00	\$66.80

**Notes:**

Steps are 750 hrs.

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

PAINTER / TAPER (BRUSH, NEW) *	01/01/2021	\$41.56	\$8.25	\$22.75	\$0.00	\$72.56
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. PAINTERS LOCAL 35 - ZONE 2						

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

**Effective Date - 01/01/2021**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.78	\$8.25	\$0.00	\$0.00	\$29.03
2	55	\$22.86	\$8.25	\$6.16	\$0.00	\$37.27
3	60	\$24.94	\$8.25	\$6.72	\$0.00	\$39.91
4	65	\$27.01	\$8.25	\$7.28	\$0.00	\$42.54
5	70	\$29.09	\$8.25	\$19.39	\$0.00	\$56.73
6	75	\$31.17	\$8.25	\$19.95	\$0.00	\$59.37
7	80	\$33.25	\$8.25	\$20.51	\$0.00	\$62.01
8	90	\$37.40	\$8.25	\$21.63	\$0.00	\$67.28

**Notes:**

Steps are 750 hrs.

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

PAINTER / TAPER (BRUSH, REPAINT) PAINTERS LOCAL 35 - ZONE 2	01/01/2021	\$39.62	\$8.25	\$22.75	\$0.00	\$70.62
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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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**Apprentice - PAINTER Local 35 Zone 2 - BRUSH REPAINT**

**Effective Date - 01/01/2021**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.81	\$8.25	\$0.00	\$0.00	\$28.06
2	55	\$21.79	\$8.25	\$6.16	\$0.00	\$36.20
3	60	\$23.77	\$8.25	\$6.72	\$0.00	\$38.74
4	65	\$25.75	\$8.25	\$7.28	\$0.00	\$41.28
5	70	\$27.73	\$8.25	\$19.39	\$0.00	\$55.37
6	75	\$29.72	\$8.25	\$19.95	\$0.00	\$57.92
7	80	\$31.70	\$8.25	\$20.51	\$0.00	\$60.46
8	90	\$35.66	\$8.25	\$21.63	\$0.00	\$65.54

**Notes:**

Steps are 750 hrs.

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

PAINTER TRAFFIC MARKINGS (HEAVY/HIGHWAY) LABORERS - ZONE 2 (HEAVY & HIGHWAY)	06/01/2021	\$35.00	\$8.60	\$16.64	\$0.00	\$60.24
	12/01/2021	\$35.91	\$8.60	\$16.64	\$0.00	\$61.15
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
PANEL & PICKUP TRUCKS DRIVER TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	08/01/2021	\$35.78	\$13.41	\$14.82	\$0.00	\$64.01
	12/01/2021	\$35.78	\$13.41	\$16.01	\$0.00	\$65.20
PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK) PILE DRIVER LOCAL 56 (ZONE 1)	08/01/2020	\$49.07	\$9.40	\$23.12	\$0.00	\$81.59
For apprentice rates see "Apprentice- PILE DRIVER"						
PILE DRIVER PILE DRIVER LOCAL 56 (ZONE 1)	08/01/2020	\$49.07	\$9.40	\$23.12	\$0.00	\$81.59

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

**Effective Date - 08/01/2020**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.54	\$9.40	\$23.12	\$0.00	\$57.06
2	60	\$29.44	\$9.40	\$23.12	\$0.00	\$61.96
3	70	\$34.35	\$9.40	\$23.12	\$0.00	\$66.87
4	75	\$36.80	\$9.40	\$23.12	\$0.00	\$69.32
5	80	\$39.26	\$9.40	\$23.12	\$0.00	\$71.78
6	80	\$39.26	\$9.40	\$23.12	\$0.00	\$71.78
7	90	\$44.16	\$9.40	\$23.12	\$0.00	\$76.68
8	90	\$44.16	\$9.40	\$23.12	\$0.00	\$76.68

**Notes:**

% Indentured After 10/1/17; 45/45/55/55/70/70/80/80

Step 1&2 \$34.01/ 3&4 \$41.46/ 5&6 \$62.80/ 7&8 \$69.25

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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PIPELAYER LABORERS - ZONE 2	06/01/2021	\$35.25	\$8.60	\$16.64	\$0.00	\$60.49
	12/01/2021	\$36.16	\$8.60	\$16.64	\$0.00	\$61.40
	06/01/2022	\$37.06	\$8.60	\$16.64	\$0.00	\$62.30
	12/01/2022	\$37.91	\$8.60	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.81	\$8.60	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.71	\$8.60	\$16.64	\$0.00	\$64.95

For apprentice rates see "Apprentice- LABORER"

PIPELAYER (HEAVY & HIGHWAY) LABORERS - ZONE 2 (HEAVY & HIGHWAY)	06/01/2021	\$35.25	\$8.60	\$16.64	\$0.00	\$60.49
	12/01/2021	\$36.16	\$8.60	\$16.64	\$0.00	\$61.40

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

PLUMBER & PIPEFITTER PLUMBERS & PIPEFITTERS LOCAL 51	08/31/2020	\$44.69	\$10.15	\$19.80	\$0.00	\$74.64
	08/30/2021	\$46.69	\$10.15	\$19.80	\$0.00	\$76.64

#### Apprentice - PLUMBER/PIPEFITTER - Local 51

**Effective Date - 08/31/2020**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$17.88	\$10.15	\$2.50	\$0.00	\$30.53
2	50	\$22.35	\$10.15	\$2.50	\$0.00	\$35.00
3	60	\$26.81	\$10.15	\$8.73	\$0.00	\$45.69
4	70	\$31.28	\$10.15	\$10.60	\$0.00	\$52.03
5	80	\$35.75	\$10.15	\$17.45	\$0.00	\$63.35

**Effective Date - 08/30/2021**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$18.68	\$10.15	\$2.50	\$0.00	\$31.33
2	50	\$23.35	\$10.15	\$2.50	\$0.00	\$36.00
3	60	\$28.01	\$10.15	\$8.73	\$0.00	\$46.89
4	70	\$32.68	\$10.15	\$10.60	\$0.00	\$53.43
5	80	\$37.35	\$10.15	\$17.45	\$0.00	\$64.95

#### Notes:

Steps 2000hrs. Prior 9/1/05; 40/40/45/50/55/60/65/75/80/85

#### Apprentice to Journeyworker Ratio:1:3

PNEUMATIC CONTROLS (TEMP.) PLUMBERS & PIPEFITTERS LOCAL 51	08/31/2020	\$44.69	\$10.15	\$19.80	\$0.00	\$74.64
	08/30/2021	\$46.69	\$10.15	\$19.80	\$0.00	\$76.64

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

PNEUMATIC DRILL/TOOL OPERATOR LABORERS - ZONE 2	06/01/2021	\$35.25	\$8.60	\$16.64	\$0.00	\$60.49
	12/01/2021	\$36.16	\$8.60	\$16.64	\$0.00	\$61.40
	06/01/2022	\$37.06	\$8.60	\$16.64	\$0.00	\$62.30
	12/01/2022	\$37.91	\$8.60	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.81	\$8.60	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.71	\$8.60	\$16.64	\$0.00	\$64.95

For apprentice rates see "Apprentice- LABORER"

PNEUMATIC DRILL/TOOL OPERATOR (HEAVY & HIGHWAY) LABORERS - ZONE 2 (HEAVY & HIGHWAY)	06/01/2021	\$35.25	\$8.60	\$16.64	\$0.00	\$60.49
	12/01/2021	\$36.16	\$8.60	\$16.64	\$0.00	\$61.40

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
POWDERMAN & BLASTER	06/01/2021	\$36.00	\$8.60	\$16.64	\$0.00	\$61.24
LABORERS - ZONE 2	12/01/2021	\$36.91	\$8.60	\$16.64	\$0.00	\$62.15
	06/01/2022	\$37.81	\$8.60	\$16.64	\$0.00	\$63.05
	12/01/2022	\$38.66	\$8.60	\$16.64	\$0.00	\$63.90
	06/01/2023	\$39.56	\$8.60	\$16.64	\$0.00	\$64.80
	12/01/2023	\$40.46	\$8.60	\$16.64	\$0.00	\$65.70
For apprentice rates see "Apprentice- LABORER"						
POWDERMAN & BLASTER (HEAVY & HIGHWAY)	06/01/2021	\$36.00	\$8.60	\$16.64	\$0.00	\$61.24
LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/01/2021	\$36.91	\$8.60	\$16.64	\$0.00	\$62.15
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
POWER SHOVEL/DERRICK/TRENCHING MACHINE	06/01/2021	\$50.73	\$13.75	\$15.80	\$0.00	\$80.28
OPERATING ENGINEERS LOCAL 4	12/01/2021	\$51.88	\$13.75	\$15.80	\$0.00	\$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (CONCRETE)	06/01/2021	\$50.73	\$13.75	\$15.80	\$0.00	\$80.28
OPERATING ENGINEERS LOCAL 4	12/01/2021	\$51.88	\$13.75	\$15.80	\$0.00	\$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (DEWATERING, OTHER)	06/01/2021	\$33.40	\$13.75	\$15.80	\$0.00	\$62.95
OPERATING ENGINEERS LOCAL 4	12/01/2021	\$34.19	\$13.75	\$15.80	\$0.00	\$63.74
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
READY-MIX CONCRETE DRIVER	01/01/2021	\$25.00	\$9.31	\$3.20	\$0.00	\$37.51
TEAMSTERS 170 - Dauphinais (Bellingham)	12/01/2021	\$25.75	\$9.76	\$4.00	\$0.00	\$39.51
	01/01/2022	\$25.75	\$9.76	\$4.00	\$0.00	\$39.51
	12/01/2022	\$26.40	\$10.26	\$4.75	\$0.00	\$41.41
	01/01/2023	\$26.40	\$10.26	\$4.75	\$0.00	\$41.41
	12/01/2023	\$27.00	\$10.76	\$5.45	\$0.00	\$43.21
	01/01/2024	\$27.00	\$10.76	\$5.45	\$0.00	\$43.21
	12/01/2024	\$27.60	\$11.26	\$6.15	\$0.00	\$45.01
	01/01/2025	\$27.60	\$11.26	\$6.15	\$0.00	\$45.01
RECLAIMERS	06/01/2021	\$50.19	\$13.75	\$15.80	\$0.00	\$79.74
OPERATING ENGINEERS LOCAL 4	12/01/2021	\$51.33	\$13.75	\$15.80	\$0.00	\$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
RIDE-ON MOTORIZED BUGGY OPERATOR	06/01/2021	\$35.25	\$8.60	\$16.64	\$0.00	\$60.49
LABORERS - ZONE 2	12/01/2021	\$36.16	\$8.60	\$16.64	\$0.00	\$61.40
	06/01/2022	\$37.06	\$8.60	\$16.64	\$0.00	\$62.30
	12/01/2022	\$37.91	\$8.60	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.81	\$8.60	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.71	\$8.60	\$16.64	\$0.00	\$64.95
For apprentice rates see "Apprentice- LABORER"						
ROLLER/SPREADER/MULCHING MACHINE	06/01/2021	\$50.19	\$13.75	\$15.80	\$0.00	\$79.74
OPERATING ENGINEERS LOCAL 4	12/01/2021	\$51.33	\$13.75	\$15.80	\$0.00	\$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
ROOFER (Inc.Roof Waterproofig &Roof Damproofig)	08/01/2021	\$47.03	\$12.28	\$18.15	\$0.00	\$77.46
ROOFERS LOCAL 33	02/01/2022	\$48.46	\$12.28	\$18.15	\$0.00	\$78.89

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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**Apprentice - ROOFER - Local 33**

**Effective Date - 08/01/2021**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.52	\$12.28	\$4.56	\$0.00	\$40.36
2	60	\$28.22	\$12.28	\$18.15	\$0.00	\$58.65
3	65	\$30.57	\$12.28	\$18.15	\$0.00	\$61.00
4	75	\$35.27	\$12.28	\$18.15	\$0.00	\$65.70
5	85	\$39.98	\$12.28	\$18.15	\$0.00	\$70.41

**Effective Date - 02/01/2022**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.23	\$12.28	\$4.56	\$0.00	\$41.07
2	60	\$29.08	\$12.28	\$18.15	\$0.00	\$59.51
3	65	\$31.50	\$12.28	\$18.15	\$0.00	\$61.93
4	75	\$36.35	\$12.28	\$18.15	\$0.00	\$66.78
5	85	\$41.19	\$12.28	\$18.15	\$0.00	\$71.62

**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.

(Hot Pitch Mechanics' receive \$1.00 hr. above ROOFER)

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

ROOFER SLATE / TILE / PRECAST CONCRETE ROOFERS LOCAL 33	08/01/2021	\$47.28	\$12.28	\$18.15	\$0.00	\$77.71
	02/01/2022	\$48.71	\$12.28	\$18.15	\$0.00	\$79.14
For apprentice rates see "Apprentice- ROOFER"						
<b>SHEETMETAL WORKER</b>						
SHEETMETAL WORKERS LOCAL 17 - A	08/01/2021	\$51.95	\$13.80	\$25.60	\$2.74	\$94.09
	02/01/2022	\$53.70	\$13.80	\$25.60	\$2.79	\$95.89

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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**Apprentice - SHEET METAL WORKER - Local 17-A**

**Effective Date - 08/01/2021**

Step	percent	Apprentice	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	42		\$21.82	\$13.80	\$6.01	\$0.00	\$41.63
2	42		\$21.82	\$13.80	\$6.01	\$0.00	\$41.63
3	47		\$24.42	\$13.80	\$11.26	\$1.48	\$50.96
4	47		\$24.42	\$13.80	\$11.26	\$1.48	\$50.96
5	52		\$27.01	\$13.80	\$12.23	\$1.59	\$54.63
6	52		\$27.01	\$13.80	\$12.48	\$1.60	\$54.89
7	60		\$31.17	\$13.80	\$13.87	\$1.77	\$60.61
8	65		\$33.77	\$13.80	\$14.84	\$1.87	\$64.28
9	75		\$38.96	\$13.80	\$16.77	\$2.09	\$71.62
10	85		\$44.16	\$13.80	\$18.20	\$2.28	\$78.44

**Effective Date - 02/01/2022**

Step	percent	Apprentice	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	42		\$22.55	\$13.80	\$6.01	\$0.00	\$42.36
2	42		\$22.55	\$13.80	\$6.01	\$0.00	\$42.36
3	47		\$25.24	\$13.80	\$11.26	\$1.51	\$51.81
4	47		\$25.24	\$13.80	\$11.26	\$1.51	\$51.81
5	52		\$27.92	\$13.80	\$12.23	\$1.62	\$55.57
6	52		\$27.92	\$13.80	\$12.48	\$1.63	\$55.83
7	60		\$32.22	\$13.80	\$13.87	\$1.80	\$61.69
8	65		\$34.91	\$13.80	\$14.84	\$1.91	\$65.46
9	75		\$40.28	\$13.80	\$16.77	\$2.13	\$72.98
10	85		\$45.65	\$13.80	\$18.20	\$2.33	\$79.98

**Notes:**

Steps are 6 mos.

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

SPECIALIZED EARTH MOVING EQUIP < 35 TONS TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	08/01/2021	\$36.24	\$13.41	\$14.82	\$0.00	\$64.47
	12/01/2021	\$36.24	\$13.41	\$16.01	\$0.00	\$65.66
SPECIALIZED EARTH MOVING EQUIP > 35 TONS TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	08/01/2021	\$36.53	\$13.41	\$14.82	\$0.00	\$64.76
	12/01/2021	\$36.53	\$13.41	\$16.01	\$0.00	\$65.95
SPRINKLER FITTER SPRINKLER FITTERS LOCAL 550 - (Section A) Zone 1	03/01/2021	\$62.45	\$10.00	\$21.25	\$0.00	\$93.70

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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**Apprentice - SPRINKLER FITTER - Local 550 (Section A) Zone 1**

**Effective Date - 03/01/2021**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$21.86	\$10.00	\$11.99	\$0.00	\$43.85
2	40	\$24.98	\$10.00	\$12.70	\$0.00	\$47.68
3	45	\$28.10	\$10.00	\$13.41	\$0.00	\$51.51
4	50	\$31.23	\$10.00	\$14.13	\$0.00	\$55.36
5	55	\$34.35	\$10.00	\$14.84	\$0.00	\$59.19
6	60	\$37.47	\$10.00	\$15.55	\$0.00	\$63.02
7	65	\$40.59	\$10.00	\$16.26	\$0.00	\$66.85
8	70	\$43.72	\$10.00	\$16.98	\$0.00	\$70.70
9	75	\$46.84	\$10.00	\$17.69	\$0.00	\$74.53
10	80	\$49.96	\$10.00	\$18.40	\$0.00	\$78.36

**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**

STEAM BOILER OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2021	\$50.19	\$13.75	\$15.80	\$0.00	\$79.74
	12/01/2021	\$51.33	\$13.75	\$15.80	\$0.00	\$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2021	\$50.19	\$13.75	\$15.80	\$0.00	\$79.74
	12/01/2021	\$51.33	\$13.75	\$15.80	\$0.00	\$80.88
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TELECOMMUNICATION TECHNICIAN <i>ELECTRICIANS LOCAL 223</i>	09/01/2020	\$36.86	\$10.90	\$12.45	\$0.00	\$60.21

**Apprentice - TELECOMMUNICATION TECHNICIAN - Local 223**

**Effective Date - 09/01/2020**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	0	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

**Notes:** See Electrician Apprentice Wages

Telecom Apprentice Wages shall be the same as the Electrician Apprentice Wages

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

TERRAZZO FINISHERS <i>BRICKLAYERS LOCAL 3 - MARBLE &amp; TILE</i>	08/01/2021	\$56.09	\$11.39	\$22.25	\$0.00	\$89.73
	02/01/2022	\$56.68	\$11.39	\$22.25	\$0.00	\$90.32

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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**Apprentice - TERRAZZO FINISHER - Local 3 Marble & Tile**

**Effective Date - 08/01/2021**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$28.05	\$11.39	\$22.25	\$0.00	\$61.69
2	60	\$33.65	\$11.39	\$22.25	\$0.00	\$67.29
3	70	\$39.26	\$11.39	\$22.25	\$0.00	\$72.90
4	80	\$44.87	\$11.39	\$22.25	\$0.00	\$78.51
5	90	\$50.48	\$11.39	\$22.25	\$0.00	\$84.12

**Effective Date - 02/01/2022**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$28.34	\$11.39	\$22.25	\$0.00	\$61.98
2	60	\$34.01	\$11.39	\$22.25	\$0.00	\$67.65
3	70	\$39.68	\$11.39	\$22.25	\$0.00	\$73.32
4	80	\$45.34	\$11.39	\$22.25	\$0.00	\$78.98
5	90	\$51.01	\$11.39	\$22.25	\$0.00	\$84.65

**Notes:**

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

TEST BORING DRILLER <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2021	\$42.07	\$8.60	\$17.72	\$0.00	\$68.39
For apprentice rates see "Apprentice- LABORER"	12/01/2021	\$43.08	\$8.60	\$17.72	\$0.00	\$69.40
<hr/>						
TEST BORING DRILLER HELPER <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2021	\$40.79	\$8.60	\$17.72	\$0.00	\$67.11
For apprentice rates see "Apprentice- LABORER"	12/01/2021	\$41.80	\$8.60	\$17.72	\$0.00	\$68.12
<hr/>						
TEST BORING LABORER <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2021	\$40.67	\$8.60	\$17.72	\$0.00	\$66.99
For apprentice rates see "Apprentice- LABORER"	12/01/2021	\$41.68	\$8.60	\$17.72	\$0.00	\$68.00
<hr/>						
TRACTORS/PORTABLE STEAM GENERATORS <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2021	\$50.19	\$13.75	\$15.80	\$0.00	\$79.74
For apprentice rates see "Apprentice- OPERATING ENGINEERS"	12/01/2021	\$51.33	\$13.75	\$15.80	\$0.00	\$80.88
<hr/>						
TRAILERS FOR EARTH MOVING EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	08/01/2021	\$36.82	\$13.41	\$14.82	\$0.00	\$65.05
For apprentice rates see "Apprentice- LABORER"	12/01/2021	\$36.82	\$13.41	\$16.01	\$0.00	\$66.24
<hr/>						
TUNNEL WORK - COMPRESSED AIR <i>LABORERS (COMPRESSED AIR)</i>	06/01/2021	\$52.90	\$8.60	\$18.17	\$0.00	\$79.67
For apprentice rates see "Apprentice- LABORER"	12/01/2021	\$53.91	\$8.60	\$18.17	\$0.00	\$80.68
<hr/>						
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE) <i>LABORERS (COMPRESSED AIR)</i>	06/01/2021	\$54.90	\$8.60	\$18.17	\$0.00	\$81.67
For apprentice rates see "Apprentice- LABORER"	12/01/2021	\$55.91	\$8.60	\$18.17	\$0.00	\$82.68
<hr/>						
TUNNEL WORK - FREE AIR <i>LABORERS (FREE AIR TUNNEL)</i>	06/01/2021	\$44.97	\$8.60	\$18.17	\$0.00	\$71.74
For apprentice rates see "Apprentice- LABORER"	12/01/2021	\$45.98	\$8.60	\$18.17	\$0.00	\$72.75
<hr/>						
TUNNEL WORK - FREE AIR (HAZ. WASTE) <i>LABORERS (FREE AIR TUNNEL)</i>	06/01/2021	\$46.97	\$8.60	\$18.17	\$0.00	\$73.74
For apprentice rates see "Apprentice- LABORER"	12/01/2021	\$47.98	\$8.60	\$18.17	\$0.00	\$74.75

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- LABORER"						
VAC-HAUL <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	08/01/2021	\$36.24	\$13.41	\$14.82	\$0.00	\$64.47
	12/01/2021	\$36.24	\$13.41	\$16.01	\$0.00	\$65.66
WAGON DRILL OPERATOR <i>LABORERS - ZONE 2</i>						
	06/01/2021	\$35.25	\$8.60	\$16.64	\$0.00	\$60.49
	12/01/2021	\$36.16	\$8.60	\$16.64	\$0.00	\$61.40
	06/01/2022	\$37.06	\$8.60	\$16.64	\$0.00	\$62.30
	12/01/2022	\$37.91	\$8.60	\$16.64	\$0.00	\$63.15
	06/01/2023	\$38.81	\$8.60	\$16.64	\$0.00	\$64.05
	12/01/2023	\$39.71	\$8.60	\$16.64	\$0.00	\$64.95
For apprentice rates see "Apprentice- LABORER"						
WAGON DRILL OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY &amp; HIGHWAY)</i>	06/01/2021	\$35.25	\$8.60	\$16.64	\$0.00	\$60.49
	12/01/2021	\$36.16	\$8.60	\$16.64	\$0.00	\$61.40
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
WASTE WATER PUMP OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2021	\$50.73	\$13.75	\$15.80	\$0.00	\$80.28
	12/01/2021	\$51.88	\$13.75	\$15.80	\$0.00	\$81.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
WATER METER INSTALLER <i>PLUMBERS &amp; PIPEFITTERS LOCAL 51</i>	08/31/2020	\$44.69	\$10.15	\$19.80	\$0.00	\$74.64
	08/30/2021	\$46.69	\$10.15	\$19.80	\$0.00	\$76.64
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>	08/30/2020	\$29.67	\$9.25	\$1.89	\$0.00	\$40.81
For apprentice rates see "Apprentice- LINEMAN"						
CABLEMAN (Underground Ducts & Cables) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/30/2020	\$42.03	\$9.25	\$10.27	\$0.00	\$61.55
For apprentice rates see "Apprentice- LINEMAN"						
DRIVER / GROUNDMAN CDL <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/30/2020	\$34.62	\$9.25	\$10.07	\$0.00	\$53.94
For apprentice rates see "Apprentice- LINEMAN"						
DRIVER / GROUNDMAN -Inexperienced (<2000 Hrs) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/30/2020	\$27.20	\$9.25	\$1.82	\$0.00	\$38.27
For apprentice rates see "Apprentice- LINEMAN"						
EQUIPMENT OPERATOR (Class A CDL) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/30/2020	\$42.03	\$9.25	\$14.35	\$0.00	\$65.63
For apprentice rates see "Apprentice- LINEMAN"						
EQUIPMENT OPERATOR (Class B CDL) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/30/2020	\$37.09	\$9.25	\$10.87	\$0.00	\$57.21
For apprentice rates see "Apprentice- LINEMAN"						
GROUNDMAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/30/2020	\$27.20	\$9.25	\$1.82	\$0.00	\$38.27
For apprentice rates see "Apprentice- LINEMAN"						
GROUNDMAN -Inexperienced (<2000 Hrs.) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/30/2020	\$22.25	\$9.25	\$1.82	\$0.00	\$33.32
For apprentice rates see "Apprentice- LINEMAN"						
JOURNEYMAN LINEMAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/30/2020	\$49.45	\$9.25	\$17.48	\$0.00	\$76.18

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
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**Apprentice - LINEMAN (Outside Electrical) - East Local 104**

**Effective Date - 08/30/2020**

Step	percent	Apprentice	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60		\$29.67	\$9.25	\$3.39	\$0.00	\$42.31
2	65		\$32.14	\$9.25	\$3.46	\$0.00	\$44.85
3	70		\$34.62	\$9.25	\$3.54	\$0.00	\$47.41
4	75		\$37.09	\$9.25	\$5.11	\$0.00	\$51.45
5	80		\$39.56	\$9.25	\$5.19	\$0.00	\$54.00
6	85		\$42.03	\$9.25	\$5.26	\$0.00	\$56.54
7	90		\$44.51	\$9.25	\$7.34	\$0.00	\$61.10

**Notes:**

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

TELEDATA CABLE SPLICER <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	02/04/2019	\$30.73	\$4.70	\$3.17	\$0.00	\$38.60
TELEDATA LINEMAN/EQUIPMENT OPERATOR <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	02/04/2019	\$28.93	\$4.70	\$3.14	\$0.00	\$36.77
TELEDATA WIREMAN/INSTALLER/TECHNICIAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	02/04/2019	\$28.93	\$4.70	\$3.14	\$0.00	\$36.77

Additional Apprentice 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.

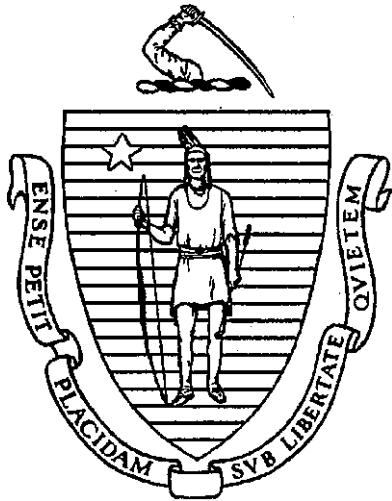
All steps are six months (1000 hours.)

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.



## **BID PACKAGE**

### **PART II**

### **Forms for Contract Execution**

- Executive Order 481
- Executive Order 504 (2 pages)
- Owner- Contractor Agreement (separate pdf file)
- 50 % Payment Bond
- Prompt Payment Discount
- Certificate of Compliance with State Tax Laws and With Unemployment Compensation Contribution Requirements
- Certificate of Compliance with Employment Eligibility Verification Requirements (I-9)
- Request for Taxpayer Identification Number and Certification (W-9) (2 pages)
- Commonwealth of Massachusetts Contractor Authorized Signatory Listing (2 pages)
- Electronic Funds Transfer Sign Up Form
- Insurance Document Required - Proof of Insurance amounts per Part 3 General Conditions of the Contract

**Forms are for Reference Only  
To be used for contract award and execution**

**COMMONWEALTH OF MASSACHUSETTS**  
**EXECUTIVE ORDER 481 - CONTRACTOR CERTIFICATION**  
 PROHIBITING THE USE OF UNDOCUMENTED WORKERS ON STATE CONTRACTS



**CONTRACTOR LEGAL NAME:**

**CONTRACTOR VENDOR/CUSTOMER CODE:**

**INSTRUCTIONS:**

Executive Order 481 applies to all state agencies in the Executive Branch, including all executive offices, boards, commissions, agencies, departments, divisions, councils, bureaus, and offices, now existing and hereafter established. As it is the policy of the Executive Branch to prohibit the use of undocumented workers in connection with the performance of state contracts, all contracts entered into after February 23, 2007 require that contractors, as a condition of receiving Commonwealth funds under any Executive Branch contract, make the following certification:

**CONTRACTOR CERTIFICATION:**

As evidenced by the signature of the Contractor's Authorized Signatory below, the Contractor certifies under the pains and penalties of perjury that the Contractor shall not knowingly use undocumented workers in connection with the performance of all Executive Branch contracts; that pursuant to federal requirements, the Contractor shall verify the immigration status of all workers assigned to such contracts without engaging in unlawful discrimination; and that the Contractor 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 period of each contract 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.

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

Contractor Authorizing Signature

Print Name

Title: \_\_\_\_\_

Telephone: \_\_\_\_\_

Fax: \_\_\_\_\_

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

The Contractor is required to sign this Certification only once and may provide a copy of the signed Certification for any contract executed with an Executive Branch Department. A copy of this signed Certification must be attached to the "record copy" of all contracts with this Contractor that are filed with the contracting Department.

## Executive Order 504 Contractor Certification Form

**BIDDER/CONTRACTOR LEGAL NAME:**

**BIDDER/CONTRACTOR VENDOR/CUSTOMER CODE:**

**Executive Order 504:** For all Contracts involving the Contractor's access to personal information, as defined in M.G.L. c. 93H, and personal data, as defined in M.G.L. c. 66A, owned or controlled by Executive Department agencies, or access to agency systems containing such information or data (herein collectively "personal information"), Contractor certifies under the pains and penalties of perjury that the Contractor (1) has read Commonwealth of Massachusetts Executive Order 504 and agrees to protect any and all personal information; and (2) has reviewed all of the Commonwealth of Massachusetts Information Technology Division's Security Policies available at [www.mass.gov/ITD](http://www.mass.gov/ITD) under Policies and Standards.

Notwithstanding any contractual provision to the contrary, in connection with the Contractor's performance under this Contract, for all state agencies in the Executive Department, including all executive offices, boards, commissions, agencies, departments, divisions, councils, bureaus, and offices, now existing and hereafter established, the Contractor shall:

- (1) obtain a copy, review, and comply with the contracting agency's Information Security Program (ISP) and any pertinent security guidelines, standards and policies; (2) comply with all of the Commonwealth of Massachusetts Information Technology Division's Security Policies ("Security Policies") available at [www.mass.gov/ITD](http://www.mass.gov/ITD) under Policies and Standards;
- (2) communicate and enforce the contracting agency's ISP and such Security Policies against all employees (whether such employees are direct or contracted) and subcontractors;
- (3) implement and maintain any other reasonable appropriate security procedures and practices necessary to protect personal information to which the Contractor is given access by the contracting agency from the unauthorized access, destruction, use, modification, disclosure or loss;
- (4) be responsible for the full or partial breach of any of these terms by its employees (whether such employees are direct or contracted) or subcontractors during or after the term of this Contract, and any breach of these terms may be regarded as a material breach of this Contract;
- (5) in the event of any unauthorized access, destruction, use, modification, disclosure or loss of the personal information (collectively referred to as the "unauthorized use"): (a) immediately notify the contracting agency if the Contractor becomes aware of the unauthorized use; (b) provide full cooperation and access to information necessary for the contracting agency to determine the scope of the unauthorized use; and (c)

provide full cooperation and access to information necessary for the contracting agency and the Contractor to fulfill any notification requirements.

Breach of these terms may be regarded as a material breach of this Contract, such that the Commonwealth may exercise any and all contractual rights and remedies, including without limitation indemnification under Section 11 of the Commonwealth's Terms and Conditions, withholding of payments, contract suspension, or termination. In addition, the Contractor may be subject to applicable statutory or regulatory penalties, including and without limitation, those imposed pursuant to M.G.L. c. 93H and under M.G.L. c. 214, § 3B for violations under M.G.L. c. 66A.

Bidder/Contractor Name: \_\_\_\_\_

Bidder/Contractor Authorized Signature: \_\_\_\_\_

Print Name and Title of Authorized Signatory: \_\_\_\_\_

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

This Certification may be signed once and photocopied to be attached to any Commonwealth Contract that does not already contain this Certification Language and shall be interpreted to be incorporated by reference into any applicable contract subject to Executive Order 504 for this Contractor.

## PAYMENT BOND

Know all men by these presents, that

as principal, and \_\_\_\_\_  
as surety, are held and firmly bound unto the Commonwealth of Massachusetts in the  
sum of \_\_\_\_\_

in lawful money of the United States of America, to be paid to the Commonwealth of Massachusetts, for which payments, well and truly to be made, we bind ourselves, our respective heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

Whereas, the said principal has made a Contract with the Commonwealth acting through its \_\_\_\_\_ ("Awarding Authority")  
bearing date of \_\_\_\_\_, 20\_\_\_\_, for the construction of  
Project No. \_\_\_\_\_ Contract No. \_\_\_\_\_  
Project Name \_\_\_\_\_

Now the condition of this obligation is such that if the principal shall pay for all labor performed or furnished and for all materials used or employed in said Contract and in any and all duly authorized modifications, alterations, extensions of time, changes or additions to said Contract that may hereafter be made, notice to the surety of such modifications, alterations, extensions of time, changes or additions being hereby waived, the foregoing to include any other purpose or items set out in, and to be subject to, provisions of Massachusetts General Laws Chapter 30, section 39A, and Chapter 149, section 29, as amended, then this obligation shall become null and void; otherwise it shall remain in full force and virtue.

In witness whereof we hereunto set our hand and seals this \_\_\_\_\_ day of  
\_\_\_\_\_, 20\_\_\_\_.

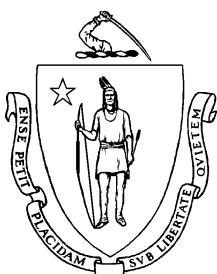
(Seal)  
(Print Name of General Contractor)

(Seal)  
(Print Name of Surety)

By \_\_\_\_\_  
(Signature - Title)

\_\_\_\_\_  
(Signature - Title)

Surety Address \_\_\_\_\_  
\_\_\_\_\_



**COMMONWEALTH OF MASSACHUSETTS**  
**Prompt Pay Discount Form**  
(Invoice discounts for receiving fast payments)

Revised 3/9/07

Bidder Name: \_\_\_\_\_

Vendor Code (VCUST): \_\_\_\_\_

Contract/RFR Number(s): \_\_\_\_\_

**Prompt Payment Discounts (PPD).** All contractors/vendors doing business with the Commonwealth must provide a Prompt Payment Discount (PPD) for receiving early payments unless the Contractor/vendor can provide compelling proof that providing a prompt pay discount would be unduly burdensome. Contractors benefit from PPD by increased, usable cash flow as a result of fast and efficient payments for commodities or services rendered. Contractors who agree to accept Electronic Funds Transfer (EFT) increase the prompt pay benefit by ensuring that funds are paid directly to their designated bank accounts, thus eliminating the delay of check clearance policies and traditional mail lead time. Payments processed through the state accounting system (MMARS) can be tracked and verified through the Comptroller's [Vendor Web](#) system using the Vendor/Customer Code assigned to you by a Commonwealth department.

The Commonwealth benefits because contractors reduce the cost of products and services through the applied discount. While Bidders/Contractors have flexibility in determining the actual % discount(s) offered to the Commonwealth, the discount(s) must be identified for 10, 15, 20 and/or 30 days for payment issuance in the column entitled "% Discount Off Proposed Price" below. The Commonwealth may use the prompt pay discounts submitted as a basis for selection and may negotiate discounts as deemed in the best interest of the Commonwealth. The requirement to offer PPD discounts may be waived by the Commonwealth on a case-by-case basis if participation in the program would be unduly burdensome, provided the specific reason for the hardship is outlined below.

All discounts offered will be taken in cases where the payment issue date is within the specified number of days listed below and in accordance with the Commonwealth's Bill Paying Policy. Payment days will be measured from the date goods are received and accepted / performance was completed OR the date an invoice is received by the Commonwealth, whichever is later to the date the payment is issued as an EFT (preferred method) or mailed by the State Treasurer. The date of payment "issue" is the date a payment is considered "paid" not the date a payment is "received" by a Contractor.

If internal Bidder/Contractor systems require an alternate method of measuring payment issue dates, the Bidder/Contractor must note the issues below or on an attached page if necessary to be considered by the PMT. In cases where the Bidder/Contractor considers that offering a Prompt Payment Discount would be a hardship, the Bidder must clearly define the issues and reasons for said hardship. *Providing volume discounts or other discounts on prices is not considered a hardship, since the PPD provides the additional benefit of early cash flow for the Contractor.*

Enter the Prompt Payment Discount percentage (%) off the invoice payment, for each of the payment issue dates listed, if the payment is issued within the specified Payment Issue days. For example:

5% - 10 Days  
4% - 15 Days  
3% - 20 Days  
2% - 30 Days

If no discount is offered enter 0%

Prompt Payment Discount %	Payment Issue Date w/in
%	10 Days
%	15 Days
%	20 Days
%	30 Days

The Contractor is unable to provide a prompt payment discount due to the following hardship:

Contractor/Bidder Authorized Signature \_\_\_\_\_ Date: \_\_\_\_\_

Contractor/ Bidder Authorized Signatory Print Name and Title: \_\_\_\_\_

**CERTIFICATE OF COMPLIANCE WITH STATE TAX LAWS AND  
WITH UNEMPLOYMENT COMPENSATION CONTRIBUTION  
REQUIREMENTS**

Pursuant to M.G.L., Ch. 62C, s. 49A and M.G.L., Ch. 151A, s. 19A, I,

\_\_\_\_\_ authorized signatory for

\_\_\_\_\_ whose principal place of business is at

\_\_\_\_\_ do hereby certify

under penalties of perjury that \_\_\_\_\_ has filed all  
state tax returns and paid all taxes as required by law and has complied with all state laws  
pertaining to contributions to the unemployment compensation fund and to payments in  
lieu of contributions.

The Business Organization Social Security Number or Federal Identification Number is

\_\_\_\_\_.

Signed under the penalties of perjury the \_\_\_\_\_ day of \_\_\_\_\_  
20 \_\_\_\_.

Signature: \_\_\_\_\_

Name and Title: \_\_\_\_\_

**CERTIFICATE OF COMPLIANCE WITH EMPLOYMENT ELIGIBILITY  
VERIFICATION REQUIREMENTS (I-9)  
Applicable to All DCAM Construction Projects  
To Be Executed by GC/CMGC/All Subcontractors**

Company Name: \_\_\_\_\_

I, \_\_\_\_\_ authorized signatory for  
Print Name  
Company whose principal place of business is at \_\_\_\_\_  
Address  
do hereby certify under penalties of perjury that Company shall comply with Federal Department  
of Homeland Security Requirements in hiring any and all "Employees" to be employed in the  
Project who are required to be listed in the certified payroll reports for the Project. Such  
compliance shall include, but not be limited to the faithful completion of the Federal Department  
of Homeland Security Form I-9 process by Company for each of its Employees. Company shall  
require each of its subcontractors to execute and provide to Company a Certificate of Compliance  
with Employment Eligibility Verification Requirements with the execution of each subcontract.  
In addition, Company is aware that the certified payroll report form submitted by Company to  
DCAM contains a statement that the Form I-9 process was faithfully completed for each  
employee listed on that certified payroll report. Company thus acknowledges that it and all of its  
subcontractors will be required to certify that the Form I-9 process was faithfully completed for  
all Employees listed on each certified payroll report.

Project No.: Mass. State Project No. \_\_\_\_\_

Project Title: \_\_\_\_\_

The Company Social Security Number or Federal Identification Number is  
\_\_\_\_\_

Signed under the pains and penalties of perjury the \_\_\_\_\_ day of \_\_\_\_\_ 20 \_\_\_\_

Signature: \_\_\_\_\_

Name and Title: \_\_\_\_\_

**W-9**

Form **W-9**  
 (Massachusetts Substitute W-9 Form)  
 Rev. April 2009

# Request for Taxpayer Identification Number and Certification

2022-005

Completed form should be  
 given to the department or  
 the department you are  
 currently doing business with.

**Name** ( List legal name, if joint names, list first & circle the name of the person whose TIN you enter in Part I-See Specific Instruction on page 2)

**Business name**, if different from above. (See Specific Instruction on page 2)

Check the appropriate box:  Individual/Sole proprietor  Corporation  Partnership  Other ►-----

**Legal Address**: number, street, and apt. or suite no.

**Remittance Address**: if different from legal address number, street, and apt. or suite no.

**City, state and ZIP code**

**City, state and ZIP code**

Phone # ( )

Fax # ( )

Email address:

## Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. For individuals, this is your social security number (SSN). **However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instruction on page 2.** For other entities, it is your employer identification number (EIN). If you do not have a number, see **How to get a TIN** on page 2.

**Note:** If the account is in more than one name, see the chart on page 2 for guidelines on whose number to enter.

**Social security number**

\_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_

**OR**

**Employer identification number**

\_\_\_\_\_ - \_\_\_\_\_

**DUNS**

\_\_\_\_\_

**Vendors:**

Dunn and Bradstreet Universal Numbering System (DUNS)

## Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me), **and**
2. I am not subject to backup withholding because: **(a)** I am exempt from backup withholding, or **(b)** I have not been notified by the Internal Revenue Services (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or **(c)** the IRS has notified me that I am no longer subject to backup withholding, **and**
3. I am an U.S. person (including an U.S. resident alien).
4. I am currently a Commonwealth of Massachusetts's state employee: (check one): No \_\_\_\_\_ Yes \_\_\_\_\_ If yes, **in compliance with** the State Ethics Commission **requirements**.

**Certification instructions:** You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply.

Sign Here	Authorized Signature ►	Date ►
-----------	------------------------	--------

### Purpose of Form

A person who is required to file an information return with the IRS must get your correct taxpayer identification number (TIN) to report, for example, income paid to you, real estate transactions, mortgage interest you paid, acquisition or debt, or contributions you made to an IRA.

**Use Form W-9 only if you are a U.S. person** (including a resident alien), to give your correct TIN to the person requesting it (the requester) and, when applicable, to:

1. Certify the TIN you are giving is correct (or you are waiting for a number to be issued).
2. Certify you are not subject to backup withholding

**If you are a foreign person, use the appropriate Form W-8.** See Pub 515. Withholding of Tax on Nonresident Aliens and Foreign Corporations.

**What is backup withholding?** Persons making certain payments to you must withhold a designated percentage, currently 28% and pay to the IRS of such payments under certain

conditions. This is called "backup withholding." Payments that may be subject to backup withholding include interest, dividends, broker and barter exchange transactions, rents, royalties, nonemployee pay, and certain payments from fishing boat operators. Real estate transactions are not subject to backup withholding.

If you give the requester your correct TIN, make the proper certifications, and report all your taxable interest and dividends on your tax return, payments you receive will not be subject to backup withholding. **Payments you receive will be subject to backup withholding if:**

1. You do not furnish your TIN to the requester, or
2. You do not certify your TIN when required (see the Part II instructions on page 2 for details), or
3. The IRS tells the requester that you furnished an incorrect TIN, or
4. The IRS tells you that you are subject to backup withholding because you did not report all your interest and dividends only), or

5. You do not certify to the requester that you are not subject to backup withholding under 4 above (for reportable interest and dividend accounts opened after 1983 only).

Certain payees and payments are exempt from backup withholding. See the Part II instructions on page 2.

### Penalties

**Failure to furnish TIN.** If you fail to furnish your correct TIN to a requester, you are subject to a penalty of \$50 for each such failure unless your failure is due to reasonable cause and not to willful neglect.

**Civil penalty for false information with respect to withholding.** If you make a false statement with no reasonable basis that results in no backup withholding, you are subject to a \$500 penalty.

**Criminal penalty for falsifying information.** Willfully falsifying certifications or affirmations may subject you to criminal penalties including fines and/or imprisonment.

**Misuse of TINs.** If the requester discloses or uses TINs in violation of Federal law, the requester may be subject to civil and criminal penalties.

# Specific Instructions

**Name.** If you are an individual, you must generally enter the name shown on your social security card. However, if you have changed your last name, for instance, due to marriage without informing the Social Security Administration of the name change, enter your first name, the last name shown on your social security card, and your new last name.

If the account is in joint names, list first and then circle the name of the person or entity whose number you enter in Part I of the form.

**Sole proprietor.** Enter your **individual** name as shown on your social security card on the "Name" line. You may enter your business, trade, or "doing business as (DBA)" name on the "Business name" line.

**Limited liability company (LLC).** If you are a single-member LLC (including a foreign LLC with a domestic owner) that is disregarded as an entity separate from its owner under Treasury regulations section 301.7701-3, **enter the owner's name on the "Name" line.** Enter the LLC's name on the "Business name" line.

**Caution:** A disregarded domestic entity that has a foreign owner must use the appropriate Form W-8.

**Other entities.** Enter your business name as shown on required Federal tax documents on the "Name" line. This name should match the name shown on the charter or other legal document creating the entity. You may enter any business, trade, or DBA name on the "Business name" line.

## Part I - Taxpayer Identification Number (TIN)

### Enter your TIN in the appropriate box.

If you are a **resident alien** and you do not have and are not eligible to get an SSN, your TIN is your IRS individual taxpayer identification number (ITIN). Enter it in the social security number box. If you do not have an ITIN, see **How to get a TIN** below.

If you are a **sole proprietor** and you have an EIN, you may enter either your SSN or EIN. However, the IRS prefers that you use your SSN.

If you are an **LLC** that is **disregarded as an entity** separate from its owner (see **Limited liability company (LLC)** above), and are owned by an individual, enter your SSN (or "pre-LLC" EIN, if desired). If the owner of a disregarded LLC is a corporation, partnership, etc., enter the owner's EIN.

**Note:** See the chart on this page for further clarification of name and TIN combinations.

**How to get a TIN.** If you do not have a TIN, apply for one immediately. To apply for an SSN, get **Form SS-5**, Application for a Social Security Card, from your local Social Security Administration office. Get **Form W-7**, Application for IRS Individual Taxpayer Identification Number, to apply for an ITIN or **Form SS-4**, Application for Employer Identification Number, to apply for an EIN. You can get Forms W-7 and SS-4 from the IRS by calling 1-800-TAX-FORM (1-800-829-3676) or from the IRS's Internet Web Site [www.irs.gov](http://www.irs.gov).

If you do not have a TIN, write "Applied For" in the space for the TIN, sign and date the form, and give it to the requester. For interest and dividend payments, and certain payments made with respect to readily tradable instruments, generally you will have 60 days to get a TIN and give it to the requester before you are subject to backup withholding on payments.

The 60-day rule does not apply to other types of payments. You will be subject to backup withholding on all such payments until you provide your TIN to the requester.

**Note:** Writing "Applied For" means that you have already applied for a TIN or that you intend to apply for one soon.

## Part II - Certification

To establish to the paying agent that your TIN is correct or you are a U.S. person, or resident alien, sign Form W-9.

For a joint account, only the person whose TIN is shown in Part I should sign (when required).

Real estate transactions. You must sign the certification. You may cross out item 2 of the certification.

### Dunn and Bradstreet Universal Numbering System (DUNS) number requirement –

The United States Office of Management and Budget (OMB) requires all vendors that receive federal grant funds have their DUNS number recorded with and subsequently reported to the granting agency. If a contractor has multiple DUNS numbers the contractor should provide the primary number listed with the Federal government's Central Contractor Registration (CCR) at [www.ccr.gov](http://www.ccr.gov). Any entity that does not have a DUNS number can apply for one on-line at <http://www.dnb.com> under the DNB D-U-N Number Tab.

### Privacy Act Notice

Section 6109 of the Internal Revenue Code requires you to give your correct TIN to persons who must file information returns with the IRS to report interest, dividends, and certain other income paid to you, mortgage interest you paid, the acquisition or abandonment of secured property, cancellation of debt, or contributions you made to an IRA or MSA. The IRS uses the numbers for identification purposes and to help verify the accuracy of your tax return. The IRS may also provide this information to the Department of Justice for civil and criminal litigation, and to cities, states, and the District of Columbia to carry out their tax laws

You must provide your TIN whether or not you are required to file a tax return. Payers must generally withhold a designated percentage, currently 28% of taxable interest, dividend, and certain other payments to a payee who does not give a TIN to a payer. Certain penalties may also apply.

2022-005 Revised January 14, 2021

## What Name and Number to Give the Requester

For this type of account:	Give name and SSN of:
1. Individual	The individual
2. Two or more individuals (joint account)	The actual owner of the account or, if combined funds, the first individual on the account <sup>1</sup> The minor <sup>2</sup>
3. Custodian account of a minor (Uniform Gift to Minors Act)	The grantor-trustee <sup>1</sup>
4. a. The usual revocable savings trust (grantor is also trustee) b. So-called trust account that is not a legal or valid trust under state law	The actual owner <sup>1</sup>
5. Sole proprietorship	The owner <sup>3</sup>

<sup>1</sup> List first and circle the name of the person whose number you furnish. If only one person on a joint account has an SSN, that person's number must be furnished.

<sup>2</sup> Circle the minor's name and furnish the minor's SSN.

<sup>3</sup> You must show your individual name, but you may also enter your business or "DBA" name. You may use either your SSN or EIN (if you have one).

<sup>4</sup> List first and circle the name of the legal trust, estate, or pension trust. (Do not furnish the TIN of the personal representative or trustee unless the legal entity itself is not designated in the account title.)

**Note:** If no name is circled when more than one name is listed, the number will be considered to be that of the first name listed.

**If you have questions on completing this form, please contact the Office of the State Comptroller. (617) 973-2468.**

**Upon completion of this form, please send it to the Commonwealth of Massachusetts Department you are doing business with.**



# COMMONWEALTH OF MASSACHUSETTS

## CONTRACTOR AUTHORIZED SIGNATORY LISTING

Page 1 of 2

CONTRACTOR LEGAL NAME :

CONTRACTOR VENDOR/CUSTOMER CODE:

**INSTRUCTIONS:** **The second page of this form must be completed and notarized for each person listed in the table below.** Any Contractor (other than a sole-proprietor or an individual contractor) must provide a listing of individuals who are authorized as legal representatives of the Contractor who can sign contracts and other legally binding documents related to the contract on the Contractor's behalf. In addition to this listing, any state department may require additional proof of authority to sign contracts on behalf of the Contractor, or proof of authenticity of signature (a notarized signature that the Department can use to verify that the signature and date that appear on the Contract or other legal document was actually made by the Contractor's authorized signatory, and not by a representative, designee or other individual.)

**NOTICE:** *Acceptance of any payment under a Contract or Grant shall operate as a waiver of any defense by the Contractor challenging the existence of a valid Contract due to an alleged lack of actual authority to execute the document by the signatory.*

For privacy purposes **DO NOT ATTACH** any documentation containing personal information, such as bank account numbers, social security numbers, driver's licenses, home addresses, social security cards or any other personally identifiable information that you do not want released as part of a public record. The Commonwealth reserves the right to publish the names and titles of authorized signatories of contractors.

AUTHORIZED SIGNATORY NAME	TITLE

I certify that I am the President, Chief Executive Officer, Chief Fiscal Officer, Corporate Clerk or Legal Counsel for the Contractor and as an authorized officer of the Contractor I certify that the names of the individuals identified on this listing are current as of the date of execution below and that these individuals are authorized to sign contracts and other legally binding documents related to contracts with the Commonwealth of Massachusetts on behalf of the Contractor. I understand and agree that the Contractor has a duty to ensure that this listing is immediately updated and communicated to any state department with which the Contractor does business whenever the authorized signatories above retire, are otherwise terminated from the Contractor's employ, have their responsibilities changed resulting in their no longer being authorized to sign contracts with the Commonwealth or whenever new signatories are designated.

Date:

\_\_\_\_\_  
Signature

Title:

Telephone:

Fax:

Email:

[Listing can not be accepted without all of this information completed.]

A copy of this listing must be attached to the "record copy" of a contract filed with the department.



# COMMONWEALTH OF MASSACHUSETTS

## CONTRACTOR AUTHORIZED SIGNATORY LISTING

Page 2 of 2

**CONTRACTOR LEGAL NAME :**

**CONTRACTOR VENDOR/CUSTOMER CODE:**

### PROOF OF AUTHENTICATION OF SIGNATURE

**This page is optional and is available for a department to authenticate contract signatures.**

**It is recommended that Departments obtain authentication of signature for the signatory  
who submits the Contractor Authorized Listing.**

**This Section MUST be completed by the Contractor Authorized Signatory in presence of notary.**

Signatory's full legal name (print or type):

Title:

**X**

Signature as it will appear on contract or other document (**Complete only in presence of notary**):

### AUTHENTICATED BY NOTARY OR CORPORATE CLERK (PICK ONLY ONE) AS FOLLOWS:

I, \_\_\_\_\_ (NOTARY) as a notary public certify that I witnessed the signature of the aforementioned signatory above and I verified the individual's identity on this date:

\_\_\_\_\_, 20 \_\_\_\_\_.

My commission expires on:

**AFFIX NOTARY SEAL**

I, \_\_\_\_\_ (CORPORATE CLERK) certify that I witnessed the signature of the aforementioned signatory above, that I verified the individual's identity and confirm the individual's authority as an authorized signatory for the Contractor on this date:

\_\_\_\_\_, 20 \_\_\_\_\_.

**AFFIX CORPORATE SEAL**



# COMMONWEALTH OF MASSACHUSETTS

202205 Revised January 14, 2021

## OFFICE OF THE COMPTROLLER

### Electronic Funds Transfer (EFT) Authorization Agreement

Complete this form to enroll, modify, or terminate an existing in electronic funds transfer (EFT) agreement with the Commonwealth of Massachusetts Departments.

#### PART I: REASON FOR SUBMISSION – See Instructions on Page 2

New Enrollment

Change Enrollment

Cancel Enrollment

Document Included: Voided Check

Bank Letter

#### PART II: ACCOUNT HOLDER INFORMATION- See Instructions on Page 2

Account Holder Legal Name:

DBA Name:

Street Address:

City:

State:

Zip Code:

Account Holder Tax Identification Number (9 digits EIN or SSN)

EIN:

SSN:

#### PART III: FINANCIAL INSTITUTION INFORMATION- See Instructions on Page 2

Financial Institution Name:

Routing Number (only nine digits):

Account Number:

Account Type (Checking or Saving):

#### IF YOU ARE MODIFYING BANKING INFORMATION, YOU MUST INCLUDE YOUR OLD BANK INFORMATION OR YOUR REQUEST WILL BE RETURNED

Old Financial Institution Name:

Old Routing Number (only 9 digits):

Old Account Number:

Old Account Type (Checking or Saving):

#### PART IV: VENDOR/CUSTOMER CONTACT INFORMATION: This is the person we will contact for any questions regarding this EFT – See Instructions on Page 2

Contact Person's Name:

Contact Person's Title:

Contact Person's Phone:

Contact Person's Email Address:

#### PART V: AUTHORIZATION- See Instructions on Page 2

By signing below, I hereby certify that the account(s) indicated on this form is under my direct control and access; therefore, I authorize the State Treasurer as fiscal agent for the Commonwealth of Massachusetts to initiate, change, or cancel credit entries to the account(s) as indicated on this form. For ACH debits consistent with the International ACH Transaction (IAT) rules check one:

- I affirm that payments authorized by this agreement are not to an account that is subject to being transferred to a foreign bank account.
- I affirm that payments authorized by this agreement are to an account that is subject to being transferred to a foreign bank account.

This authority is to remain in full force and effect until the Office of Comptroller (CTR) has received written notification from either me or an authorized officer of the organization of the account's termination in such time and in such a manner as to afford CTR a reasonable opportunity to act upon it.

**Account Holder must sign and mail this EFT form and include a confirmation of account information on bank letterhead or a void check and mail to the Commonwealth Department you are doing business with.**

Account Holder Authorized Signature:

Print Name:

Date:

Title

**PART VI: VERIFICATION FROM THE COMMONWEALTH DEPARTMENT – See Instructions on Page 2**

I hereby certify the Vendor/Customer is an authorized signatory and verified by internal records and verbal confirmation initiated by our department.

VCC/VCM Document ID:	Three letter Department Code:
----------------------	-------------------------------

Signature: _____	Title: _____	Date: _____
Print Name: _____	Phone # _____	

**INSTRUCTIONS FOR COMPLETING THE EFT AUTHORIZATION AGREEMENT**

All EFT requests are subject to a 5 (five) day pre-certification period in which all accounts are verified by the qualifying financial institution before any direct deposits are made.

**PART I: REASON FOR SUBMISSION**

Indicate your reason for completing this form by checking the appropriate box: New EFT enrollment, a change to your EFT enrollment account information, or cancellation of your EFT enrollment.

**PART II: ACCOUNT HOLDER INFORMATION**

- Account Holder Name: Enter the accounts holder legal name (individual or business name), as reported to the Internal Revenue Service (IRS).
- DBA Name: Enter the DBA name if applicable.
- Street Address: Enter the account holder's street address.
- Enter the account holder's city, state, and zip code.
- Account Holder Tax Identification Number: Enter the tax identification number as reported to the IRS. If the business is a group, organization or corporation, provide the Federal employer identification number (EIN). If enrolling as an individual provide your Social Security Number.

**PART III: FINANCIAL INSTITUTION INFORMATION**

- Financial Institution Name: Enter your Financial Institution's name (this is the name of the bank or qualifying depository that will receive the funds).
  - **NOTE:** The account name to which EFT payments will be paid is to the name submitted on Part II of this form.
- Routing Number: Enter the bank or financial institutional nine-digit routing number, including applicable leading zeros.
- Account Number: Enter the account holder's account number with the financial institution, including applicable leading zeros.
- Account Type: Enter the account type (Checking or Saving).
- If account holder is changing the banking information, you must provide OLD banking information.
- Old Financial Institution Name: Enter your Financial Institution's name (this is the name of the bank or qualifying depository that will receive the funds).
- Old Routing Number: Enter the Old bank or financial institutional nine-digit routing number, including applicable leading zeros.
- Old Account Number: Enter the Old account holder's account number with the financial institution, including applicable leading zeros.
- Account Type: Enter the Old account type (Checking or Saving).
  - **NOTE:** Supporting bank documents must be in the account holder legal name only.
- If you do not submit this information, your EFT authorization agreement will be returned without further processing.

**PART IV: CONTACT INFORMATION**

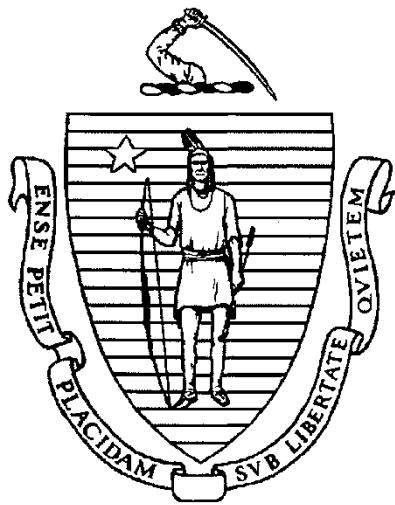
- Enter the name and title of a contact person who can answer questions about the information submitted on this EFT form.
- Enter the contact person's telephone number. Enter the contact person's e-mail address.

**PART V: AUTHORIZATION**

- By your signature on this form, you are certifying that the account is drawn in the Name of an Individual, or the Legal Business Name of the person or entity who has sole control of the account to which EFT deposits are made.
- The EFT authorization form must be signed and dated by the same account holder name in Part II and include a title and telephone number.
- Mail this form with the original signature in black or blue ink (no facsimile signatures can be accepted) to the Commonwealth Department that you doing business with.

**PART VI: VERIFICATION FROM THE COMMONWEALTH DEPARTMENT**

By your signature on this form, you are certifying that authentication of the vendor/customer's authorized signatory was conducted by review of the Contractor Signatory Authorization Form (CASL) or by another internal verification process, and additional verification was conducted to confirm banking or address change request. Departments should have multiple known vendor contacts to confirm any registration change.

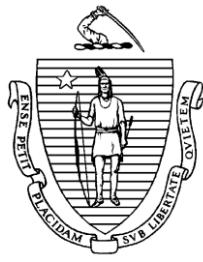


## **BID PACKAGE**

### **PART III**

### **GENERAL CONDITIONS OF THE CONTRACT**

**2022-036 Improvements to East and West Wing Fan Rooms  
in  
Goss Building  
at  
Taunton State Hospital  
60 Hodges Ave. Taunton, MA 02780**



**COMMONWEALTH OF MASSACHUSETTS  
STANDARD VERTICAL CONSTRUCTION CONTRACT  
For Projects over \$150,000 Subject to M.G.L. c. 149, §§ 44A-F**

**GENERAL CONDITIONS OF THE CONTRACT  
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- Form of Subcontract – MGL c.149, § 44F
- DCAMM Instructions and Procedure for Payment for Construction Contractors, including sample Schedule of Values
- Instructions Regarding Change Orders, Contract Modifications and Equitable Adjustments (DCAMM Form 13)
- Request for Approval of Wages and Rates for Change Order Pricing(DCAMM Form 14)
- Format for Submission of Change Order (DCAMM Form 15-1 and 15-2)
- Request and Agreement for a Change in the Plans, Specifications and/or Contract (DCAMM Form 5)
- Daily Time and Material Report
- Form for Transfer of Title (Work Not Incorporated, DCAMM Form 16)
- Weekly Payroll Report Form and Statement of Compliance (sample)
- Quarterly Projected Workforce Table (sample)
- Veteran and Service Disabled Veteran-Owned Business Enterprise (VBE/SDVOBE) Participation Form
- Certificate of Substantial Completion (E-1)
- Certificate of Final Inspection, Release and Acceptance (E-2)

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## **ARTICLE I** **DEFINITION OF TERMS**

Other terms, abbreviations and references are defined as they appear herein. Words and abbreviations that are not defined in the Contract Documents but which have recognized technical or trade meanings are used in accordance with those meanings.

The following words shall have the following meanings as used in this Contract:

**Approval (or Approved):** An approval in writing signed by the authorized signatory of the Awarding Authority.

**Awarding Authority:** The public agency awarding and administering this Contract identified as the Awarding Authority in the Contract. Where the Awarding Authority is an agency of the Commonwealth, references to the Awarding Authority shall also include the Commonwealth and its agencies.

**Building Code:** All applicable rules and regulations to which the Awarding Authority is subject and which are contained or referenced in the code authorized by M.G.L. c. 143, § 93 et seq., including all amendments thereto.

**Certificate of Substantial Completion:** A certificate signed by the Designer and the Awarding Authority pursuant to the requirements of Article VI of these General Conditions, indicating that the Awarding Authority has determined that (1) the Work has been completed in accordance with the Contract Documents, except for Punch List items, (2) certificates of inspection, testing and/or approval (including a certificate of occupancy under the Building Code), operating permits for any mechanical apparatus which may be required to permit full use and occupancy of the Work by its intended users (which in a Subcontractor's case may include the Contractor) have been delivered to the Awarding Authority, (3) any applicable written warranties, operating instructions and related materials have been delivered to the Awarding Authority, and (4) the Work may be used for its intended purpose without substantial inconvenience or interference.

**Change Order:** (1) A written order not requiring the consent of the Contractor, signed by an authorized representative of the Awarding Authority and designated as a Change Order, directing the Contractor to make changes in the Work within the general scope of the Contract, or (2) any written order from an authorized representative of the Awarding Authority that causes any change in the Work, provided that the Contractor has given the Awarding Authority written notice stating the date, circumstances, and source of the order and that the Contractor regards the order as a Change Order.

**Change Order Request:** Contractor's written request for a Change Order submitted in accordance with the requirements of Article VII of these General Conditions.

**Contract:** The Owner - Contractor Agreement executed between the Awarding Authority and the Contractor.

**Contract Documents:** The documents listed in Article 6 of the Contract.

**Contract Modification:** Any alteration of the Contract Documents accomplished by a written agreement properly executed by the parties to this Contract.

**Contract Price:** The Contract Price stated in Article 3 of the Contract which constitutes full compensation to the Contractor for everything to be performed and furnished in connection with the Work and for all damages arising out of the performance of the Work for which the Contractor is responsible, and constitutes the maximum compensation regardless of any difficulty incurred by the Contractor in connection with the Work or in consequence of any suspension or discontinuance of the Work.

**Contractor:** The person, corporation or other entity identified in the first page of the Contract as the "Contractor".

**DCAMM:** The Division of Capital Asset Management and Maintenance of the Commonwealth of Massachusetts. Where DCAMM is an agency of the Commonwealth, references to DCAMM shall also include the Commonwealth and its agencies.

**Designer:** The architect or engineer identified as the Designer in Article 1 of the Contract.

**Drawings:** The Drawings are the graphic and pictorial portions of the Contract Documents, wherever located and whenever issued, showing the design, location and dimensions of the Work, generally including elevations, sections, details, schedules, and diagrams.

**Final Acceptance:** The written determination by the Awarding Authority that the Work has been 100% completed, except for the Contractor's indemnification obligations, warranty obligations, obligations to continue to maintain insurance coverage for the time periods provided in the Contract Documents, and any other obligations which are intended to survive Final Acceptance and/or the termination of the Contract.

**General Bid:** The completed bid form submitted by the Contractor in accordance with the requirements of M.G.L. c. 149.

**Laws:** All applicable statutes, regulations, ordinances, codes, laws, orders, decrees, approvals, certificates and requirements of governmental and quasi-governmental authorities.

**Notice to Proceed:** The written notice provided by the Awarding Authority to the Contractor which authorizes the Contractor to commence the Work as of a date specified therein, from which date the time of completion specified in Article 2 of the Contract is measured.

**Or equal (or words of like import):** Equal in the opinion of the Awarding Authority determined pursuant to the provisions of M.G.L. c.30, § 39M and the provisions of these General Conditions.

**Owner:** The Commonwealth of Massachusetts or political subdivision thereof, authority, or other instrumentality that will own the Work.

**Product Data:** Illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor or its Subcontractors and suppliers to illustrate materials or equipment for some portion of the Work. Product data also include any such information or instructions produced by the manufacturer or distributor of such materials or equipment and made readily available by said manufacturer or distributor.

**Progress Schedule:** The progress schedule submitted by the Contractor Approved by the Awarding Authority in accordance with the Contract Documents.

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

**Punch List:** A list of items determined by the Awarding Authority to be minor incomplete or unsatisfactory work items that do not materially impair the usefulness of the Work for its intended purpose.

**Resident Engineer:** The on-Site representative of the Awarding Authority.

**Samples:** Physical examples, that illustrate materials, equipment, or workmanship and establish standards by which the Work will be judged.

**Schedule of Values:** The schedule Approved by the Awarding Authority pursuant to Article VIII of these General Conditions which allocates the Contract Price to the various portions of the Work and is used as a basis for payments to the Contractor.

**Shop Drawings:** Drawings, diagrams, details, schedules, and other data specially prepared for the Work by the Contractor or a Subcontractor, sub-Subcontractor, manufacturer, supplier, or distributor to illustrate a portion of the Work.

**Site:** The land and, if any, building(s) or space within any such building(s) on which or in which the Contractor is to perform the Work.

**Specifications:** The portion of the Contract Documents consisting of the written requirements for materials, equipment, construction systems, standards, and workmanship for the Work and performance of related services, including, without limitation, supplementary general conditions.

**Subcontractor:** Person or entity with whom the Contractor contracts in accordance with this Contract in order to perform the Work, except as otherwise specifically provided or required herein or by Law.

**Substantial Completion:** For work subject to M.G.L. c. 30, § 39K, "substantial completion" means that the value of the Work remaining to be done is, in the estimate of the Awarding Authority, less than one percent of the adjusted contract price and shall occur when (1) the Contractor fully completes the Work or substantially completes the Work, or (2) the Contractor substantially completes the work and the Awarding Authority takes possession for occupancy, whichever occurs first. For work subject to M.G.L. c. 30, § 39G "substantial completion" shall mean that the work required by the Contract has been fully completed, completed except for work having a Contract Price of less than one percent of the then adjusted total Contract Price, or substantially all of the Work has been completed and opened to public use except for minor incomplete or unsatisfactory work items that do not materially impair the usefulness of the Work.

**Superintendent:** The licensed construction supervisor who is an employee of the Contractor designated to be in full-time attendance at the Site throughout the prosecution and progress of the Work and who shall have complete authority to act for the Contractor.

**User Agency:** The department, county, commission, board, agency or other instrumentality of the Commonwealth of Massachusetts or political subdivision thereof which operates, or

which will operate, the facility at which the Work is undertaken or which comprises the completed Work.

**Work:** The Work consists of all the work identified in the Contract Documents, including, without limitation, as defined in Article 1 of the Contract and Article II, Section 2 of these General Conditions. The Work comprises the completed construction required by the Contract Documents and includes all labor, tools, materials supplies, equipment, permits and approvals, paperwork, calculations, submittals, and certificates necessary to develop, construct, and complete the Work in accordance with all Laws and all construction and other services required to be supervised, overseen, performed, or furnished by the Contractor or that the Contract Documents require the Contractor to cause to be supervised, overseen, performed or furnished.

## ARTICLE II **EXECUTION OF THE CONTRACT, SCOPE OF WORK, INTERPRETATION OF CONTRACT DOCUMENTS**

### **1. Execution.**

The execution of the Contract by the Contractor is a representation that the Contractor has visited the Site, has become familiar with local conditions under which the Work is to be performed and has correlated personal observations at the Site with requirements of the Contract Documents.

### **2. Scope of Work.**

The Work comprises the completed construction required by the Contract Documents and includes all labor, tools, materials, supplies, equipment, permits, approvals, paperwork, calculations, submittals, and certificates necessary to develop, construct and complete the Work in accordance with all Laws, and all construction and other services required to be supervised, overseen, performed or furnished by Contractor or that the Contract Documents require the Contractor to cause to be supervised, overseen, performed or furnished. The Contractor shall provide and perform for the Contract Price all of the duties and obligations set forth in the Contract Documents.

### **3. Interpretation.**

- A.** The Drawings and Specifications and other Contract Documents are to be considered together and are intended to be mutually complementary, so that any work shown on the Drawings though not specified in the Specifications, and any work specified in the Specifications though not shown on the Drawings, is to be executed by the Contractor as a part of this Contract. Should a conflict occur in or between or among any parts of the Contract Documents that are entitled to equal preference, the better quality or greater quantity shall govern, unless the Awarding Authority directs otherwise. Figured dimensions shall take precedence over scaled dimensions.
- B.** All things that in the opinion of the Designer may be reasonably inferred from the Drawings, Specifications and other Contract Documents are to be executed by the Contractor. The Designer shall determine whether the detail Drawings conform to the general Drawings and Contract Documents, except as may be otherwise determined by the Awarding Authority.

- C. The tables of contents, titles, headings and marginal notes or sub-scripts contained herein are solely to facilitate references, are not intended to be construed as provisions of the Contract, and in no way affect the interpretation of the provisions to which they refer.
- D. Where reference is made in the Contract Documents to publications, standards, or codes issued by associations or societies, such reference shall be interpreted to mean the current edition of such publications, standards, or codes, including revisions in effect on the date of the issuance of the public notice inviting bids or proposals for the Work, notwithstanding any reference to a particular date. The foregoing sentence shall not apply to the dates, if any, specified with respect to insurance policy endorsement forms.
- E. In case of any conflict among the Contract Documents, unless the context clearly otherwise requires, the Contract Documents shall be construed according to the following priorities:

- First Priority: Contract Modifications and Change Orders
- Second Priority: Contract, as amended
- Third Priority: General Conditions of the Contract, as amended
- Fourth Priority: Drawings, as amended -- schedules take precedence over enlarged detail Drawings, and enlarged detail Drawings take precedence over reduced scale Drawings; figured dimensions shall prevail over scale.
- Fifth Priority: Specifications, as amended

- F. The Contractor shall refer to all of the Drawings, and to all of the sections of the Specifications, and shall perform all work reasonably inferable therefrom as being necessary to produce the indicated results. Neither the Awarding Authority nor the Designer assumes any liability arising out of jurisdictional issues raised or claims advanced by Subcontractors, trade organizations or other interested parties based on the arrangement or manner of subdivision of the content of the Specifications and Drawings. In the event of any claim arising out of any duplication, conflict, inconsistency or discrepancy within the Specifications or on the Drawings as to the allocation of the Work among the Subcontractors the Contractor shall be solely responsible for resolving the claim and shall be responsible for ensuring that all of the Work is completed, regardless of where it appears in the Specifications or on the Drawings.

#### **4. Distribution of Work.**

The distribution of the Work is intended to be described under the appropriate trades and, except for filed sub-bid work, may be redistributed, except as directed herein or as required by any applicable Laws, provided that such redistribution shall cause no controversy among the trades and no delay in the progress of the Work and is in the best interests of the Project.

### **ARTICLE III** **CONTROL OF WORK / ADMINISTRATION OF THE CONTRACT**

#### **1. Designer.**

Notwithstanding anything to the contrary expressed or implied in this Contract, any of the powers, rights, and duties of the Designer may be exercised by the Awarding Authority, provided that the Awarding Authority shall be under no obligation to do so. The Awarding Authority may rely on the Designer for the performance and exercise of its rights and obligations hereunder and shall be presumed to so rely on the Designer in the absence of an

explicit written assumption by the Awarding Authority of any such rights and obligations, except that any Approval required to be obtained from the Awarding Authority hereunder shall not be valid without the signature of the Awarding Authority. The Awarding Authority may explicitly overrule in writing any action, determination or decision of the Designer should the Awarding Authority choose to do so, except to the extent that the same would violate applicable Law. Subject to the foregoing, the Designer shall be responsible for the general administration of the Contract and shall perform the duties and exercise the rights herein conferred on the Designer. Except as otherwise specifically provided herein, the Designer shall decide all questions which may arise as to the conduct, quantity, quality, equality, acceptability, fitness, and rate of progress of the several kinds of work and materials to be performed and furnished under this Contract, and shall decide all questions which may arise as to the interpretation of the Drawings and Specifications and as to the fulfillment of this Contract on the part of the Contractor. In the case of the death, resignation, inability or refusal of the Designer to act, or the termination of his or her or its employment, the Awarding Authority may appoint another person to act as Designer for the purposes of this Contract. The Awarding Authority shall give written notice to the Contractor of any such appointment.

## **2. Right of Access to Work.**

The Awarding Authority, the User Agency and the Designer (and persons designated by them) may for any purpose enter upon the Work, the Site, and premises used by the Contractor, and the Contractor shall provide safe facilities therefor. Other contractors of the Awarding Authority may also enter upon the same for the purposes which may be required by their contracts or work. Any differences or conflicts which may arise between the Contractor and other contractors of the Awarding Authority with respect to their work shall be initially resolved by the Designer.

## **3. Inspection No Waiver.**

No inspection by the Awarding Authority or the Designer or employees or agents of either of them, and no order, measurement, certificate, approval, payment order, payment, acceptance or any other action or inaction of any of them, shall operate as a waiver by the Awarding Authority of any provision of this Contract.

# **ARTICLE IV** **GENERAL PERFORMANCE OBLIGATIONS OF THE CONTRACTOR**

The Contractor shall complete for the Contract Price all Work in a proper, thorough, and workmanlike manner in accordance with the Contract Documents. Without limiting the foregoing and without limiting the Contractor's obligations under any other provision of the Contract Documents, the Contractor shall for the Contract Price perform the following general obligations:

## **1. Review of Contract Documents and Field Conditions.**

- A.** Before commencing the Work, the Contractor shall carefully study the Contract Documents and carefully compare all Specifications, Drawings, figures, dimensions, lines, marks, scales, directions of the Designer and Awarding Authority, and any other

information provided by the Awarding Authority and shall at once report to the Designer and Awarding Authority any questions, errors, inconsistencies, or omissions.

**B.** Before commencing the Work, the Contractor shall take field measurements and verify field conditions and shall carefully compare such field measurements and conditions and other information known to the Contractor with the Contract Documents and shall at once report to the Designer and Awarding Authority any questions, errors, inconsistencies, or omissions.

**2. Supervision and Construction Procedures; Coordination; Cutting, and Patching.**

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

**B.** The Contractor shall be responsible for the proper fitting of all Work and the coordination of the operations of all trades, Subcontractors, and materialmen engaged in the Work. The Contractor shall guarantee to each of its Subcontractors all dimensions which they may require for the fitting of their Work to all surrounding Work.

**C.** All necessary cutting, coring, drilling, grouting, and patching required to fit together the several parts of the Work shall be done by the Contractor, except as may be specifically noted otherwise under any particular filed sub-bid section of the Specifications.

**D.** The Contractor shall be responsible to the Awarding Authority for the acts and omissions of the Contractor's employees, agents and Subcontractors, and their agents and respective contractors' employees, and other persons performing portions of the Work or supplying materials therefor.

**E.** The Contractor shall be responsible for the inspection of portions of the Work already performed under this Contract to determine that such portions are completed in accordance with industry standards of good workmanship and the Contract Documents and in proper condition to receive subsequent Work.

**F.** The Contractor shall employ a registered land surveyor to perform any engineering required for establishing grades, lines, levels, dimensions, layouts, and reference points for the trades. The Contractor shall be responsible for maintaining benchmarks and other survey marks and shall replace any benchmarks or survey marks that may have become disturbed or destroyed. The Contractor shall verify the materials shown on the Drawings before laying out the Work and shall be responsible for any error resulting from its failure to exercise this precaution.

**G.** Unless otherwise required by the Contract Documents, or directed in writing by the Designer or the Awarding Authority, Work shall be performed during regular working hours, which, unless prescribed otherwise by applicable Law, shall be 7:00 a.m. to 5:00 p.m.. If the Contractor desires to carry on the Work outside of regular working hours or on Saturdays, Sundays, or Massachusetts or federal holidays, then the Contractor shall provide at least forty-eight (48) hours' notice to the Awarding Authority and Designer to allow satisfactory arrangements to be made for inspecting Work in progress and shall bear the costs of such inspection. The Awarding Authority at its election shall be entitled either to issue a credit Change Order to cover such cost or to withhold such cost from any further payments due the Contractor and/or to receive a payment from the Contractor of the amount of such cost.

**H.** Work performed outside of regular working hours set forth above without the consent or knowledge of the Designer and/or the Awarding Authority shall be subject to additional inspection and testing as directed by the Designer. The cost of this inspection and testing shall be borne by the Contractor whether the Work is found to be acceptable or not. The Awarding Authority at its election shall be entitled either to issue a credit Change Order to cover such cost or to withhold such cost from any further payments due the Contractor and/or to receive a payment from the Contractor of the amount of such cost.

**3. Superintendent.**

- A.** The Contractor shall employ a Superintendent whose appointment shall be subject to the Approval of the Awarding Authority. The Superintendent shall be in attendance at the Site full-time during the performance of the Work. The Superintendent shall represent the Contractor. Communications given to and from the Superintendent shall be deemed given to and from the Contractor. Important communications shall be confirmed in writing. Other communications shall be similarly confirmed upon written request in each case. The Superintendent shall attend each job meeting. The Superintendent shall be responsible for coordinating all of the Work of the Contractor and the Subcontractors.
- B.** The Superintendent shall be a competent employee regularly employed by the Contractor. The Superintendent shall be licensed in accordance with the Building Code and shall have satisfactorily performed similar duties on previous construction projects similar in type, complexity and scale to the Project. The Superintendent's resume shall be submitted to the Awarding Authority prior to commencement of construction together with such other information as the Awarding Authority may reasonably require in order to determine whether or not to Approve of his or her appointment. Any change in the Superintendent shall require the prior written consent of the Awarding Authority. The Contractor shall establish an emergency telephone line by which the Awarding Authority, the Designer, or their respective agents may contact the Superintendent during non-working hours.

**4. Labor.**

- A.** The Contractor shall employ only competent workers on the Project. The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall certify and ensure that all employees to be employed at the Site will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least ten (10) hours in duration at the time the employee begins work and the Contractor and each of its Subcontractors and others working on the Project shall furnish documentation of successful completion of said course by employees working with the first certified payroll report for each employee. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them. Whenever the Designer shall notify the Contractor in writing that any worker is, in the Designer's opinion, incompetent, unfaithful, disorderly, or otherwise unsatisfactory, such employee shall be discharged from the Work and shall not again be employed on the Project except with the written consent of the Designer.
- B.** The Contractor shall employ a sufficient number of workers and shall ensure that all its Subcontractors employ a sufficient number of workers to carry on the Work with all

proper speed in accordance with Laws, the requirements of the Contract Documents, and the Progress Schedule.

C. The Contractor shall procure materials from such sources and shall manage its own forces and the forces of its Subcontractors and any sub-Subcontractors in such a manner as will result in harmonious labor relations on the Site. If union and nonunion workers are employed to perform any part of the Work, the Contractor shall establish and maintain separate entrances to the Site for the use of union and nonunion workers. The Contractor shall cause persons to be employed in the Work who will work in harmony with others so employed. Should the Work be stopped or materially delayed in the Awarding Authority's reasonable judgment due to a labor dispute, the Awarding Authority shall have the right to require the Contractor to employ substitutes acceptable to the Awarding Authority.

## **5. Notices and Permits.**

- A. The Contractor at its sole cost shall take out and pay for all approvals, permits, certificates and licenses required by Laws, pay all charges and fees, and pay for (or cause the appropriate Subcontractor to pay for) all utilities required for the proper execution of the Work.
- B. The Contractor shall comply with all Laws and shall give all notices required thereby.
- C. Except as otherwise specified in this Contract, it is not the Contractor's responsibility to ascertain that the Contract Documents are in accordance with applicable Laws. However, if the Contractor observes that portions of the Contract Documents are at variance with the requirements of Laws, the Contractor shall promptly notify the Designer and Awarding Authority in writing, and necessary changes shall be accomplished by an appropriate Contract Modification.
- D. If the Contractor performs Work knowing it to be contrary to Laws without giving such notice to the Designer and Awarding Authority, the Contractor shall bear full

responsibility for such Work and all costs attributable thereto, including, without limitation, corrections to the Work.

## **6. Lines, Marks etc.**

The Contractor shall furnish batter boards and stakes and shall cause to be placed and maintained thereon so as to be easily read, such lines, marks and directions relating to the Work as the Designer shall from time to time direct. The Designer shall establish base lines and benchmarks on the Drawings for the locations of the Work but all other lines and grades shall be determined by the Contractor.

## **7. Excavation.**

The Contractor shall prevent by sheeting and shoring or bracing, if necessary, any caving or bulging of the sides of any excavation made by the Contractor, leaving sheeting and shoring in place, or if any is removed, filling solid the spaces left thereby.

## **8. Dewatering/Hoisting/Staging.**

The Contractor shall provide pumping, drainage, and disposal of all water and other flows so that no puddle, nuisance, or damage will be caused by water or flooding. The Contractor shall provide all hoisting equipment and machinery required for the proper execution of the Work. The Contractor shall provide all exterior and interior staging required to be over eight feet in height, except as may be otherwise provided in the Contract Documents.

## **9. Corrections to the Work; Inspection No Bar to Subsequent Corrections.**

The inspection of the Work by the Designer, the Awarding Authority or their respective consultants shall not relieve the Contractor of its responsibilities to fulfill the Contract obligations. Defective work may be rejected by the Designer, the Awarding Authority, or their respective designated consultants, whether or not such work and/or materials have been previously overlooked or misjudged by the Designer, the Awarding Authority, or their respective consultants 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 cease the performance of any defective work in progress and, whether or not such work is still in progress, shall forthwith correct such defect in a manner satisfactory to the Designer, the Awarding Authority, or their respective designated consultants. If any material brought upon the Site for use in the Work, or selected for the same, is rejected by the Designer, the Awarding Authority, or their respective consultants as unsuitable or not in conformity with the Contract Documents, or as damaged by casualty or deteriorated due to improper storage at the Site or to any other factor, the Contractor shall forthwith remove such materials from the Site. The Contractor shall pay for the cost of making good all work or property of other contractors or of the Owner destroyed or damaged by such removal or replacement; repair, finish and immediately make good any injury, defect, omission or mistake in the Work as soon as it is discovered; and complete and leave the Work in perfect condition.

## **10. Sanitary Facilities.**

- A.** The Contractor shall provide and maintain sanitary facilities for all persons employed on the Work, beginning with the first worker at the Site. Said facilities shall meet the following requirements unless otherwise specified in the Specifications.
- B.** There shall be no fewer facilities than the number required by applicable Laws.
- C.** Facilities shall be kept in a clean sanitary condition at all times and shall be adequately screened to be inaccessible to flies.

**(Note:** If existing sanitary facilities at the Site are to be used by the Contractor, this requirement will be modified accordingly in the Specifications.)

## **11. Temporary Offices.**

- A.** Except as otherwise specified in the Contract Documents, the Contractor shall erect the following temporary offices near the Site as directed by the Designer and adequately furnish and maintain them in a clean, orderly condition:
  - (1)** A Contractor's field office at which Contractor's authorized representative shall be present at all times while work is in progress. Instructions, notices, and other communications delivered there by the Designer or the Awarding Authority shall be deemed delivered to the Contractor.
  - (2)** The Contractor shall provide a separate conference room space with a conference table and chairs sufficient to accommodate 12 persons at one time.
- B.** The Contractor shall relocate the Resident Engineer's trailer, as well as services connected with said trailer, at no additional cost to the Owner if the need for relocation arises as determined by the Designer.

## **12. Contract Documents and Samples at the Site.**

A reasonable number of sets of Contract Documents will be furnished to the Contractor by the Awarding Authority immediately after signing of the Contract, one of which shall be maintained at the Site for reference by authorized representatives of the Awarding Authority. The Contractor shall maintain at the Site for the use and information of the Awarding Authority one record copy of the Drawings, Specifications, addenda, Change Orders, Approved Shop Drawings, Product Data, Samples, updated Progress Schedule, and all other submittals, all in good order and marked currently to record changes and selections made during construction. These shall be available to the Designer and the Awarding Authority and shall be delivered to the Designer for submittal to the Awarding Authority upon completion of the Work. The Drawings, Specifications, and other documents prepared by the Designer and copies thereof furnished to the Contractor are for use solely with respect to this Project. The Contractor shall not permit their release to other parties except as may be necessary in dealing with governmental authorities in the ordinary course of permitting and constructing the Project. Further, they are not to be used by the Contractor or any Subcontractor or supplier on other projects without the specific written consent of the Awarding Authority and the Designer.

## **13. Telephones, Data Lines, and Wi-Fi.**

The Contractor shall provide and maintain separate individual telephone, data and wi-fi service and pay for all calls, data service, and wi-fi service relating to the Work. Service and equipment shall meet the requirements, if any, of the Contract Documents and shall include provisions for incoming and outgoing calls and continually available wi-fi: (1) in the Contractor's field office for the use of its authorized agents and (2) in the Resident Engineer's office for the use of the Designer and authorized agents of the Owner.

#### **14. Health, Safety, and Accident Prevention**

**A. In performing the Work, the Contractor shall:**

- (1) Ensure that no laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his/her health and/or safety as determined under construction safety and health standards promulgated by the U.S. Secretary of Labor by regulation;
- (2) Protect the lives, health, and safety of other persons; and
- (3) Prevent damage to property, materials, supplies, and equipment.

**B. For these purposes, the Contractor shall:**

- (1) Comply with 84 Stat. 1590, the "Occupational Safety and Health Act of 1970" (OSHA) and with regulations and standards issued by the U.S. Secretary of Labor at 29 CFR Part 1926; and
- (2) Comply with the trench safety law set forth in M.G.L. c. 82A and regulations promulgated by the Departments of Public Safety and Occupational Safety in 520 CMR 14.00 et. seq., which require at a minimum that: 1) all excavators obtain a permit for all trenches as defined; 2) all excavators must provide protections when trenches are unattended; and 3) authorizes fines for violations; the Contractor shall execute a "Trench Application and Permit" form included in Appendix C with the execution of this Contract.
- (3) Include the terms of this Article IV.14 in every Subcontractor contract so that such terms will be binding on each Subcontractor.
- (4) Designate by written notice to the Awarding Authority a responsible member of its organization at the Site whose duties shall include ensuring safety, implementation of Contractor's safety plan referenced below and preventing accidents.

**C. The Contractor shall maintain an accurate record of exposure data on all accidents incident to the Work resulting in death, traumatic injury, occupational disease, or damage to property, materials, supplies, or equipment, and shall report this data in the manner prescribed by 29 CFR Part 1904. Without limiting the foregoing, the Contractor shall submit to the Awarding Authority without delay verbal and written reports of all accidents involving bodily injury or property damage arising in connection with the Work.**

**D. In any emergency affecting the safety of persons or property the Contractor shall immediately act in the exercise of reasonable judgment to prevent threatened damage, injury, or loss. The Contractor shall immediately notify the Awarding Authority of such emergency.**

**E. The Contractor shall be responsible for its Subcontractors' compliance with the provisions of this Article IV.14.**

F. Before commencing any portion of the Work on Site, the Contractor shall submit a written Project-specific plan for implementing this Article IV.14. The plan shall include an analysis of the significant hazards to life, limb and property inherent in the performance of the Work and a plan for controlling these hazards.

G. Without limiting the foregoing provisions of this Article IV.14, the Contractor shall comply with all health and safety Laws applicable to the Work. Without limitation:

- (1) If the Contractor uses, stores or encounters toxic or hazardous substances it shall comply with M.G.L. c. 111F, § 2, the "Right to Know" law and regulations promulgated by the Department of Public Health, 105 CMR 670, the Department of Environmental Protection, 310 CMR 33, and the Department of Labor and Workforce Development, 441 CMR 21; and shall post a "workplace notice" obtainable from the Department of Labor and Workforce Development.
- (2) The Contractor shall comply with the Federal Resource Conservation and Recovery Act, the Federal Comprehensive Environmental Response, Compensation and Liability Act, M.G.L. c. 21C, M.G. L. c. 21E, and any other Laws affecting toxic or hazardous materials, solid, special or hazardous waste. Should the Contractor discover unforeseen materials subject to the aforementioned hazardous materials laws at the Site, the Contractor shall immediately comply with any and all requirements for dealing with such materials and notify all required governmental authorities and the Awarding Authority of such discovery.
- (3) The Contractor shall be responsible for the location of all utilities in connection with the Work. Without limiting the foregoing, the Contractor shall comply with Dig-Safe Laws. Dig-Safe is the Utility Underground Plant Damage Prevention System, 331 Montvale Road, Woburn, MA, 01801, 1-888-344-7233. The Contractor shall notify Dig-Safe of contemplated excavation, demolition, or explosive work in public or private ways, and in any utility company right of way or easement, by certified mail, with a copy to Department of Environmental Protection . This notice shall be given at least 72 hours prior to the work, but not more than sixty days before the work is to be done. Such notice shall state the name of the street or the route number of the way and shall include an accurate description of the location and nature of the proposed work. Dig-Safe is required to respond to the notice within 72 hours of receipt by designating the location of pipes, mains, wires or conduits at the Site. The Contractor shall not commence work until Dig-Safe has responded. The work shall be performed in such manner and with reasonable precautions taken to avoid damage to utilities under the surface at the work location. The Contractor shall provide the Superintendent with current Dig-Safe regulations, and a copy of M.G.L. c. 82, § 40. Any costs related to the services performed by Dig-Safe shall be borne by the Contractor.
- (4) The Contractor shall comply with M.G.L. c. 149, § 129A, relative to shoring and bracing of trenches.

H. Without limiting the Contractor's responsibilities described above, the Contractor shall take all reasonable precautions for the safety of, and the prevention of injury or damage to (i) all agents and employees and contractors on the Work and all other persons who may be affected thereby including the general public, (ii) all the Work and all materials and equipment to be incorporated therein, whether in storage on or off the Site, under the care custody or control of the Contractor or any of its Subcontractors or any contractors directly or indirectly contracting through any of them, and (iii) other property at the Site

or adjacent thereto, including but not limited to trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of the Work. The Contractor shall promptly remedy all damage or loss to any such property caused in whole or in part by the Contractor, any Subcontractor, or anyone directly or indirectly contracted or employed by any of them or by anyone for whose acts any of them may be liable. Without limiting the foregoing, the Contractor shall:

- (1) post and maintain adequate danger signs and other warnings against hazards;
- (2) promulgate safety regulations and give appropriate notices to the Awarding Authority and users of adjacent utilities and property;
- (3) ensure the adequate strength and safety of all scaffolding, staging and hoisting equipment, temporary shoring, bracing and tying;
- (4) protect adjoining private or public property;
- (5) provide barricades, temporary fences, and covered walkways required by prudent construction practices, Laws and/or the Contract Documents;
- (6) furnish approved hard hats and other personal protective equipment, furnish approved first aid supplies, furnish the name of the first aid attendant, and maintain a posted list of emergency facilities;
- (7) provide proper means of access to property where the existing access is cut off by the Contractor;
- (8) maintain from the beginning of any darkness or twilight through the whole of every night sufficient lights on or near any obstruction so as to guard and protect travelers from injury from such obstruction;
- (9) maintain adequate security at the Site so as not to expose the Work and surrounding property to vandalism or malicious mischief;
- (10) provide adequate fire protection procedures during the use of cutting torches, welding equipment, plumbers' torches and other flame and spark producing apparatus;
- (11) take prompt action to correct any dangerous or hazardous conditions.

- I.** The Contractor shall not use or store explosives in the performance of the Work unless the Contractor first obtains the Awarding Authority's prior written specific Approval. If the Awarding Authority Approves the use or storage of explosives during the performance of the Work, the Contractor shall first comply with all Laws and obtain all permits, approvals, and certificates required in connection with the same and shall exercise best efforts, including but not limited to the employment and supervision of properly qualified personnel, to prevent damage, injuries, and accidents involving said explosives.
- J.** The Contractor shall not permit cutting or welding in or immediately adjacent to existing property of the Owner, Awarding Authority or of anyone else without the Awarding Authority's prior Approval in each instance.

## **15. Debris and Chemical Waste.**

- A.** The Contractor shall not permit the accumulation of interior or exterior debris. The Contractor shall keep the Work area clean at all times. Without limitation, garbage shall be removed daily.

**B.** The Contractor shall properly classify and remove debris and waste from the Site and transport and dispose of it, all in accordance with Laws, employing a qualified and properly licensed transporter, at any landfill, disposal or recycling facility licensed under applicable Laws, including without limitation, hazardous materials Laws. The Contractor shall make all arrangements and give and obtain all notices, communications, documentation, permits, certificates, and approvals necessary for said disposal from the owner or officials in charge of such landfills, disposal or recycling facilities. The Contractor shall bear all fees and costs in connection with such classification, removal, transportation, disposal and storage. The Contractor shall not permit any storage of debris or waste except in accordance with Laws.

**C.** The Contractor shall not permit any open fire on the Site.

**D.** Chemical waste shall be stored in corrosion resistant containers, removed from the Site, and disposed of not less frequently than monthly unless more frequently required by Laws, including without limitation hazardous materials laws, or by the Contract Documents. Disposal of chemical waste shall be performed in accordance with requirements of the U.S. Environmental Protection Agency and the Massachusetts Department of Environmental Protection. Fueling and lubricating of vehicles and equipment shall be conducted in a manner that affords the maximum protection against spills and evaporation. Lubricants shall be disposed of in accordance with procedures meeting all applicable Laws. The Contractor shall immediately notify the Designer and Awarding Authority of any hazardous materials release large enough to require reporting under applicable Laws. The Contractor shall be responsible for immediately cleaning up in accordance with Laws any oil or hazardous materials releases resulting from its operations. Any costs incurred in cleaning up any such releases shall be borne by the Contractor.

**16. Weather Protection (M.G.L. c. 149, §§ 44F(1) and 44G).**

The Contractor shall furnish and install "weather protection," which means temporary protection of that Work adversely affected by moisture, wind and cold. Weather protection shall be achieved in accordance with the Specifications, and at a minimum shall include covering, enclosing and/or heating working areas such that a minimum temperature of 40 degrees Fahrenheit (or higher temperature, if so stated in the Specifications) is maintained at the working surface during the months of November through March in order to permit construction to be carried on during such period in accordance with the Progress Schedule. After the building or portion thereof is completely enclosed by either permanent construction or substantial temporary materials having a resistance comparable to the specified permanent construction, the Contractor shall provide heat in accordance with the Specifications; if the Specifications do not specify a temperature range for this phase, the Contractor shall provide heat of not less than 55 degrees F. nor more than 75 degrees F. The foregoing provisions do not supersede any specific requirements for methods of construction, curing of materials and the like. Such weather protection shall be consistent with the Progress Schedule, shall permit the continuous progress of the Work necessary to maintain an orderly and efficient sequence of construction operations, shall include one thermometer for every two-thousand (2,000) square feet of floor space or fraction thereof (or as otherwise stated in the Specifications), shall be subject to the Approval of the Awarding Authority, and shall meet such additional requirements as may be specified by the Awarding Authority and by the Contract Documents.

**17. Furnishings and Equipment.**

When, in the opinion of the Designer, any portion of the Work is in a reasonable condition to receive fittings, furniture, or other property of the Owner not covered by this Contract, the Contractor shall allow the Awarding Authority to bring such fittings, furniture, and/or other property into such portions of the Work and shall provide all reasonable facilities and protection thereof. No such occupancy shall be construed as interfering with the provisions relating to time of completion, or as constituting an acceptance of the whole or any part of the Work. Any furniture or fittings so installed shall be placed in the Work at the risk of the Awarding Authority except that the Contractor shall be liable for damages or losses to such furniture or fittings to the extent such damages or losses arise in whole or in part from the negligence or intentional misconduct of Contractor, Subcontractors, their agents and/or employees, or anyone for whose acts Contractor is responsible.

## **18. Form for Subcontract.**

The Contractor when subcontracting with sub-bidders filed pursuant to M.G.L. c. 149, § 44F shall use the form for subcontract in M.G.L. c. 149, § 44F(4)(c). The Contractor shall not interpret paragraph 3 of the statutory form of subcontract to require such sub-bidders to provide insurance with limits higher than the limits that are required by Article XIV of these General Conditions, assuming that the term "Contractor" therein refers to the sub-bidder and that the term "Contract Price" refers to the sub-bidder's price stated in paragraph 1 of the statutory form of subcontract.

## **19. Sales Tax Exemption and Other Taxes.**

All building materials and supplies as well as the rental charges for construction vehicles, equipment and machinery rented exclusively for use on the Site, or while being used exclusively for the transportation of materials for the Work are entitled to an exemption from sales taxes under M.G.L. c. 64H, § 6(f). The Contractor shall take all action required to obtain the benefit of such sales tax exemption. The Contractor shall bear the cost of any sales taxes that Contractor incurs in connection with the Work and the Awarding Authority shall not reimburse the Contractor for any such taxes. The exemption number assigned to the Contractor as an exempt purchaser shall be provided to the Contractor by the Awarding Authority upon the written request of the Contractor.

## **20. Final Cleaning.**

At the completion of the Work, the Contractor shall remove all waste materials, rubbish, tools, equipment, machinery and surplus materials, and professionally clean all sight-exposed surfaces so that the Work is clean and ready for occupancy. Subsequent to installation of User Agency furniture, telephones, and equipment, the Contractor shall provide such additional cleaning as may be necessary to remove any soil resulting from installation of such furniture, telephones and equipment. The Contractor shall comply with the detailed final cleaning requirements of the Specifications; in the event of any conflict

between the Specifications and this Section specifically with respect to cleaning at or after the completion of the Work, the Specifications shall apply.

## **21. Maintenance Data.**

Subject to such additional requirements as may be provided in the Contract Documents, the Contractor shall compile four complete and identical binders of operating and maintenance

data for the entire Work, which shall include, at a minimum for all equipment and systems installed, complete operation and maintenance programs, including but not limited to operation and maintenance (O&M) manuals, records of any and all maintenance performed (whether by the Contractor or Subcontractors) between equipment installation and Final Acceptance, all as may be further detailed in the Specifications. The Contractor shall submit record maintenance data to the Designer for approval, shall submit approved maintenance data to the Awarding Authority, and shall instruct and train the User Agency's personnel in proper inspection and maintenance procedures in accordance with the training plan developed and Approved in accordance with the Specifications. If requested by the Awarding Authority, the Contractor shall also submit information on equipment and systems installed as the Work is performed in a format acceptable to the Awarding Authority, which shall be compatible for entry in the Capital Asset Management Information System (CAMIS), as may be further detailed in the Specifications.

## **22. Closeout Procedures.**

The Contractor shall take all actions and submit all items required for the issuance of the Certificate of Substantial Completion and Final Acceptance as specified in the Contract Documents.

## **23. Risk of Loss.**

The Contractor shall bear all risk of loss to the Work during the term of the Contract except for any portion of the Work as to which the Certificate of Substantial Completion has been issued pursuant to Article VI of these General Conditions of the Contract. Nothing herein shall limit the Contractor's responsibilities under Article IX or XV of these General Conditions of the Contract.

## **24. LEED Requirements.**

Contractor understands that, pursuant to Executive Order No. 484, all new construction and renovation projects over 20,000 square feet must, at a minimum, meet a Massachusetts LEED Plus building standard, and that smaller projects must meet the minimum energy performance standards for advanced buildings established by the Commonwealth of Massachusetts Sustainable Design Roundtable. Furthermore, Contractor understands that the Massachusetts LEED Plus standard or a higher LEED standard applies to all projects overseen by DCAMM, as well as all projects built on state land for use by state agencies. Contractor must document compliance with this executive order and Project LEED certification standards as described in the Specifications.

## **25. Electronic Project Management System.**

If so requested by the Awarding Authority, the Contractor and Subcontractors shall be required to use the Awarding Authority's electronic web-based project management information system as a repository for Project correspondence, documentation, budgeting, and scheduling, and all submittals and processes under this Contract, as directed by the Awarding Authority.

## **26. Drugs/Alcohol.**

The Contractor shall direct that all persons coming onto the Site are free of drugs and alcohol. The Contractor shall dismiss from the Project any individual employed by the Contractor or any Subcontractor or suppliers who is found by the Contractor, the Awarding Authority, or the User Agency to be in violation of this provision or in any other way incompetent, guilty of misconduct, or detrimental to the Project.

## **ARTICLE V** **MATERIALS AND EQUIPMENT**

### **1. Materials Generally.**

- A.** Unless otherwise specifically provided in the Contract Documents, the Contractor shall provide and pay for materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.
- B.** Materials and equipment to be installed as part of the Work (both or either of which are hereinafter referred to as "materials") shall be new, unused, of recent manufacture, assembled, and used in accordance with the best construction practices. The Contractor shall inform himself as to, and shall comply with, the provisions of M.G.L. c. 7, § 23A, as amended, and shall abide by the same and all applicable rules, regulations and orders made thereunder in relation to the purchase of supplies and materials in the execution of the Work, including the provisions of M.G.L. c.7, § 22, paragraph 17 which provides that there be *"a preference in the purchase of supplies and materials, other considerations being equal, in favor, first, of supplies and materials manufactured and sold within the Commonwealth, and, second, of supplies and materials manufactured and sold elsewhere within the United States."*

### **2. Shop Drawings, Product Data, and Samples.**

- A.** The Contractor shall furnish to the Designer all Samples of the materials to be used in the execution of the Work as required by the Contract Documents. The Contractor shall furnish to the Designer in a timely manner all coordination Drawings, shop details, Shop Drawings, and setting diagrams which may be necessary for acquiring and installing materials. These shall be reviewed as required by the Designer. Unless otherwise specified by the Awarding Authority, the Contractor shall provide a minimum of four (4) copies when submitting for final approval by the Designer, one of which shall be returned to the Contractor, one to the Resident Engineer, one to the Awarding Authority and one filed with the Designer. The inspection and approval by the Designer of Shop Drawings and setting diagrams shall be general and shall in no way relieve the Contractor from responsibility for proper fitting, coordinating, construction, and construction sequencing. The Contractor shall furnish to the Designer such information and vouchers relative to the Work, the materials therefor, and the persons employed thereon, as the Designer shall from time to time request.
- B.** Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. The purpose of their submission is to demonstrate for those portions of the Work for which submittals are required the way the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents.

- C. The Contractor shall review, approve, and submit to the Designer, Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Awarding Authority or of separate contractors. Submittals made by the Contractor which are not required by the Contract Documents or which do not comply with the Contract Documents may be returned without action. The Contractor's attention is directed to the provisions of Section 4 of this Article V and to the Specifications.
- D. The Contractor shall prepare and keep current for the Designer's approval a schedule of submittals which is coordinated with the Progress Schedule and allows the Designer reasonable time to review submittals.
- E. The Contractor shall perform no portion of the Work requiring submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been approved by the Designer. Such Work shall be in accordance with approved submittals.
- F. By submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents that the Contractor has determined and verified materials, field measurements, and field construction criteria related thereto and has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.
- G. The Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Designer's approval of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Designer in writing of such deviation at the time of submittal and the Awarding Authority has given explicit written approval to the specific deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals by the Designer's or the Awarding Authority's actions.
- H. The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples or similar submittals, to revisions other than those requested by the Designer on previous submittals.
- I. Informational submittals upon which the Designer is not expected to take responsive action may be so identified in the Contract Documents.
- J. When professional certification of performance criteria of materials, systems or equipment is required by the Contract Documents, such certification must be stamped by a registered Massachusetts professional in the discipline required. The Designer shall be entitled to rely upon the accuracy and completeness of such calculations and certifications.
- K. Materials furnished or used or employed under the Contract must be equal in quality to the Samples furnished and be satisfactory to the Designer.

### 3. Tests.

- A. Any material to be used in the Work may be tested or inspected at any time by the Designer with the prior Approval of the Awarding Authority and may be rejected if it fails to comply with specified tests. The Awarding Authority shall pay for all testing of specified material, except as provided herein. If the Contractor requests permission to use a material that was not specified, then the Contractor shall pay for such testing. The cost of testing of materials that fail the testing criteria shall be borne by the Contractor

**B.** The Contractor shall notify the Designer and the Awarding Authority of the proposed sources of materials in time to permit all required testing and inspection before the material is needed for incorporation into the Work. The Contractor shall have no claim arising from Contractor's failure to designate the proposed source or to order the material in time for adequate testing and inspection. Necessary arrangements shall be made to permit the Designer to make factory, shop or other inspection of materials or equipment ordered for the Work in process of manufacture or fabrication, or in storage elsewhere than the Site.

**4. "Or Equal" Submissions.**

- A.** Where products or materials are prescribed by manufacturer name, trade name, or catalog reference, the words "or Approved equal" shall be understood to follow. An item shall be considered equal to the item so named or described if in the opinion of the Awarding Authority (a) it is at least equal in quality, durability, appearance, strength and design, (b) it performs at least equally the function imposed in the general design for the Work, and (c) it conforms substantially, even with deviations, to the detailed requirements for the items as indicated by the Specifications. Any changes in the Work made necessary to accommodate products or materials substituted as an "or equal" shall be at the expense of the Contractor. "Approved equal" shall mean an item with respect to which the Awarding Authority shall have issued a written statement to the Contractor to the effect that the item is, in the Awarding Authority's opinion, equal within the meaning of this paragraph to that prescribed in the Contract Documents.
- B.** The Contractor shall be responsible for providing the Designer with any information and test results that the Designer reasonably requires to determine whether or not a material is equal to a material named or described in the Contract Documents.
- C.** Whenever the Contractor submits a material for Approval as a substitute for a material named or described in the Contract Documents, such submission shall be made at least one hundred twenty (120) days prior to the date the materials will be used in the Work. In no event shall the Contractor maintain a claim for delays based upon the Designer's review of such substituted materials if the Contractor has failed to comply with the one hundred twenty (120) day submission requirement.
- D.** The Contractor shall save the written calculations, pricing information, and other data that the Contractor used to calculate the General Bid (the "Bid Pricing Materials") for at least six years after the Awarding Authority makes final payment under this Contract. No increase in the Contract Price shall be allowed for any material later found to have been improperly rejected as not being equal unless the Contractor can show persuasive evidence that the rejection increased the Contractor's costs over those provided for in the Bid Pricing Materials, net of all savings the Contractor obtained by substituting other "or-equal" items. Without limiting the foregoing, if the Awarding Authority rejects a proposed substitution on the basis that the item is not equal and if after the Contractor complies with the appeal procedures required by law, DCAMM regulation, and by the Contract Documents, the appropriate authority finds that the proposed substitution was equal, the Contract Price may be increased only to the extent that:
  - (1) the item that the Contract Documents specifically require costs more than the item later approved as equal;
  - (2) the Bid Pricing Materials prove that the Contractor calculated its bid using the cost of the item later found as equal;

- (3) any increase is reduced by any cost that the Contractor would have incurred for structural or mechanical changes necessary to accommodate the substitute item;
- (4) the Contractor shall not be entitled to any adjustment for overhead and profit;
- (5) any increase must exceed the aggregate amount that the Contractor saved using products or materials that the Awarding Authority approved as equal under this Contract.

In calculating the Contractor's aggregate saving under the preceding clause (5), the Contractor shall provide the Awarding Authority with the Bid Pricing Materials and a calculation based on the Bid Pricing Materials that compare the price (stated in the Bid Pricing Materials) of each item replaced with an "or equal" item, with the cost of the approved equal item, specifically describes all costs that Contractor would have incurred making structural or mechanical changes to include within the Work the item later found to have been improperly rejected and copies of all plans, specifications, shop drawings, and other design documents that the Awarding Authority deems necessary or desirable.

## **5. Delivery and Storage of Materials; Inspection.**

- A.** Materials and equipment shall be progressively delivered to the Site so that there will be neither delay in the progress of the Work nor an undue accumulation of materials that are not to be used within a reasonable time and so that their security, quality, and fitness of the materials for the Work is preserved.
- B.** Materials stored off Site shall be insured and stored at the expense of the Contractor so as to guarantee the preservation of their security, quality and fitness for the Work. Without derogating from the Contractor's responsibilities in the previous sentence, when necessary to avoid deterioration or damage, material (on or off Site) shall be placed on wooden platforms or other hard clean surfaces and not on the ground and shall be properly protected.
- C.** The Contractor shall obtain prior written Approval for permission to store materials or equipment to be incorporated into the Work for which progress payments will be requested at off-Site locations. Any and all charges for storage, inspection, and verification by the Designer and Awarding Authority, including insurance, shall be borne solely by the Contractor. Before Approval, the Awarding Authority may require, without limitation
  - (1) evidence that the off-Site location is properly secure;
  - (2) proper proof of insurance and proof of satisfactory contractual arrangement for transportation to the Site; and
  - (3) a certificate from the Contractor stating: (i) the name of the member of the Contractor or Subcontractor that leases or owns the warehouse or other storage facility; (ii) the location of such storage facility, including the storage space (i.e. the entire premises or certain areas of a warehouse giving the number of floors or portions thereof) and a certification that the Contractor has visited such location, verified the storage of such materials or equipment therein or thereon (including confirmation that the materials or equipment are marked and segregated as provided below) and verified payment of all current storage charges; (iii) the date(s) on which the materials or equipment is first stored at such facility; and (iv) a description of the materials or equipment stored, including quantities, types, manufacturers and other identification information, such as serial numbers.

The Contractor shall furnish to DCAMM, not less often than once per month, a current inventory of all materials or equipment being stored at any off-Site location. The Contractor shall mark each sealed carton or other item with the name of the Project and the Awarding Authority, and all materials or equipment stored off-Site shall be segregated to the extent required by the Awarding Authority or the Designer. Payment for materials or equipment stored off-Site shall be at the reasonable discretion of the Awarding Authority, taking into account the schedule requirements of the Work. Title to materials or equipment stored off-Site shall be transferred at the time at which the Awarding Authority pays for them, free of any lien or other interest of the supplier or any other lien or encumbrance. Notwithstanding such transfer of title, the Contractor shall retain sole care, custody and control of, and shall have complete responsibility for the security and protection of, all materials or equipment included in any application for payment which are stored at locations other than the Site, and the Contractor assumes all risk of loss or damage to such materials or equipment, and the Contractor shall hold harmless the Awarding Authority from and against all liabilities arising out of or resulting from loss or damage, from any cause, to such materials or equipment for which payment is requested, including liens, security interests or other claims of any kind by suppliers or other third parties relating to such materials or equipment.

- D.** Expenses for inspection of material by the Designer and/or the Awarding Authority personnel including travel, quarters, and subsistence shall be borne by the Contractor requesting the inspection of material stored outside the Commonwealth of Massachusetts as part of the Contract Price. The policy of the Awarding Authority precludes the payment for material stored outside the boundaries of Massachusetts except in extremely limited circumstances with the express written consent of the Awarding Authority. If the Contractor requests an inspection of material stored outside the Commonwealth of Massachusetts, the Awarding Authority will initially pay for all expenses of inspecting the material incurred by the Designer and/or Awarding Authority's personnel including travel, quarters, and subsistence. The Awarding Authority will then give Contractor an invoice for those costs and the Contractor shall submit a credit Change Order in the amount of those expenses.
- E.** Stored materials either at the Site or at some other location agreed upon in writing shall be so located as to facilitate prompt inspection and even though approved before storage, may again be inspected prior to their use in the Work.
- F.** All storage sites shall be restored to their original condition by the Contractor at the Contractor's expense.
- G.** The Contractor shall take charge of and be liable for any loss of or injury to the materials for his use delivered to or in the vicinity of the place where the Work is being done, whether furnished by the Owner or otherwise; the Contractor shall notify the Designer as soon as any such materials are so delivered, allow them to be examined by the Designer, and furnish workers to assist therewith.

## **6. Defective, Damaged, or Deteriorated Materials and Rejection Thereof.**

The Designer may reject materials if the Designer reasonably determines that such materials do not conform to the Contract Documents in any manner, including but not limited to materials that have become damaged or deteriorated from improper storage whether or not such materials have previously been accepted. The Contractor at its own expense shall remove rejected materials from the Work. No rejected material, the defects of which have been

subsequently corrected, shall be used except with the written permission of the Designer. Should the Contractor fail to remove rejected material within a reasonable time, the Designer and/or Awarding Authority may, in addition to any other available remedies, remove and/or replace the rejected material, and deduct the cost of such removal and/or replacement from any moneys due or to become due the Contractor. No extra time shall be allowed for completion of Work by reason of such rejection. The inspection of the Work shall not relieve the Contractor of any of its obligations herein prescribed, and any defective Work shall be corrected. Work not conforming to the Contract Documents may be rejected notwithstanding that such Work and materials have been previously overlooked or misjudged by the Designer and accepted for payment. If the Work or any part thereof shall be found defective at any time before Final Acceptance of the whole Work, the Contractor shall forthwith make good such defect in a manner satisfactory to the Designer. Nothing in the Contract shall be construed as vesting in the Contractor any property rights in the materials used after they have been attached or affixed to the Work or the Site; but all such materials shall upon being so attached or affixed become a property of the Owner.

## **ARTICLE VI** **PROSECUTION AND PROGRESS**

### **1. Beginning, Progress Schedule, and Completion of Work.**

- A.** The Contract time shall commence upon the date specified in the Notice to Proceed. The Contractor shall begin Work at the Site within ten days of said date unless otherwise ordered in writing by the Awarding Authority.
- B.** Prior to the submission of the first progress payment, the Contractor shall submit to the Designer and to the Awarding Authority, a progress schedule for the term of the Contract as required by the Contract Documents, showing in detail his proposed progress for the construction of the various parts of the Work and the proposed times for receiving required materials. Upon Approval by the Awarding Authority, said schedule shall constitute the Progress Schedule. The Contractor shall at the end of each month, or more often if required, furnish to the Designer and to the Awarding Authority a schedule meeting the requirements of the Specifications showing the actual progress of the parts of the Work in comparison with the Progress Schedule.
- C.** Time is of the essence of this Contract. The Work shall be completed within the time specified in Article 2 of the Contract. Should the Contractor require additional time to complete the Work, the Contractor shall document the reasons therefor and submit a written request for an extension of time within 20 days of the occurrence of the event alleged to be the cause of the delay, as provided in this Article and in Article VII of these General Conditions. Failure to submit said written request within the time required by the preceding sentence shall preclude the Contractor from subsequently claiming any time extension due to said delay.
- D.** If, in the opinion of the Designer or the Awarding Authority, the Contractor fails to comply with the Progress Schedule, the Awarding Authority may give the Contractor a written notice to that effect whereupon (1) the Contractor shall, if the notice requires, discontinue all or any portion of the Work (which discontinuance shall neither terminate the Contract nor give the Contractor any claim for an increase in the Contract Price, damages, or an extension of any completion deadlines); or (2) at Contractor's sole cost increase the work force, equipment and plant, or any of them, employed on the whole or any part of the Work, to the extent required by such notice, and employ the same from

day to day until the completion of the Work or such part thereof, or until the failure regarding the rate of progress, in the opinion of the Designer or the Awarding Authority, shall have been sufficiently corrected.

- E. If, in the opinion of the Awarding Authority, the Contractor fails to comply with the Progress Schedule, and whether or not the Awarding Authority shall have given the Contractor a notice described in D above, the Awarding Authority may (but shall not be required to) give the Contractor notice of such failure and five days to cure the same. Unless the Contractor shall within that five days take all necessary steps to do so (including, if the Awarding Authority requires, increasing its forces, equipment and plant) and continue to do so until in the opinion of the Awarding Authority the failure is corrected, the Awarding Authority may at the Contractor's expense and without terminating this Contract take exclusive or joint possession of all or a portion of the Site and employ and direct the labors of existing or such additional forces, equipment and plant as may in the Designer's or Awarding Authority's opinion be necessary to ensure the completion of the Work or such part thereof within the time specified in the Contract Documents or at the earliest possible date thereafter. The Awarding Authority may exercise its rights under this Article at any time and from time to time without waiving any of its rights under this Contract, at law or in equity, including, without limitation, the right to deem this Contract terminated or to order the Contractor to discontinue the Work at any time thereafter. The Contractor shall continue to perform the remaining Work under this Contract even if the Awarding Authority elects to have another contractor perform a portion of the Work under this Article.
- F. The Awarding Authority shall deduct the cost of any actions the Awarding Authority takes under this Article from any amount then due or which might have become due to the Contractor under this Contract had the Contractor performed as required. On demand, the Contractor shall pay the Awarding Authority any amount by which the cost of completing all or any portion of the Work exceeds the amount attributable to that Work under the Contract Documents. The Awarding Authority's sole goal will be to complete the Work that it elects to complete within the time limits stated in the Contract or at the earliest possible date thereafter. Consequently, the Awarding Authority shall have no obligation to obtain competitive bids or the lowest cost for completing the Work or any part thereof, except when it is required by Law. The Awarding Authority's election to complete all or part of the Work shall not release the Contractor from any liability for failure to complete the Work as the Contract Documents require, and shall not entitle the Contractor to a claim for an increase in the Contract Price or an extension of the time for completing the Work. If the cost that the Awarding Authority incurs in completing all or any portion of the Work is less than the amount that the Contract Documents attribute to that Work, the Awarding Authority will pay or credit the difference to the Contractor, less any other costs and expenses that the Awarding Authority incurs, including the cost of supervision, and the Designer's and attorneys' fees and costs.

## **2. Failure to Complete Work on Time - Liquidated Damages.**

- A. If the Contractor shall neglect, fail or refuse to achieve the Substantial Completion Date, the Contractor and the Contractor's surety agree, as a part of the consideration for the execution of this Contract by the Awarding Authority, to pay the Awarding Authority the amounts set forth in Article 2 of the Contract, not as a penalty, but as liquidated damages to cover certain losses, expenses, and damages of the Awarding Authority for such breach of this Contract as herein set forth. The Contractor acknowledges that delay of the

Substantial Completion Date will cause disruption of the Awarding Authority's operations and those of the User Agency. Such disruptions include without limitation, loss of productivity and efficiency and duplication of effort of the User Agency and of employees and contractors engaged by the User Agency and the Awarding Authority for operation of the completed facility. The Awarding Authority and the User Agency will incur other direct administrative, professional, rental, storage, moving, transportation, and other costs in the event of such delay. Delay of the Substantial Completion Date will also require the Awarding Authority to incur additional costs for compensation to the Designer and other consultants or contractors for extended or additional services on the Project. In light of the costs, damages, losses, risks and liabilities described above, the parties agree upon the liquidated damages stated below. Such damages have been fixed and agreed upon because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the Awarding Authority and the Commonwealth would, in such event, sustain. Said amounts may be retained by the Awarding Authority on or after the scheduled Substantial Completion Date from current progress payments or any other amounts owing to the Contractor.

- B.** Similarly, if the Contract states that by a specified date a designated portion of the Work shall be prosecuted to the point at which it qualifies for the issuance of a Certificate of Substantial Completion, and if such portion has not been prosecuted to such point by said date, the Contractor shall pay to the Awarding Authority the sum designated in the Contract for each calendar day that the Contractor is in default in completing such portion of the Work to such point. Such moneys shall also be paid as liquidated damages not as a penalty, to cover losses and expenses to the Owner resulting solely from the fact that the Work is not completed on time.
- C.** The Awarding Authority may recover such liquidated damages by deducting the amount thereof from any moneys due or that might become due the Contractor, and if such moneys shall be insufficient to cover the liquidated damages, then the Contractor or the Surety shall pay to the Awarding Authority the amount due.
- D.** Except as otherwise expressly provided, none of the following shall constitute a waiver of the Contractor's or its surety's obligations to pay liquidated damages or any portion thereof or of any of the Owner's rights hereunder at law or in equity:
  - (1) Acceptance of any portion of the Work or payment to the Contractor or its surety therefor;
  - (2) Completion of a portion of the Work or the use and occupancy thereof by the Awarding Authority or others; or
  - (3) The Awarding Authority's requiring or allowing the Contractor or its surety to complete the Work.
- E.** Liquidated damages or a portion thereof may be waived by the Awarding Authority if the Contractor submits evidence satisfactory to the Awarding Authority that the delay was caused solely by conditions beyond the control of the Contractor and that the Awarding Authority has not suffered any damages as a result of said delay.
- F.** Failure by the Awarding Authority to specify a sum as liquidated damages in the Contract, or the insertion of "N/A" or "none" in the space provided therein for liquidated damages, shall not be deemed a waiver of the Awarding Authority's right to recover actual damages arising from the Contractor's failure to complete the Work on time.

### **3. Delays; Statutory Provisions (M.G.L. c. 30, § 39O).**

- A. Notwithstanding any provision of this Contract to the contrary, except as otherwise provided by Law as set forth in paragraph B below, the Contractor shall not be entitled to increase the Contract Price or to receive damages on account of any hindrances or delays, avoidable or unavoidable, including damages for compression or acceleration of Work, or loss of productivity; but if any delay is caused, in the opinion of Awarding Authority, by the Awarding Authority, the Contractor shall be entitled to an extension of time. The length of the extension shall be sufficient in the opinion of the Awarding Authority or the Contractor to complete the Work. Although no delay shall increase the Contract Price, the Awarding Authority may require that any change in the date by which the Contractor must complete all or any part of the Work be processed on a standard Change Order form.
- B. If a suspension, delay, interruption or failure to act of the Awarding Authority increases the cost of performance to any Subcontractor, that Subcontractor shall have the same rights against the Contractor with respect to such increase as the Contractor shall have against the Awarding Authority by virtue of (a) and (b) of M.G.L. c. 30, § 39O set forth below, but nothing in provisions (a) and (b) shall alter any other rights which the Contractor or the subcontractor may have against each other. As used in the statutory language of (a) and (b) below, "contract" means this Contract, "general contractor" means the Contractor and "awarding authority" means the Awarding Authority:
 

*"(a) The awarding authority may order the general contractor in writing to suspend, delay, or interrupt all or any part of the work for such period of time as it may determine to be appropriate for the convenience of the awarding authority; provided, however, that if there is a suspension, delay or interruption for fifteen days or more or due to a failure of the awarding authority to act within the time specified in this contract, the awarding authority shall make an adjustment in the contract price for any increase in the cost of performance of this contract but shall not include any profit to the general contractor on such increase; and provided further, that the awarding authority shall not make any adjustment in the contract price under this provision for any suspension, delay, interruption or failure to act to the extent that such is due to any cause for which this contract provides for an equitable adjustment of the contract price under any other contract provisions.*

*(b) The general contractor must submit the amount of a claim under provision (a) to the awarding authority in writing as soon as practicable after the end of the suspension, delay, interruption or failure to act and, in any event, not later than the date of final payment under this contract and except for costs due to a suspension order, the awarding authority shall not approve any costs in the claim incurred more than twenty days before the general contractor notified the awarding authority in writing of the act or failure to act involved in the claim."*

#### **4. Use and Occupancy Prior to Final Acceptance.**

- A. The Contractor agrees to the use and occupancy of the Project or any portion thereof before Final Acceptance of the Work by the Awarding Authority.
- B. The Awarding Authority and the User Agency will cooperate with the Contractor with respect to the completion of the Work by taking such reasonable steps as may be possible to avoid interference with the Contractor's Work provided that they do not interfere with the proper functioning of the facility.

- C. The Contractor shall not be responsible for wear and tear or damage resulting solely from temporary occupancy.
- D. Use and occupancy of any part of the Work prior to Final Acceptance by the Awarding Authority shall not relieve the Contractor from maintaining the required payment and performance bonds and insurance (to the extent that insurance is required to be maintained after Substantial Completion) required by this Contract.

## **5. Certificate of Substantial Completion.**

- A. When the Work, or portion thereof which the Awarding Authority agrees to accept separately has reached the state of Substantial Completion as shown on Approved payment request, the Contractor shall develop, with the participation of the Designer and the Awarding Authority, the Punch List identifying those items of unfinished or unacceptable Work that remain to be performed or corrected under the Contract.
- B. Before the Work shall be deemed completed to the point where it is ready for the issuance of a Certificate of Substantial Completion, the Contractor shall:
  - (1) Provide Contractor's proposed Punch List containing a statement of the reason for each item listed thereon;
  - (2) Advise the Awarding Authority of proposed changes in insurance in accordance with the provisions of this Contract, and provide to the Awarding Authority evidence of Contractor's completed operations insurance coverage to the extent required by the Contract Documents;
  - (3) Execute and submit a notarized warranty on a form provided by the Awarding Authority or otherwise acceptable to the Awarding Authority meeting the requirements of Article IX of these General Conditions, to commence upon the date of the issuance of the Certificate of Substantial Completion for the Work or the designated portion thereof, unless otherwise provided in the Certificate of Substantial Completion;
  - (4) Submit signed special warranties and warranties of longer than one year as required by the Contract Documents;
  - (5) Submit signed maintenance agreements for all portions of the Work specified to receive maintenance after the issuance of the Certificate of Substantial Completion;
  - (6) Submit all preliminary record Drawings and documents and framed data in the forms required by the Contract Documents;
  - (7) Complete all items required to be completed by the Department of Public Safety and obtain a Certificate of Occupancy from the Department of Public Safety (or, if the Awarding Authority is a municipality, the building department having jurisdiction) and similar releases which permit the User Agency and the Awarding Authority full and unrestricted use of the areas claimed to be ready for occupancy;
  - (8) Deliver specified maintenance stocks of materials, required spare parts, and all special tools furnished by manufacturers to persons designated by the Awarding Authority and obtain written receipts for same;
  - (9) Make final changes of lock cylinders or cores and advise the Awarding Authority of the change of project security responsibility;

- (10) Complete start-up of systems and instruct User Agency personnel on proper operation and routine maintenance of all systems and equipment; obtain and submit to User Agency personnel that start-up and instruction have been completed;
- (11) Remove all remaining temporary facilities that are no longer needed, surplus materials, and debris (provided, however, that the Contractor shall not remove construction offices and trailers without the prior Approval of the Awarding Authority);
- (12) Submit final utility meter readings and similar information and advise the User Agency and the Awarding Authority of the change of responsibility for utility charges and payments upon the issuance of the Certificate of Substantial Completion;
- (13) Complete final clean-up of all Work, restoration of damaged finishes, and replacement of all damaged and broken glass not listed on the Contractor's Punch List.
- (14) Complete such other items as may be called for in the Contract Documents, if any, including without limitation the Specifications.

C. After completing the items specified in subsections A and B above, the Contractor shall make a written request for the Designer's inspection for a Certificate of Substantial Completion in accordance with the Contract Documents. The Designer shall review the submittals and the Work and shall either 1) sign a Certificate of Substantial Completion or 2) notify the Contractor of incomplete and/or incorrect Work that must be completed and corrected prior to the issuance of the Certificate of Substantial Completion. The Designer shall notify the Contractor of any additions to the Punch List. In connection with the execution of the Certificate of Substantial Completion the Designer shall assign dollar values to each item on the Punch List. Failure to include any incomplete or defective item on the Punch List shall not relieve the Contractor of the obligation to complete all Work in accordance with the Contract Documents.

## **6. Final Acceptance of the Work.**

A. **Prerequisites for Final Acceptance.** After the issuance of a Certificate of Substantial Completion for the entire Work, and after the Contractor has completed all of the Work required by this Contract, including Change Orders and Punch List items, the Contractor shall submit the following completed items to the Awarding Authority together with such additional items as may be specified in the Contract Documents:

- (1) A completed final application for payment showing a final accounting of all changes in the Work, on the form provided by the Awarding Authority.
- (2) Certification and satisfactory evidence that all taxes, fees, and similar obligations have been paid.
- (3) Consent of the Contractor's surety to final payment executed by applicable bonding companies.
- (4) Certified copy of the Punch List stating that the Contractor has completed or corrected every item listed.
- (5) Evidence of Contractor's continuing completed operations insurance coverage to the extent required by the Contract Documents.

- (6) All final record Drawings and documents in the forms specified by the Contract Documents.
- (7) A notarized certification that all purchases made under the tax exemption certificate were legitimate and entitled to exemption.
- (8) Written certifications from the Department of Public Safety (or if the Awarding Authority is a municipality, the building department having jurisdiction) and the Designer to the effect that: a) the Work has been inspected for compliance with the Contract Documents and has satisfied the Department of Public Safety; b) all equipment and systems included in the Work have been tested in the presence of the Designer and are operational and satisfactory; c) the Work is completed and ready for final inspection.
- (9) Such other items as may be required by the Contract Documents.

**B. Reinspection; Final Acceptance.** After notification from the Contractor that all remaining Contract exceptions, omissions and incompletions have been completed (with the exception of Contractor's continuing warranty, insurance, indemnification, and such other obligations as are intended by the terms of the Contract Documents to extend beyond the date of Final Acceptance), the Awarding Authority and the Designer shall inspect the Work to verify the completion of the same. If the Work is satisfactory, the Awarding Authority shall prepare a Certificate of Final Acceptance or shall notify Contractor in writing of items which remain to be completed prior to Final Acceptance.

## **7. One-Year Warranty Repair List and Inspection.**

Approximately 30 days prior to the expiration of the comprehensive one-year warranty period, the Contractor shall schedule an appointment with the Awarding Authority for a re-inspection of the Work with the Awarding Authority, and shall thereafter inspect the work at the time scheduled. Based on this inspection and on prior inspections, the Awarding Authority shall issue a "Warranty Repair List" of items to be corrected by the Contractor. The Contractor shall make the repairs and/or replacements listed within 30 days of the issuance of the "Warranty Repair List" unless otherwise agreed by the Awarding Authority in writing.

## **ARTICLE VII** **CHANGES IN THE WORK**

### **1. Change Orders Generally.**

- A.** No changes in the Work, the Contract Price, the Substantial Completion date, the Final Acceptance date, or any other provision of an Approval by the Awarding Authority of the Contract Documents shall be made in absence of a Change Order as defined in Article I of these General Conditions, directing the Contractor to perform such changes. Any request for a change in the provisions of this Contract submitted by the Contractor must be made in writing and in accordance with the provisions of this Contract, including the procedures of the Awarding Authority.
- B.** A request for a change in the provisions of this Contract may be submitted to the Awarding Authority by the Contractor, Designer, Resident Engineer or User Agency. The request must be made in writing and in accordance with the provisions of this Contract, Laws, and the procedures of the Awarding Authority. When the Contractor believes that

an event or circumstance gives rise to an adjustment in the Contract Price and/or the Contract time it shall submit a Change Order Request in accordance with the forms and procedures required by the Awarding Authority.

- C.** A written directive may be issued by the Awarding Authority instructing the Contractor to make changes in the Work within the general scope of the Contract, including but not limited to, changes in: (1) the Drawings and Specifications; (2) the method or manner of performance of the Work; (3) the Owner-furnished facilities, equipment, materials, services or Site; (4) the schedule for performance of the Work.
- D.** Whenever a Change Order or written directive will cause a change in the Contractor's cost, the Contractor or the Awarding Authority may request an adjustment in the Contract Price. Such request shall be in writing and shall be submitted by the party making such claim to the other party before commencement of the pertinent work.
- E.** The Awarding Authority and the Contractor shall negotiate in good faith an agreement on an equitable adjustment in the Contract Price, and/or time if appropriate, before commencement of the pertinent Work. In the absence of an agreement for an equitable adjustment, the Awarding Authority shall unilaterally determine the costs attributable to the change and provide the Contractor with a written notice to that effect. The Contractor may appeal the decision of the Awarding Authority within thirty days of receipt of said notice, to the chief executive official of the Awarding Authority (in the case of DCAMM, the DCAMM commissioner) or the chief executive's designee, and the Contractor shall have the right to such further appeal as is provided in M.G.L. c.30, § 39Q set forth in Article VII4.D. However, if the Contractor shall exercise its rights to appeal the decision of the Awarding Authority as aforesaid, the Contractor shall be required to engage in the mandatory mediation procedures set forth in Article VII.5.
- F.** During the negotiation of an equitable adjustment in the Contract Price, the Contractor shall provide the Awarding Authority with all cost, pricing data and any other information or documentation used by the Contractor in computing the amount of the equitable adjustment, and the Contractor shall certify that the pricing data used was accurate, complete, and current. If the Awarding Authority subsequently determines that the data submitted by the Contractor was inaccurate, incomplete, or not current, the Awarding Authority may exclude such data from consideration under the equitable adjustment request.
- G.** Whenever the Contractor is entitled or believes it is entitled to a Change Order adjusting the Contract Price, the Contractor shall maintain separate accounts (by job order or other suitable accounting procedure) of all costs incurred and attributable to such work and schedule. The Contractor shall maintain a computerized accounting system, acceptable to the Awarding Authority, in which current information as to the status of all such Work and schedule is maintained. The Contractor shall maintain such contemporaneous records as are necessary to provide a clear distinction between the costs of all Change Order Work and proposed Change Order Work, and the costs of other Work and schedule.
- H.** Notwithstanding any provisions in the Contract Documents to the contrary, no additional general conditions cost shall be due for any Change Order or portion of a Change Order resulting from or attributable to:
  - (1) Increases in the cost of allowance items;
  - (2) Substitutions of equipment or materials which are functionally similar to equipment or materials specified in the Contract Documents; or

(3) Sales and use taxes.

I. The Contractor shall reasonably investigate the validity of Subcontractor and supplier change order requests before agreeing to pass them through to the Awarding Authority. For all Change Order Requests submitted, the Contractor shall certify that: the Change Order Request is made in good faith; the validity of the Contractor's and any Subcontractor and supplier Change Order Requests have been verified; the supporting data is accurate and complete to the best of the Contractor's knowledge and belief; and the Contractor believes the Awarding Authority to be liable for the add amount, or entitled to the deduct amount of the Change Order Request, whichever is applicable.

**2. Methods of Computing Equitable Adjustments.**

A. Equitable adjustments in the Contract Price shall be determined according to one of the following methods, or a combination thereof, as determined by the Awarding Authority:

- (1) fixed price basis, provided that the fixed price shall be inclusive of items (a) through (g) below and shall be computed in accordance with those provisions and as detailed in the Awarding Authority's instructions and procedures regarding Change Order Request submissions, Contract Modifications and equitable adjustments (For DCAMM Projects, DCAMM Form 13 included in Appendix C to these General Conditions);
- (2) estimated lump sum basis to be adjusted in accordance with Contract unit prices or other agreed upon unit prices provided that the unit prices shall be inclusive of all costs related to such equitable adjustment;
- (3) time and materials basis to be subsequently adjusted based upon of actual costs (but subject to a predetermined "not to exceed limit") calculated as follows:
  - (a) the direct cost (or credit) for labor at the minimum wage rates established for this Contract pursuant to M.G.L. c. 149, §§ 26-27H;
  - (b) plus (or minus) the cost of workmen's compensation insurance, liability insurance, federal social security and Massachusetts unemployment compensation, which are to be calculated using an allowance equal to 40% applied to said rate. The rate of 40 percent is inclusive of all insurances, taxes, general conditions, overhead, superintendence, fee, and profit. No other expenses are allowed; for example, sick time, vacation time, etc. are included in the all-inclusive rate. Documentation must be provided if a higher percentage is requested and will only be accepted for workmen's compensation over 12.5%.
  - (c) plus (or minus) the actual direct additional premium costs and expenses incurred as a result of collective bargaining agreements or other agreements between organized labor. No allowance for markups is allowed on these costs.
  - (d) plus the direct cost of materials and use of equipment; an allowance equal to 15% of the amount of materials and equipment for general conditions, overhead, superintendence, fee, and profit can be applied.
  - (e) plus certain miscellaneous services Approved in advance by the Awarding Authority (e.g. police details, utilities, etc.) and provided, which may be subject to a 5% markup.
  - (f) plus (or minus) the actual direct premium cost of payment and performance bonds required of the Contractor and certain Subcontractors for this Contract.

- (g) the Contractor shall receive an allowance equal to 5% of the sum of items (a) through (e) above for overhead, superintendence, fee, and profit when the work is performed by Subcontractors. Subcontractors can also apply an allowance equal to 5% of the sum of items (a) through (e) above for overhead, superintendence, fee, and profit when the work is performed by sub-Subcontractors.
- (4) The Contractor and its Subcontractors are required to anticipate annual updated minimum wage schedules in accordance with M.G.L. c. 149, § 27 and shall not be entitled to claim additional compensation for base bid contract Work due to updated minimum wage schedules.
- B.** If the net change is an increase to the Contract Price, it shall include the value of the Contractor's overhead, superintendence, fee and profit. On any change that involves a net credit, the amount of the credit shall include the hard cost of the work being credited and the value of the overhead, superintendence, fee and profit applicable thereto (calculated as an agreed upon percentage multiplied by such hard cost of the work). Charges for small tools known as "tools of the trade" are not to be computed in the amount of any change in the Contract Price.
- C.** Substitutions in Subcontractors made in accordance with the provisions of M.G.L. c. 149, § 44F shall not be considered Change Orders and shall not entitle the Prime Contractor to any adjustments for overhead, profit, and superintendence, although the Awarding Authority may require that such Contract adjustments be processed on standard Change Order and equitable adjustment forms.
- D.** For DCAMM Projects, refer to Appendix C (Commonly Used Forms) to these General Conditions for instructions regarding Change Orders, Contract Modifications, and equitable adjustments (DCAMM Form 13), form for request for Approval of wages and rates for Change Order pricing (DCAMM Form 14) and format for submission of Change Order (DCAMM Form 15). Section 2 (Directions for Computing Costs for Changes in the Work) of DCAMM Form 13 contains specific information for computing the cost of changes. DCAMM Form 14 and DCAMM Form 15 are available electronically and will be provided to the Contractor prior to the start of construction. The Contractor, all Subcontractors, and sub-Subcontractors shall utilize DCAMM Form 15 when submitting Change Order Requests.

### **3. Work Performed under Protest.**

The Contractor agrees to perform all Work as directed by the Awarding Authority, and if the Awarding Authority determines that certain Work that the Contractor believes to be or to warrant a Change Order under this Article does not represent a change in the Work, the Contractor shall perform said Work. The Contractor shall be deemed to have concurred with the Awarding Authority's determination as aforesaid unless the Contractor shall perform Work under protest in compliance with the following sub-paragraphs (1) and (2) below. Any disputed order, decision or action by the Awarding Authority or its authorized representative shall be fully performed or complied with pending resolution of the dispute.

- (1) If the Contractor claims compensation for a change in the Work that is not deemed by the Awarding Authority to be a change or to warrant additional compensation as claimed by the Contractor, the Contractor shall on or before the first working day following the commencement of any such Work or the sustaining of any such damage submit to the Awarding Authority a written statement of the nature of such Work or

claim. The Contractor shall not be entitled to additional compensation for any Work performed or damage sustained for which written notice is not given within the time limit specified in the preceding sentence, even though similar in character to work or damage with respect to which notice is timely given.

(2) On or before the second working day after the commencement of such Work or the sustaining of such damage, for each day upon which work occurs or damage is sustained, the Contractor shall file to the extent possible with the Resident Engineer, the Designer, and the Awarding Authority, itemized statements of the details and costs of such Work performed or damage sustained. Unless otherwise indicated by the Awarding Authority in writing, the Contractor shall use the Awarding Authority's "Daily Time and Materials Report" form found in Appendix C to these General Conditions to record all labor and material used. If the Contractor shall fail to make such statements, then the Contractor shall not be entitled to additional compensation for any such work or damages.

#### **4. False Claims, Statutory Provisions Regarding Changes.**

**A. Criminal Penalties.** The Contractor's attention is directed to M.G.L. c. 30, § 39I which provides criminal penalties for unauthorized deviations from the Drawings and Specifications, and to M.G.L. c. 30, § 39J and M.G.L. c. 7C, §§ 17-21. The Contractor's attention is also directed to M.G.L. c. 266, § 67B which provides criminal penalties for false claims by Contractor under this Contract:

*"Whoever makes or presents to any employee, department, agency or public instrumentality of the commonwealth, or of any political subdivision thereof, any claim upon or against any department, agency, or public instrumentality of the commonwealth, or any political subdivision thereof, knowing such claim to be false, fictitious, or fraudulent, shall be punished by a fine of not more than ten thousand dollars or by imprisonment in the state prison for not more than five years, or in the house of correction for not more than two and one-half years, or both."*

#### **B. Differing Site Conditions (M.G.L. c. 30, § 39N).**

*"If, during the progress of the work, the contractor or the Awarding Authority discovers that the actual subsurface or latent physical conditions encountered at the Site differ substantially or materially from those shown on the plans or indicated in the contract documents either the contractor or the contracting authority may request an equitable adjustment in the contract price of the contract applying to work affected by the differing site conditions. A request for such an adjustment shall be in writing and shall be delivered by the party making such claim to the other party as soon as possible after such conditions are discovered. Upon receipt of such a claim from a contractor, or upon its own initiative, the contracting authority shall make an investigation of such physical conditions, and, if they differ substantially or materially from those shown on the plans or indicated in the contract documents or from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the plans and contract documents and are of such a nature as to cause an increase or decrease in the cost of performance of the work or a change in the construction methods required for the performance of the work which results in an increase or decrease in the cost of the work, the contracting authority shall make an equitable adjustment in the contract price and the contract shall be modified in writing accordingly."*

#### **C. Timely Decision By the Awarding Authority ( M.G.L. c. 30, § 39P).**

*"Every contract subject to section thirty-nine M of this chapter or section forty-four A of chapter one hundred forty-nine which requires the awarding authority, any official, its architect or engineer to make a decision on interpretation of the specifications, approval of equipment, material or any other approval, or progress of the work, shall require that the decision be made promptly and, in any event, no later than thirty days after the written submission for decision; but if such decision requires extended investigation and study, the awarding authority, the official, architect or engineer shall, within thirty days after the receipt of the submission, give the party making the submission written notice of the reasons why the decision cannot be made within the thirty day period and the date by which the decision will be made."*

**D. Change Order / Contract Interpretation Appeal Procedure (M.G.L. c. 30, § 39Q).**

The following provisions apply to every contract awarded by any state agency as defined by M.G.L. c. 7C, § 1 for the construction, reconstruction, alteration, remodeling, repair or demolition of any capital facility as defined by the aforesaid section 39A:

*"(a) Disputes regarding changes in and interpretations of the terms or scope of the contract and denials of or failures to act upon claims for payment for extra work or materials shall be resolved according to the following procedures, which shall constitute the exclusive method for resolving such disputes. Written notice of the matter in dispute shall be submitted promptly by the claimant to the chief executive official of the state agency which awarded the contract or his designee. No person or business entity having a contract with a state agency shall delay, suspend, or curtail performance under that contract as a result of any dispute subject to this section. Any disputed order, decision or action by the agency or its authorized representative shall be fully performed or complied with pending resolution of the dispute.*

*"(b) Within thirty days of submission of the dispute to the chief executive official of the state agency or his designee, he shall issue a written decision stating the reasons therefore, and shall notify the parties of their right of appeal under this section. If the official or his designee is unable to issue a decision within thirty days, he shall notify the parties to the dispute in writing of the reasons why a decision cannot be issued within thirty days and of the date by which the decision shall issue. Failure to issue a decision within the thirty-day period or within the additional time period specified in such written notice shall be deemed to constitute a denial of the claim and shall authorize resort to the appeal procedure described below. The decision of the chief executive official or his/her designee shall be final and conclusive unless an appeal is taken as provided below.*

*"(c) Within twenty-one calendar days of the receipt of a written decision or of the failure to issue a decision as stated in the preceding subparagraph, any aggrieved party may file a notice of claim for an adjudicatory hearing with the division of hearing officers or the aggrieved party may file an action directly in a court of competent jurisdiction and shall serve copies thereof upon all other parties in the form and manner prescribed by the rules governing the conduct of adjudicatory proceedings of the division of hearing officers. In the event an aggrieved party exercises his option to file an action directly in court as provided in the previous sentence, the twenty-one day period shall not apply to such filing and the period of filing such action shall be the same period otherwise applicable for filing a civil action in superior court. The appeal shall be referred to a hearing officer experienced in construction law and shall be prosecuted in accordance with the formal rules of procedure for the conduct of adjudicatory hearings of the division of hearing officers, except as provided below. The hearing officer shall issue a final decision as expeditiously as possible, but in no event more than one hundred and*

*twenty calendar days after conclusion of the adjudicatory hearing, unless the decision is delayed by a request for extension of time for filing post-hearing briefs or other submissions assented to by all parties. Whenever, because an extension of time has been granted, the hearing officer is unable to issue a decision within one hundred and twenty days, s/he shall notify all parties of the reasons for the delay and the date when the decision will issue. Failure to issue a decision within the one hundred and twenty-day period or within the additional period specified in such written notice shall give the petitioner the right to pursue any legal remedies available to him without further delay.*

*"(d) When the amount in dispute is less than ten thousand dollars, a contractor who is party to the dispute may elect to submit the appeal to a hearing officer experienced in construction law for expedited hearing in accordance with the informal rules of practice and procedure of the division of hearing officers. An expedited hearing under this subparagraph shall be available at the sole option of the contractor. The hearing officer shall issue a decision no later than sixty days following the conclusion of any hearing conducted pursuant to this subparagraph. The hearing officer's decision shall be final and conclusive, and shall not be set aside except in cases of fraud."*

## **5. Mandatory Mediation.**

In the case of every dispute where the dollar amount in dispute (or the estimated dollar value of the extension of time in dispute) is \$50,000 or more and the Contractor appeals the decision of the chief executive official of the Awarding Authority or his/her designee as required by M.G.L. c.30, § 39Q, quoted in Article VII.4.D.(b) above, the Awarding Authority and the Contractor shall engage in good faith in a non-binding mediation process, which process shall be concluded within sixty days from the date that the Contractor files an appeal from said decision as provided in M.G.L. c.30, § 39Q. In the case of such disputes where the dollar amount in dispute (or the estimated dollar value of the extension of time in dispute) is \$500,000 or more, if the mediation process fails, the Awarding Authority may, in its sole discretion, elect to submit the dispute to an impartial third party, not having an interest in the Owner, the Designer, the Program Manager, the Contractor, or the Project, which shall within sixty (60) days render a non-binding advisory opinion. Unless the parties have previously agreed in writing to a process for submitting disputes to mediation, the Awarding Authority shall determine in its reasonable discretion the procedures to be followed and shall give the Contractor notice of the same in writing within seven (7) days of the date that the Awarding Authority receives notice of the Contractor's appeal from the decision of the chief executive officer of the Awarding Authority or his designee. The cost of the services of any mediator selected by one party to this Contract shall be borne by the party making the selection. The cost of the services of any mediator selected jointly by the parties to this Contract or jointly by mediators selected by the parties to this Contract shall be borne equally by the Contractor and the Awarding Authority.

## **ARTICLE VIII** **PAYMENT PROVISIONS**

### **1. Schedule of Values.**

Before the first application for payment the Contractor shall submit to the Designer and the Awarding Authority for its Approval, a schedule of values in a form acceptable to the Awarding Authority and allocated to various portions of the Work in sufficient detail to reflect the various major components of each trade (with filed Subcontractors as well as MBE/WBE

noted), including quantities when requested, aggregating the total Contract Price and divided so as to facilitate payments for work under each section of the Specifications. The schedule shall be prepared in such form and supported by such data to substantiate its accuracy as the Awarding Authority may require. Each item in the schedule shall include its proper share of overhead and profit. When Approved by the Awarding Authority, it shall constitute the Schedule of Values and shall be used only as a basis for the Contractor's requests for payments and credits, the first of which payments shall not be made until such Schedule of Values is Approved by the Awarding Authority.

## **2. Payment Liabilities of Contractor.**

- A.** The Contractor shall pay to the Owner all expenses, losses and damages, as determined by the Awarding Authority or the Designer, incurred in consequence of any default, defect, omission or mistake of the Contractor or the Contractor's employees or Subcontractors or the making good thereof.
- B.** If the Work (or a portion thereof) is not completed to Substantial Completion and the Contractor has not satisfied the requirements for the issuance of a Certificate of Substantial Completion in accordance with Article VI.5 of these General Conditions, by the date specified in Article 2 of the Contract, the Contractor shall pay to the Owner liquidated damages as provided in Article VI.2 of these General Conditions.

## **3. Retention of Moneys by Awarding Authority.**

- A.** The Awarding Authority may keep any moneys which would otherwise be payable at any time hereunder and apply the same, or so much as may be necessary therefor, to (1) the Owner 's expenditures for the Contractor's account, (2) to secure the Awarding Authority's remedies against the Contractor for the Contractor's breach of its obligations under this Contract or the breach of any person performing any part of the Work and (3) the payment of any expenses, losses or damages incurred by the Awarding Authority or any agency of the Commonwealth as a result of the failure of the Contractor to perform its obligations hereunder. The Awarding Authority may retain, until all claims are settled, such moneys as the Awarding Authority estimates to be the fair value of the Awarding Authority's claims against the Contractor, and of all claims for labor performed or furnished and for materials used or employed in or in connection with the Work and for the rental of vehicles, appliances and equipment employed and for the employment of substitute contractors and labor in connection with the Work filed in accordance with M.G.L. c. 30, § 39A and § 39F. The Awarding Authority may make such settlements and apply thereto any moneys retained under this Contract.
- B.** The Contractor shall each week examine all claims so filed, and if the same are in any respect incorrect or do not correctly show the amount due from the Contractor to the claimant for such labor and materials, the Contractor shall forthwith file with the Awarding Authority a separate written statement of all inaccuracies in each claim and of the correct amount due from the Contractor to each claimant therefor, and shall immediately file a statement of all payments thereafter made to such claimants. Each such statement shall be sworn to and contain a detailed breakdown required by M.G.L. c. 30, § 39F (d) and (e). Unless such statements are so filed by the Contractor the amount shown by the claims filed shall, at the option of the Awarding Authority, be conclusively deemed to be the accurate amount due from the Contractor therefor in all accounting with the Awarding Authority. If the moneys retained under this Contract are insufficient to pay

the sums found by the Awarding Authority to be due under the claims for labor and materials filed as aforesaid, the Awarding Authority may, at its discretion, pay the same, and the Contractor shall repay to the Awarding Authority all sums paid out. The Awarding Authority may also at its discretion use any moneys retained, due or to become due under this Contract for the purpose of paying for both labor and materials used or employed in the Work for which claims have not been filed with the Awarding Authority.

C. No moneys retained under the provisions of this Article shall be held to be statutory security for the payment of claims filed in accordance with the provisions of M.G.L. c. 149, § 29, as amended, for which security is provided by bond.

#### **4. Applications for Payment.**

A. The Contractor shall, once in each month on the day of the month corresponding to the day of the month specified in the Notice to Proceed, unless otherwise directed by the Awarding Authority in writing, on forms provided and in the manner prescribed by the Awarding Authority, submit to the Awarding Authority a statement showing the total amount of Work done to the time of such estimate and the value thereof as approved by the Resident Engineer and the Designer. It shall be the sole responsibility of the Contractor to deliver or cause to be delivered to the "designee" as provided by M.G.L. c. 30, § 39K indicated by the Awarding Authority in writing, said periodic estimate in proper form, approved as provided above and arithmetically correct. For DCAMM projects, the "designee" as provided by M.G.L. c. 30, § 39K shall be the DCAMM Office of Finance Payment Unit, and requests for payment shall be submitted thereto in accordance with the "DCAMM Instructions and Procedures for Payment for Construction Contracts" included in Appendix C to these General Conditions. For other projects, unless otherwise indicated by the Awarding Authority in writing, said "designee" shall be the Resident Engineer, or, if there is no Resident Engineer, the Designer; if there is neither a Resident Engineer nor a Designer the designee shall be a person designated by the Awarding Authority at the project field office or alternatively the home office of the Awarding Authority. All periodic estimates shall contain such certifications and other evidence supporting the Contractor's right to payment as the Awarding Authority may require, including without limitation, lien waivers and other evidence, on such forms as the Awarding Authority may require, establishing that title to the equipment or materials is unencumbered and has been transferred to the Owner.. The Contractor shall include in such periodic estimate only such materials as are incorporated in the Work, except as provided in Article VIII.4.C below. The Awarding Authority shall retain five (5) percent of such estimated value as security for the completion of the Work and while the Contractor continues to carry on the Work, will pay to the Contractor the Approved balance, net of the five (5) percent, all previous payments, and all sums which may be otherwise retained under the provisions of this Contract.

B. Each periodic estimate shall constitute the Contractor's representation that:

- (1) the payment then requested to be disbursed has been incurred by the Contractor on account of the Work and is justly due to Subcontractors or, to the Contractor in the case of other Work performed by the Contractor on account thereof (if the Contractor's self-performance has been previously Approved in accordance with the Contract);
- (2) the materials, supplies and equipment for which application for payment is being submitted have been installed or incorporated into the Work or have been stored at the

Site or at such off Site storage locations as the Awarding Authority shall have Approved;

- (3) the materials, supplies and equipment are insured in accordance with the provisions of this Contract;
- (4) the materials, supplies and equipment are owned by the Owner and are not subject to any liens or encumbrances;
- (5) the Work which is the subject of such periodic estimate has been performed in accordance with the Contract Documents; and
- (6) that all due and payable bills with respect to the Work have been paid to date or shall be paid from the proceeds of such periodic estimate.

The Contractor's attention is directed to the criminal penalties for false claims referenced in Article VII above.

- C.** The Contractor may include in a periodic estimate the value of materials or equipment delivered at the Site (or at some location agreed to in writing by the Awarding Authority) only upon delivery to the Awarding Authority of:
  - (1) an acceptable transfer of title on the form provided by the Awarding Authority;
  - (2) written certification by the Contractor (or applicable Subcontractor) on the form provided by the Awarding Authority that the Contractor (or the Subcontractor which executed the transfer of title) is the lawful owner and that the materials or equipment are free from all encumbrances, accompanied by receipted invoices or other acceptable proof of prior payment for such materials;
  - (3) a stored materials insurance binder that covers the materials for which payment is requested, that names the Owner as an insured party should the stored materials be subjected to any casualty, loss, or theft prior to their inclusion in the Work. The material(s) or equipment must, in the judgment of the Designer, (a) meet the requirements of the Contract, including prior Shop Drawing, Product Data, and Sample Approval, (b) be ready for use, and (c) be properly stored by the Contractor and be adequately protected until incorporated into the Work. See also Article V.5.D of these General Conditions concerning the cost of inspections.
- D.** The Awarding Authority may make changes in any periodic estimate submitted by the Contractor in accordance with M.G.L. c.30, §39K (see below) and the payment due shall be computed in accordance with the changes so made. The provisions of said section 39K shall govern payments on which the Awarding Authority has made changes.
- E.** No certificate for payment and no progress payment shall constitute acceptance of Work that is not in accordance with the Contract Documents.

## **5. Periodic Payments (M.G. L. c. 30, § 39K).**

The Awarding Authority shall make payment to the Contractor in accordance with M.G.L. c. 30, § 39K, which provides as follows (for the purposes of the below language, the Awarding Authority shall be considered the “awarding authority”, the Designer shall be considered the “architect” or “engineer”, the Contractor shall be considered the “contractor” and Subcontractors shall be considered “subcontractors”):

*“Within fifteen days (30 days in the case of the commonwealth, including local housing authorities) after receipt from the contractor, at the place designated by the awarding*

authority if such a place is so designated, of a periodic estimate requesting payment of the amount due for the preceding month, the awarding authority will make a periodic payment to the contractor for the work performed during the preceding month and for the materials not incorporated in the work but delivered and suitably stored at the site (or at some location agreed upon in writing) to which the contractor has title or to which a subcontractor has title and has authorized the contractor to transfer title to the awarding authority upon certification by the contractor that he is the lawful owner and that the materials are free from all encumbrances, but less (1) a retention based on its estimate of the fair value of its claims against the contractor and less (2) a retention for direct payments to subcontractors based on demands for same in accordance with the provisions of section thirty-nine F, and less (3) a retention not exceeding five percent of the approved amount of the periodic payment. After the receipt of a periodic estimate requesting final payment and within sixty-five days after (a) the contractor fully completes the work or substantially completes the work so that the value of the work remaining to be done is, in the estimate of the awarding authority, less than one percent of the original contract price, or (b) the contractor substantially completes the work and the awarding authority takes possession for occupancy, whichever occurs first, the awarding authority shall pay the contractor the entire balance due on the contract less (1) a retention based on its estimate of the fair value of its claims against the contractor and of the cost of completing the incomplete and unsatisfactory items of work and less (2) a retention for direct payments to subcontractors based on demands for same in accordance with the provisions of section thirty-nine F, or based on the record of payments by the contractor to the subcontractors under this contract if such record of payment indicates that the contractor has not paid subcontractors as provided in section thirty-nine F. If the awarding authority fails to make payment as herein provided, there shall be added to each such payment daily interest at the rate of three percentage points above the rediscount rate then charged by the Federal Reserve Bank of Boston commencing on the first day after said payment is due and continuing until the payment is delivered or mailed to the contractor; provided, that no interest shall be due, in any event, on the amount due on a periodic estimate for final payment until fifteen days(twenty-four days in the case of the commonwealth) after receipt of such period estimate from the contractor, at the place designated by the awarding authority if such a place is so designated. The contractor agrees to pay to each subcontractor a portion of any such interest paid in accordance with the amount due each subcontractor.

The awarding authority may make changes in any periodic estimate submitted by the contractor and the payment due on said periodic estimate shall be computed in accordance with the change so made, but such changes or any requirement for a corrected periodic estimate shall not affect the due date for the periodic payment or the date for the commencement of interest charges on the amount of the periodic payment computed in accordance with the changes made, as provided herein; provided, that the awarding authority may, within seven days after receipt, return to the contractor for correction, any periodic estimate which is not in the required form or which contains computations not arithmetically correct and, in that event, the date of receipt of such periodic estimate shall be the date of receipt of the corrected periodic estimate in proper form and with arithmetically correct computations. The date of receipt of a periodic estimate received on a Saturday shall be the first working day thereafter. The provisions of section thirty-nine G shall not apply to any contract for the construction, reconstruction, alteration, remodeling, repair or demolition of any public building to which this section applies.

All periodic estimates shall be submitted to the awarding authority, or to its designee as set forth in writing to the contractor, and the date of receipt by the awarding authority or its

*designee shall be marked on the estimate. All periodic estimates shall contain a separate item for each filed subtrade and each sub-subtrade listed in sub-bid form as required by specifications and column listing the amount paid to each filed subcontractor as of the date of the periodic estimate is filed. The person making payment for the awarding authority shall add the daily interest provided for herein to each payment for each day beyond the due date of receipt marked on the estimate.*

*A certificate of the architect to the effect that the contractor has fully or substantially completed the work shall, subject to the provisions of section thirty-nine J, be conclusive for the purposes of this section.*

*Notwithstanding the provisions of this section, at any time after the value of the work remaining to be done is, in the estimation of the awarding authority, less than 1 per cent of the adjusted contract price, or the awarding authority has determined that the contractor has substantially completed the work and the awarding authority has taken possession for occupancy, the awarding authority may send to the general contractor by certified mail, return receipt requested, a complete and final list of all incomplete and unsatisfactory work items, including, for each item on the list, a good faith estimate of the fair and reasonable cost of completing such item. The general contractor shall then complete all such work items within 30 days of receipt of such list or before the contract completion date, whichever is later. If the general contractor fails to complete all incomplete and unsatisfactory work items within 45 days after receipt of such items furnished by the awarding authority or before the contract completion date, whichever is later, subsequent to an additional 14 days' written notice to the general contractor by certified mail, return receipt requested, the awarding authority may terminate the contract and complete the incomplete and unsatisfactory work items and charge the cost of same to the general contractor and such termination shall be without prejudice to any other rights or remedies the awarding authority may have under the contract. The awarding authority shall note any such termination in the evaluation form to be filed by the awarding authority pursuant to the provisions of section 44D of chapter 149."*

## **6. Payment of Subcontractors (M.G.L. c. 30, § 39F).**

The Contractor shall make payments to Subcontractors in accordance with M.G.L. c.30, § 39F which is quoted in this section below. For the purposes of this Contract, the word "forthwith" appearing in paragraph (1)(a) of the quoted provision shall be deemed to mean "within five (5) business days."

*"1(a) Forthwith after the general contractor receives payment on account of a periodic estimate, the general contractor shall pay to each subcontractor the amount paid for the labor performed and the materials furnished by that subcontractor, less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the subcontractor by the general contractor.*

*(b) Not later than the sixty-fifth day after each subcontractor substantially completes his work in accordance with the plans and specifications, the entire balance due under the subcontract less amounts retained by the awarding authority as the estimated cost of completing the incomplete and unsatisfactory items of work, shall be due the subcontractor; and the awarding authority shall pay that amount to the general contractor. The general contractor shall forthwith pay to the subcontractor the full amount received from the awarding authority less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the subcontractor by the general contractor.*

(c) Each payment made by the awarding authority to the general contractor pursuant to subparagraphs (a) and (b) of this paragraph for the labor performed and the materials furnished by a subcontractor shall be made to the general contractor for the account of that subcontractor; and the awarding authority shall take reasonable steps to compel the general contractor to make each such payment to each such subcontractor. If the awarding authority has received a demand for direct payment from a subcontractor for any amount which has already been included in a payment to the general contractor or which is to be included in a payment to the general contractor for payment to the subcontractor as provided in subparagraphs (1) and (2) the awarding authority shall act upon the demand as provided in this section.

(d) If, within seventy days after the subcontractor has substantially completed the subcontract work, the subcontractor has not received from the general contractor the balance due under the subcontract including any amount due for extra labor and materials furnished to the general contractor, less any amount retained by the awarding authority as the estimated cost of completing the incomplete and unsatisfactory items of work, the subcontractor may demand direct payment of that balance from the awarding authority. The demand shall be by a sworn statement delivered to or sent by certified mail to the awarding authority, and a copy shall be delivered to or sent by certified mail to the general contractor at the same time. The reply shall contain a detailed breakdown of the balance due under the subcontract and also a statement of the status of completion of the subcontract work. Any demand made after substantial completion of the subcontract work shall be valid even if delivered or mailed prior to the seventieth day after the subcontractor has substantially completed the subcontract work. Within ten days after the subcontractor has delivered or so mailed the demand to the awarding authority and delivered or so mailed a copy to the general contractor, the general contractor may reply to the demand. The reply shall be by a sworn statement to or sent by certified mail to the awarding authority and a copy shall be delivered to or sent by certified mail to the subcontractor at the same time. The reply shall contain a detailed breakdown of the balance due under the subcontract including any amount due for extra labor and materials furnished to the general contractor and of the amount due for each claim made by the general contractor against the subcontractor.

(e) Within fifteen days after receipt of the demand by the awarding authority, but in no event prior to the seventieth day after substantial completion of the subcontract work, the awarding authority shall make direct payment to the subcontractor of the balance due under the subcontract including any amount due for extra labor and materials furnished to the general contractor, less any amount (i) retained by the awarding authority as the estimated cost of completing the incomplete or unsatisfactory items of work, (ii) specified in any court proceedings barring such payment, or (iii) disputed by the general contractor in the sworn reply; provided that the awarding authority shall not deduct from a direct payment any amount as provided in part (iii) if the reply is not sworn to, or for which the sworn reply does not contain the detailed breakdown required by subparagraph (d). The awarding authority shall make further direct payments to the subcontractor forthwith after the removal of the basis for deduction from direct payments made as provided in parts (i) and (ii) of this subparagraph.

(f) The awarding authority shall forthwith deposit the amount deducted from a direct payment as provided in part (iii) of subparagraph (5) in an interest-bearing joint account in the names of the general contractor and the subcontractor in a bank in Massachusetts selected by the awarding authority or agreed upon by the general contractor and the subcontractor and shall notify the general contractor and the subcontractor of the date of the deposit and the bank receiving the deposit. The bank shall pay the amount in the account,

*including accrued interest, as provided in an agreement between the general contractor and the subcontractor or as determined by decree of a court of competent jurisdiction.*

*(g) All direct payments and all deductions from demands for direct payments deposited in an interest bearing account or accounts in a bank pursuant to subparagraph (6) shall be made out of amounts payable to the general contractor at the time of receipt of a demand for direct payment from a subcontractor and out of amounts which later become payable to the general contractor and in the order of receipt of such demands from subcontractors. All direct payments shall discharge the obligation of the awarding authority to the general contractor to the extent of such payment.*

*(h) The awarding authority shall deduct from payments to a general contractor amounts which, together with the deposits in interest bearing accounts pursuant to subparagraph (6) are sufficient to satisfy all unpaid balances of demands for direct payment received from subcontractors. All such amounts shall be earmarked for such direct payments, and the subcontractors shall have a right in such deductions prior to any claims against such amounts by creditors of the general contractor.*

*(i) If the subcontractor does not receive payment as provided in subparagraph (1) or if the general contractor does not submit a periodic estimate for the value of the labor or materials performed or furnished by the subcontractor and the subcontractor does not receive payment for same when due less the deductions provided for in subparagraph (1), the subcontractor may demand direct payment by following the procedure in subparagraph (4) and the general contractor may file a sworn reply as provided in that same subparagraph. A demand made after the first day of the month following that for which the subcontractor performed or furnished the labor and materials for which the subcontractor seeks payment shall be valid even if delivered or mailed prior to the time payment was due on a periodic estimate from the general contractor. Thereafter the awarding authority shall proceed as provided in subparagraph (e), (f), (g) and (h)."*

*(2) Any assignment by a subcontractor of the rights under this section to a surety company furnishing a bond under the provisions of section twenty-nine of chapter one hundred forty-nine shall be invalid. The assignment and subrogation rights of the surety to amounts included in a demand for direct payment which are in the possession of the awarding authority or which are on deposit pursuant to subparagraph (6) shall be subordinate to the rights of all subcontractors who are entitled to be paid under this section and who have not been paid in full.*

*(3) "subcontractor" as used in this section (I) for contracts awarded as provided in sections forty-four A to forty-four L, inclusive, of chapter one hundred forty-nine shall mean a person who files a sub-bid and received a subcontract as a result of that filed sub-bid or who is approved by the awarding authority in writing as a person performing labor or both performing labor and furnishing materials pursuant to a contract with the general contractor, (ii) for contracts awarded as provided in paragraph (1) of section thirty-nine M of chapter thirty shall mean a person approved by the awarding authority in writing as a person performing labor or both performing labor and furnishing materials pursuant to a contract with the general contractor, and (iii) for contracts with the commonwealth not awarded as provided in sections forty-four A to forty-four L, inclusive, of chapter one hundred forty-nine shall also mean a person contracting with the general contractor to supply materials used or employed in a public works project for a price in excess of five thousand dollars.*

(4) A general contractor or a subcontractor shall enforce a claim to any portion of the amount of a demand for direct payment deposit as provided in subparagraph (6) by a petition in equity in the superior court against the other and the bank shall not be a necessary party. A subcontractor shall enforce a claim for direct payment or a right to require a deposit as provided in subparagraph (6) by a petition in equity in the superior court against the awarding authority and the general contractor shall not be a necessary party. Upon motion of any party the court shall advance for speedy trial any petition filed as provided in this paragraph. Sections fifty-nine and fifty-nine B of chapter two hundred thirty-one shall apply to such petitions. The court shall enter an interlocutory decree upon which execution shall issue for any part of a claim found due pursuant to sections fifty-nine and fifty-nine B and, upon motion of any party, shall advance for speedy trial the petition to collect the remainder of the claim. Any party aggrieved by such interlocutory decree shall have the right to appeal therefrom as from a final decree. The court shall not consolidate for trial the petition of any subcontractor with the petition of one or more subcontractors or the same general Contract unless the court finds that a substantial portion of the evidence of the same events during the course of construction (other than the fact that the claims sought to be consolidated arise under the same general contract) is applicable to the petitions sought to be consolidated and that such consolidation will prevent unnecessary duplication of evidence. A decree in any such proceeding shall not include interest on the disputed amount deposited in excess of the interest earned for the period of any such deposit. No person except a subcontractor filing a demand for direct payment for which no funds due the general contractor are available for direct payment shall have a right to file a petition in court of equity against the awarding authority claiming a demand for direct payment is premature and such subcontractor must file the petition before the awarding authority has made a direct payment to the subcontractor and has made a deposit of the disputed portion as provided in part (iii) of subparagraph (5) and in subparagraph (6).

(5) In any petition to collect any claim for which a subcontractor has filed a demand for direct payment the court shall, upon motion of the general contractor, reduce by the amount of any deposit of a disputed amount by the awarding authority as provided in part (iii) of subparagraph (5) and in subparagraph (6) any amount held under a trustee writ or pursuant to a restraining order or injunction."

## **7. Contracts for Public Works Governed by M.G.L. c. 30, § 39G.**

The following statutory provision applies only to contracts for public works governed by M.G.L. c. 30, § 39G:

*"Upon substantial completion of the work required by a Contract with the Owner, or any agency or political subdivision thereof, for the construction, reconstruction, alteration, remodeling, repair or improvement of public ways, including bridges, and other highway structures, sewers and water mains, airports and other public works, the contractor shall present in writing to the awarding authority its certification that the work has been substantially completed. Within twenty-one days thereafter, the awarding authority shall present to the contractor either a written declaration that the work has been substantially completed or an itemized list of incomplete or unsatisfactory work items required by the contract sufficient to demonstrate that the work has not been substantially completed. The awarding authority may include with such a list a notice setting forth a reasonable time, which shall not in any event be prior to the contract completion date, within which the contractor must achieve substantial completion of the work. In the event that the awarding authority fails to respond, by presentation of a written declaration or itemized list as*

*aforesaid, to the contractor's certification within the twenty-one day period, the contractor's certification shall take effect as the awarding authority's declaration that the work has been substantially completed.*

*Within sixty-five days after the effective date of a declaration of a substantial completion, the awarding authority shall prepare and forthwith send to the contractor for acceptance a substantial completion estimate for the quantity and price of the work done and all but one percent retainage of that undisputed part of each work item and extra work item in dispute but excluding the disputed part thereof, less the estimated cost of completing all incomplete and unsatisfactory work items and less the total periodic payments made to date for the work. The awarding authority also shall deduct from the substantial completion estimate an amount equal to the sum of all demands for direct payments filed by subcontractors and not yet paid to subcontractors or deposited in joint accounts pursuant to section thirty-nine F, but no Contract subject to said section thirty-nine F shall contain any other provision authorizing the awarding authority to deduct any amount by virtue of claims asserted against the contract by subcontractors, material suppliers or others.*

*If the awarding authority fails to prepare and send to the contractor any substantial completion estimate required by this section on or before the date herein above set forth, the awarding authority shall pay to the contractor interest on the amount which would have been due to the contractor pursuant to such substantial completion estimate at the rate of three percentage points above the rediscount rate then charged by the Federal Reserve Bank of Boston from such date to the date on which the awarding authority sends that substantial completion estimate to the contractor for acceptance or to the date of payment therefor, whichever occurs first. The awarding authority shall include the amount of such interest in the substantial completion estimate.*

*Within fifteen days after the effective date of the declaration of substantial completion, the awarding authority shall send to the contractor by certified mail, return receipt requested, a complete list of all incomplete or unsatisfactory work items, and, unless delayed by causes beyond his control, the contractor shall complete all such work items within forty-five days after the receipt of such list or before the then contract completion date, whichever is later. If the contractor fails to complete such work within such time, the awarding authority may, subsequent to seven days' written notice to the contractor by certified mail, return receipt requested, terminate the contract and complete the incomplete or unsatisfactory work items and charge the cost of same to the contractor.*

*Within thirty days after receipt by the awarding authority of a notice from the contractor stating that all of the work required by the contract has been completed, the awarding authority shall prepare and forthwith send to the contractor for acceptance a final estimate for the quantity and price of the work done and all retainage on that work less all payments made to date, unless the awarding authority's inspection shows that work items required by the contract remain incomplete or unsatisfactory, or that documentation required by the contract has not been completed. If the awarding authority fails to prepare and send to the contractor the final estimate within thirty days after receipt of notice of completion, the awarding authority shall pay to the contractor interest on the amount which would have been due to the contractor pursuant to such final estimate at the rate hereinabove provided from the thirtieth day after such completion until the date on which the awarding authority sends the final estimate to the contractor for acceptance or the date of payment therefore, whichever occurs first, provided that the awarding authority's inspection shows that no work items required by the contract remain incomplete or unsatisfactory. Interest shall not be paid*

hereunder on amounts for which interest is required to be paid in connection with the substantial completion estimate as hereinabove provided. The awarding authority shall include the amount of the interest required to be paid hereunder in the final estimate.

The awarding authority shall pay the amount due pursuant to any substantial completion or final estimate within thirty-five days after receipt of written acceptance for such estimate from the contractor and shall pay interest on the amount due pursuant to such estimate at the rate hereinabove provided from that thirty-fifth day to the date of payment. Within 15 days, 30 days in the case of the commonwealth, after receipt from the contractor, at the place designated by the awarding authority, if such place is designated, of a periodic estimate requesting payment of the amount due for the preceding periodic estimate period, the awarding authority shall make a periodic payment to the contractor for the work performed during the preceding periodic estimate period and for the materials not incorporated in the work but delivered and suitably stored at the Site, or at some location agreed upon in writing, to which the contractor has title or to which a subcontractor has title and authorized the contractor to transfer title to the awarding authority, upon certification by the contractor that he is the lawful owner and that the materials are free from all encumbrances. The awarding authority shall include with each such payment interest on the amount due pursuant to such periodic estimate at the rate herein above provided from the due date. In the case of periodic payments, the contracting authority may deduct from its payment a retention based on the estimate of the fair value of its claims against the contractor, a retention for direct payments to subcontractors based on demands for same in accordance with the provisions of section thirty-nine F, and a retention to secure satisfactory performance of the contractual work not exceeding five per cent of the approved amount of any periodic payment, and the same right to retention shall apply to bonded subcontractors entitled to direct payment under section thirty-nine F of chapter thirty; provided that a five per cent value of all items that are planted in the ground shall be deducted from the periodic payments until final acceptance.

No periodic, substantial completion or final estimate or acceptance or payment thereof shall bar a contractor from reserving all rights to dispute the quantity and amount of, or the failure of the awarding authority to approve a quantity and amount of, all or part of any work item or extra work item.

Substantial completion, for the purposes of this section, shall mean either that the work required by the contract has been completed except for work having a contract price of less than one percent of the then adjusted total contract price, or substantially all of the work has been completed and opened to public use except for minor incomplete or unsatisfactory work items that do not materially impair the usefulness of the work required by the contract”

## **8. Final Payment; Release of Claims by Contractor.**

Upon Final Acceptance of the Work the Contractor shall be entitled to payment of the balance of the Contract Price. Final payment shall be as provided in this Article above and in accordance with any process set forth in the Contract Documents. The Contractor agrees to execute a Certificate of Final Inspection, Release and Acceptance in the form provided in Appendix C to these General Conditions to the Contract (with Contractor's own exceptions listed thereon) as a condition precedent to final payment. The acceptance by the Contractor of the final payment made as aforesaid, or the execution of the “Certificate of Final Inspection, Release and Acceptance” (included in Appendix C to these General Conditions) by the Contractor, shall constitute a release of the Owner, the Awarding Authority, the Designer, and every member, officer, employee and agent of any of them, from all claims of

and liability to the Contractor for anything done or furnished for or relating to the Work, or for any act or neglect of the Owner, the Designer, or of any person relating to or affecting the Work, except the claim against the Owner or the Designer for the remainder, if any, of the amounts set forth by the Contractor in the "Certificate of Final Inspection, Release and Acceptance". Final Acceptance shall not relieve Contractor of the requirements of Articles IX, XIV, and XV of these General Conditions, or of other provisions of this Contract, to the extent that the same are intended to survive Final Acceptance.

## **ARTICLE IX** **GUARANTEES AND WARRANTIES**

### **1. General Warranty.**

If at any time during the period of one (1) year from the date of the issuance of the Certificate of Substantial Completion by the Awarding Authority or the date of Final Acceptance, whichever occurs first, any part of such Work shall in the reasonable opinion of the Awarding Authority be defective or require replacing or repairing, or damage to other property of the Owner is caused by any defect in the Work, the Awarding Authority shall notify the Contractor in writing to make the required repairs or replacements and repair such damage. If the Contractor shall neglect to commence such repairs or replacements to the satisfaction to the Awarding Authority within ten (10) days from the date of the giving of such notice, then the Awarding Authority may employ other persons to make the same. The Contractor agrees, upon demand, to pay to the Awarding Authority all amounts which it expends for such repairs, replacements, and/or damages. During this one-year guarantee period, any corrective work shall be performed under all the applicable terms of this Contract. This one-year guarantee shall not limit any express guaranty or warranty provided elsewhere in the Contract.

### **2. Special Guarantees and Warranties.**

- A.** The Contractor's obligation to correct Work as set forth in Article IX above is in addition to, and not in substitution of, such guarantees or warranties as may be required in the various sections of the Specifications.
- B.** Guarantees and warranties required in the various sections of the Specifications must be delivered to the Designer or, if directed by the Awarding Authority, to the Awarding Authority before final payment to the Contractor may be made, or in the case of guarantees and warranties which originate with a Subcontractor's section of the Work, before final payment for the amount of that subtrade or for the phase of Work to which the guarantee or warranty relates.
- C.** The failure to deliver a required guarantee or warranty shall constitute a failure to fully complete the Work in accordance with the Contract Documents.

## **ARTICLE X** **MISCELLANEOUS LEGAL REQUIREMENTS.**

## **1. Contractor to be Informed.**

The Contractor shall inform itself of all existing and future Laws in any manner affecting those engaged or employed in the Work, or the materials used or employed in the Work, or in any way affecting the conduct of the Work, and of all orders and decrees of bodies or tribunals having any applicable jurisdiction or authority over the Work.

## **2. Compliance with all Laws.**

The Contractor shall cause all persons employed in the performance of the Work to comply with, all existing and future Laws, including but not limited to those set forth below:

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

**B. Workforce Certification: Certification of Compliance with Workforce Related Legal Requirements.** The Contractor shall comply with the following legal requirements for any and all employees to be employed in the Project who are required to be listed in the certified payroll reports for the Project: 1) Federal Department of Homeland Security Requirements in hiring such employees including, but not limited to, the faithful completion of the Federal Department of Homeland Security Form I-9 process by the Contractor; 2) proper classification of individuals employed on the Project; 3) all Laws concerning workers' compensation insurance coverage, unemployment insurance, social security taxes, and income taxes; and 4) all Laws concerning hospitalization and medical benefits that meet the minimum requirements of the connector board established in M.G.L. c. 176Q. The Contractor shall execute a "Workforce Certification" form provided in Exhibit B to the Contract with the execution of this Contract. The Contractor shall require each Subcontractor and sub-Subcontractor working on the Project to execute and provide to Contractor such "Workforce Certification" form in the form provided in Exhibit B to the Contract with the execution of each subcontract, and Contractor shall immediately provide a copy to the Awarding Authority. The Contractor shall require each of its Subcontractors and sub-Subcontractors to execute and provide to Contractor such "Workforce Certification" form in the form provided in Exhibit B to the Contract with the execution of each subcontract, and the Contractor shall immediately provide a copy to the Awarding Authority. Contractor acknowledges that with the weekly workforce reports it must submit on a weekly basis, in the form and format required by the Awarding Authority, including, but not limited to, by electronic reporting through the requested means. Contractor and all Subcontractors must also report on gender, race/ethnicity of its workforce through the requested means, including the Awarding Authority's online workforce reporting system. Contractor and all Subcontractors on the Project are required to certify that the Form I-9 process was faithfully completed and that all other legal requirements related to its workforce referenced above were followed for all employees listed on each certified payroll report when submitted. The Contractor and all Subcontractors must: comply with the legal requirements of this section; must not knowingly use undocumented workers in connection with the performance of this Contract; pursuant to federal requirements must verify the immigration status of all workers assigned to the Contract without engaging in unlawful discrimination; and must not knowingly or recklessly alter, falsify, or accept altered or falsified documents from any such worker. Breach of any of the terms of the workforce certification legal requirements during the period of the Contract may be regarded as a material breach,

subjecting the Contractor and Subcontractors to sanctions, including but not limited to monetary penalties, withholding of payments, contract suspension or termination.

**C. Veterans and Other Preference.** In the employment of mechanics and apprentices, teamsters, chauffeurs, and laborers in the performance of Work in the Commonwealth, preference shall first be given to citizens of the Commonwealth who have been residents of the Commonwealth for at least six (6) months at the commencement of their employment and who are veterans as defined in M.G.L. c. 4,§ 7(34), and who are qualified to perform the work to which the employment relates and, within such preference, preference shall be given to service-disabled veterans; and secondly, to citizens of the Commonwealth generally who have been residents of the Commonwealth for at least six (6) months at the commencement of their employment, and if they cannot be obtained in sufficient numbers, then to citizens of the United States.

The Awarding Authority encourages and monitors the participation of veteran business enterprises ("VBE") and service-disabled veteran-owned business enterprises ("SDVOBE") in its construction and design projects pursuant to Chapter 108 of the Acts of 2012 and Executive Order 565. The benchmark for combined SDVOBE and VBE participation on the Project is 3% of the Contract Price. For the Commonwealth's VBE and SDVOBE program purposes, a VBE or SDVOBE is a firm so certified directly by the Massachusetts Supplier Diversity Office ("SDO") [www.mass.gov/sdo](http://www.mass.gov/sdo) or is: 1) certified by a certifying agency that's certification is accepted by the SDO; 2) the firm has submitted its existing certification credentials directly to the SDO by submitting an application for verification of certification to the SDO; 3) the SDO has reviewed and granted the application for verification; and 4) the SDO has certified the firm as a VBE or SDVOBE for purposes of the Commonwealth's program as evidenced by a letter issued by the SDO to the firm. VBEs and SDVOBEs shall be provided opportunities to participate in the Project and Contractor shall within 30 days of Contract execution submit its "Anticipated Veteran Owned Business and Service-Disabled Veteran-Owned Business Enterprise Participation" plan to the Awarding Authority's Compliance Office. Contractor shall report on the amount of VBE and SDVOBE participation on the Project on a regular basis, in the form, format and frequency requested by the Awarding Authority, including, for DCAMM projects, through the requested means including the Awarding Authority's online compliance reporting system. The Commonwealth also encourages the participation of Portuguese Business Enterprises (PBE), Lesbian, Gay, Bisexual, and Transgender Business Enterprises (LGBTBE); and Disability-Owned Business Enterprises (DOBE) on its contracts.

**D. Prevailing Wages.** The Contractor shall comply with M.G.L. c. 149, §§ 26-27H. The prevailing wage schedule is found in Exhibit A to the "Instructions to Bidders" included in the public solicitation of bids for this Project, listing the prevailing minimum wage rates that must be paid to all workers employed in the Work. The Awarding Authority is not responsible for any errors, omissions, or misprints in said schedule. Such prevailing wage schedule shall continue to be the minimum rate wages payable to workers employed in the Work throughout the term of this Contract, subject to the exceptions provided in M.G.L c.149, §§ 26-27H. The Contractor shall not have any claim for extra compensation from the Owner if the actual wages paid to workers employed in the Work exceeds the rates listed on the schedule or as otherwise provided by Law. The Contractor shall cause a copy of said schedule to be kept in a conspicuous place at the Site during the term of the Contract. If reserve police officers are employed by the Contractor, they shall be paid the prevailing wage of regular police officers. (See M.G.L c.149, § 34B). In accordance with M. G. L. c. 149, §27 the Contractor shall obtain from the Awarding Authority annual updates to prevailing wage schedules for all public construction projects lasting longer than one year. The Contractor is required to obtain the

wage schedules from awarding authorities, and to pay no less than these rates to covered workers. The Contractor and all Subcontractors are required to anticipate such annual updated prevailing wage schedules and neither the Contractor nor any Subcontractors shall be entitled to claim additional compensation for base contract work due to updated prevailing wage schedules.

**E. Payroll Records and Statement of Compliance.** The Contractor shall comply and shall cause its Subcontractors to comply with M.G.L. c. 149, § 27B, which requires that a true and accurate record be kept of all persons employed on the Project for which the prevailing wage rates have been provided. The Contractor and all Subcontractors shall keep these records and preserve them for a period of three years from the date of completion of the Contract. Such records shall be open to inspection by any authorized representative of the Owner at any reasonable time, and as often as may be necessary. The Contractor shall, and shall cause its Subcontractors to, submit weekly certified copies of their weekly payroll records to the Awarding Authority at no additional expense to the Awarding Authority. The Awarding Authority may at all reasonable times audit such reports. DCAMM requires submission of weekly payroll reports and related information through DCAMM's online compliance reporting system. In addition, the Contractor and each Subcontractor shall furnish to the Executive Department of Labor within fifteen (15) days after completion of its portion of the Work a signed statement in the form required by the Awarding Authority.

**F. Vehicle operators.** If the Director of the Department of Labor and Workforce Development has established a schedule of wage rates to be paid to the operators of trucks, vehicles or equipment for the Work, the Contractor shall be obligated to pay such operators at least the minimum wage rate contained on such schedule. (See M.G.L. c.149, §§ 26-27H).

**G. Eight Hour Day.** The Contractor shall comply with M.G.L. c. 149, §§ 30, 34 and 34A which provide that no laborer, workman, mechanic, foreman or inspector working within the Commonwealth in the employ of the Contractor, Subcontractor or other person doing or contracting to do the whole or part of the Work shall be required or permitted to work more than eight (8) hours in any one day or more than forty-eight (48) hours in any one week, or more than six (6) days in any one week, except in cases of extraordinary emergency.

**H. Timely Payment of Wages.** The Contractor shall comply with, and shall cause its Subcontractors to comply with M.G.L. c. 149, § 148 which requires the weekly or biweekly payment of employees within six (6) days of the end of the pay period during which wages were earned if employed for five or six days of a calendar week, and within other periods of time under certain circumstances as set forth therein.

**I. Lodging, etc.** The Contractor shall comply with, and shall cause its Subcontractors to comply with, M.G.L. c. 149, § 25 which provides that every employee under this Contract shall lodge, board and trade where and with whom he elects, and neither the Contractor nor his agents or employees shall, either directly or indirectly, require as a condition of the employment of any person that the employee shall lodge, board or trade at a particular place or with a particular person.

**J. Truck Rates.** The use by the Contractor of trucks or other motor vehicles hired from either common or contract motor carriers in the course of performance of this Contract is subject to such minimum rates and charges, and rules and regulations as may from time to time be promulgated by the Department of Public Utilities of the Commonwealth of Massachusetts or other agency of the State or Federal government which may be

authorized by Law to set rates or otherwise regulate the use of such vehicles. The Contractor expressly assumes the risk of any additional expense that may arise by reason of any change in such minimum rates and charges, and rules and regulations, and shall be entitled to no additional compensation or reimbursement by reason thereof.

**K. Anti-Boycott Covenant (Executive Order 130).** The Contractor warrants, represents and agrees that during the time this Contract is in effect, neither it or any affiliated company, as hereafter defined, participates in or cooperates with an international boycott, as defined in Section 999(b) (3) and (4) of the Internal Revenue Code of 1954, as amended, or engages in conduct declared to be unlawful by M.G.L. c. 151E, § 2. If there shall be a breach in the warranty, representation or agreement contained in this paragraph, then without limiting such other rights as it may have the Awarding Authority shall be entitled to rescind this Contract. As used herein, an affiliated company shall be any business entity of which at least 51% of the ownership interests are directly or indirectly owned by the Contractor or by a person or persons or business entity or entities directly or indirectly owning at least 51% of the ownership interests of the Contractor; or which directly or indirectly owns at least 51% of the Ownership interests of the Contractor.

**L. Contractor's Agreements with Suppliers--Anti-Boycott Provisions.**

- (1) The Contractor shall not purchase or rent any materials, equipment, machinery, vehicles, or supplies for or in connection with the Work from any person or entity who does not sign, under pains and penalties of perjury, a certificate that recites: "The undersigned warrants, represents and agrees that during the time its agreement with {insert contractor's name} is in effect for materials, supplies or equipment to be used in connection with the {insert the name of the Awarding Authority} Project No. {insert project number}, neither the undersigned or any affiliated company, as hereafter defined, participates in or cooperates with an international boycott, as defined in Section 999(b)(3) and (4) of the Internal Revenue Code of 1954, as amended, or engages in conduct declared to be unlawful by M.G.L. c.151E, § 2. As used herein, an affiliated company shall be any business entity of which at least 51% of the ownership interests are directly or indirectly owned by the undersigned or by a person or persons or business entity or entities directly or indirectly owning at least 51% of the ownership interests of the undersigned; or which directly or indirectly owns at least 51% of the ownership interests of the undersigned."
- (2) The Awarding Authority shall not be obligated to pay the Contractor for the cost of any materials, supplies, or equipment purchased or rented from any individual or entity from whom the Contractor has not previously obtained and delivered to the Awarding Authority the certificate that the previous paragraph requires. The Contractor will immediately terminate its contract with any supplier who breaches the warranty, representation and agreement contained in the previous paragraph.
- (3) The Contractor shall include in the Contractor's agreement with any person or entity from whom the Contractor intends to purchase or rent any materials, equipment, machinery, vehicles or supplies for or in connection with the Work: (a) a notice that this Contract obligates the Contractor to terminate the supply contract upon discovery of such breach of the sworn certificate delivered under subparagraph (1) above and such termination shall be without liability to the Contractor or the Awarding Authority; and (b) a provision which states: "The Governor or his designee, the secretary of administration and finance, and the state auditor or his designee shall have the right at reasonable times and upon reasonable notice to examine the books,

records and other compilations of the undersigned vendor which pertain to the performance and requirements of this agreement to provide materials of any nature to the undersigned contractor in connection with State Project No. (insert project number)."

**M. Access to Contractor's Records (Executive Order 195).** The Governor of the Commonwealth or his/her designee, the secretary of administration and finance, and the state auditor or his/her designee shall have the right at reasonable times and upon reasonable notice to examine the books, records and other compilations of data of the Contractor which pertain to the performance and requirements of this Contract.

**N. Northern Ireland (M.G.L. c. 7, § 22C).** Pursuant to M.G.L. c. 7, § 22C for state agencies, state authorities, the House of Representatives or the state Senate, the Contractor certifies that it does not employ ten (10) or more employees in an office or other facility in Northern Ireland and if the Contractor employs ten (10) or more employees in an office or other facility located in Northern Ireland the Contractor certifies that it does not discriminate in employment, compensation, or the terms, conditions and privileges of employment on account of religious or political belief; and it promotes religious tolerance within the work place, and the eradication of any manifestations of religious and other illegal discrimination; and the Contractor is not engaged in the manufacture, distribution or sale of firearms, munitions, including rubber or plastic bullets, tear gas, armored vehicles or military aircraft for use or deployment in any activity in Northern Ireland.

**O. Data Security Certifications.** For all contracts involving the Contractor's access to personal information, as defined in M.G.L. c. 93H, and personal data, as defined in M.G.L. c. 66A or access to agency systems containing such information or data, the Contractor certifies under the pains and penalties of perjury that the Contractor (a) has read M.G.L. c. 93H and c. 66A and agrees to protect any and all personal information and personal data; and (b) has reviewed all of the "Enterprise Information Security Policies and Standards" published by the Executive Office for Technology Services and Security ("TSS"), or stricter standards prescribed by Owner. Notwithstanding any contractual provision to the contrary, in connection with the Contractor's performance under this Contract, for all state agencies in the Executive Department, including all offices, boards, commissions, agencies, departments, divisions, councils, bureaus, and offices, now existing and hereafter established, the Contractor shall:

- (1) obtain a copy, review, and comply with the pertinent security guidelines, standards and policies;
- (2) comply with the "Enterprise Information Security Policies and Standards" published by TSS, or a comparable set of policies and standards ("Information Security Policy") as prescribed by the Owner;
- (3) communicate and enforce such security guidelines, standards, policies and the applicable Information Security Policy among all employees (whether such employees are direct or contracted) and Subcontractors;
- (4) implement and maintain any other reasonable appropriate security procedures and practices necessary to protect personal information and data to which the Contractor is given access by the Awarding Authority from the unauthorized access, destruction, use, modification, disclosure or loss;
- (5) be responsible for the full or partial breach of any of these terms by its employees (whether such employees are direct or contracted) or Subcontractors during or after

the term of this Contract, and any breach of these terms may be regarded as a material breach of this Contract;

(6) in the event of any unauthorized access, destruction, use, modification, disclosure or loss of the personal information or personal data (collectively referred to as the “unauthorized use”): (a) immediately notify the Awarding Authority if the Contractor becomes aware of the unauthorized use; (b) provide full cooperation and access to information necessary for the Awarding Authority to determine the scope of the unauthorized use; and (c) provide full cooperation and access to information necessary for the Awarding Authority and the Contractor to fulfill any notification requirements.

Breach of these terms may be regarded as a material breach of this Contract, such that the Commonwealth may exercise any and all contractual rights and remedies, including without limitation indemnification, withholding of payments, Contract suspension, or termination. In addition, the Contractor may be subject to applicable statutory or regulatory penalties, including and without limitation, those imposed pursuant to M.G.L. c. 93H and under M.G.L. c. 214, § 3B for violations under M.G.L. c. 66A.

## ARTICLE XI **CONTRACTOR'S ACCOUNTING METHOD REQUIREMENTS** **(M.G.L. c. 30, § 39R)**

### **1. Definitions.**

The words defined herein shall have the meaning stated below whenever they appear in this Article XI:

***"Independent Certified Public Account"*** means a person duly registered in good standing and entitled to practice as a certified public accountant under the Laws of the place of his/her residence or principal office and who is in fact independent. In determining whether an accountant is independent with respect to a particular person, appropriate consideration should be given to all relationships between the accountant and that person or any affiliate thereof. Determination of an accountant's independence shall not be confined to the relationships existing in connection with the filing of reports with the Awarding Authority.

***"Records"*** means books of original entry, accounts, checks, bank statements and all other banking documents, correspondence, memoranda, invoices, computer printouts, tapes, discs, papers and other documents or transcribed information of any type, whether expressed in ordinary or machine language.

***"Audit"***, when used in regard to financial statements, means an examination of records by an independent certified public accountant in accordance with generally accepted accounting principles and auditing standards for the purpose of expressing a certified opinion thereon, or, in the alternative, a qualified opinion or a declination to express an opinion for stated reasons or other person or persons primarily responsible for the financial and operational policies and practices of the Contractor.

Accounting terms, unless otherwise defined herein, shall have a meaning in accordance with generally accepted accounting principles and auditing standards.

## **2. Record Keeping.**

- A.** The Contractor shall make, and keep for at least six (6) years after final payment, books, records, and accounts that in reasonable detail accurately and fairly reflect the transactions and dispositions of the Contractor.
- B.** Until the expiration of six (6) years after final payment, the Inspector General, DCAMM, and the Awarding Authority shall have the right to examine any books, documents, papers or records of the Contractor and Subcontractors that directly pertain to, and involve transactions relating to the Contractor and Subcontractors.
- C.** The Contractor shall describe any change in the method of maintaining records or recording transactions which materially affects any statements filed with the Awarding Authority including the date of the change and reasons therefor, and shall accompany said description with a letter from the Contractor's independent certified public accountant approving or otherwise commenting on the changes.
- D.** The Contractor represents that it has, prior to the execution of the Contract, filed a statement of management on internal accounting controls as set forth in Article XI.3 below.
- E.** The Contractor represents that it has, prior to the execution of the Contract, filed an audited financial statement for the most recent completed fiscal year as set forth in Article XI.4 below and will continue to file such statement annually during the term of the Contract.

## **3. Statement of Management Controls.**

- A.** The Contractor shall file with the Awarding Authority a statement of management as to whether the system of internal accounting controls of the Contractor and its subsidiaries reasonably assures that:
  - (1) transactions are executed in accordance with management's general and specific authorization;
  - (2) transactions are recorded as necessary to: (a) to permit preparation of financial statements in conformity with generally accepted accounting principles, and (b) to maintain accountability for assets;
  - (3) access to assets is permitted only in accordance with management's general or specific authorization; and
  - (4) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action was taken with respect to any difference.
- B.** The Contractor shall file with the Awarding Authority a statement prepared and signed by an independent certified public accountant, stating that the accountant has examined the statement of management on internal accounting controls, and expressing an opinion as to:
  - (1) whether the representations of management in response to Article XI.3 above are consistent with the results of management's evaluation of the system of internal accounting controls; and
  - (2) whether such representations of management are reasonable with respect to transactions and assets in amounts which would be material when measured in relation to the applicant's financial statement.

## **4. Annual Financial Statement.**

- A. The Contractor shall annually file with DCAMM during the term of the Contract a financial statement prepared by an independent certified public accountant based on an audit by such accountant. The final statement filed shall include the date of final payment. All statements shall be accompanied by an accountant's report.
- B. The office of Inspector General and DCAMM shall have the right to enforce the provisions of this Article. A Contractor's failure to satisfy any of the requirements of this section may be grounds for debarment pursuant to M.G.L. c. 149, § 44C.

## **5. Bid Pricing Materials.**

The Contractor shall save the written calculations, pricing information, and other data that the Contractor used to calculate the bid that induced the Awarding Authority to enter into this Contract (the "Bid Pricing Materials") for at least six (6) years after the Awarding Authority makes final payment under this Contract.

## **ARTICLE XII** **EQUAL EMPLOYMENT OPPORTUNITY, NON-DISCRIMINATION AND AFFIRMATIVE ACTION PROGRAM.** [EXECUTIVE ORDERS 524 & 565] (See Appendix A)

This Contract includes the provisions of the Awarding Authority's "Equal Employment Opportunity, Non-Discrimination, and Affirmative Action Program" attached as Appendix A to these General Conditions and incorporated herein by reference.

## **ARTICLE XIII** **GOALS FOR PARTICIPATION BY MINORITY BUSINESS ENTERPRISES AND WOMEN BUSINESS ENTERPRISES** [M.G.L. c. 7C, § 6 & EXECUTIVE ORDERS 524 & 565]

This Contract includes the provisions of the Awarding Authority's program relating to "Goals for Participation by Minority Business Enterprises and Women Business Enterprises" attached as Appendix B to these General Conditions and incorporated herein by reference.

## **ARTICLE XIV** **INSURANCE REQUIREMENTS**

### **1. Insurance Generally.**

- A. The Contractor shall purchase and maintain insurance of the type and limits listed in this Article with respect to the operations as well as the completed operations of this Contract. This insurance shall be provided at the Contractor's expense and shall be in full force and effect for the full term of the Contract or for such longer period as this Article requires.
- B. All policies shall be written on an occurrence basis and be issued by companies lawfully authorized to write that type of insurance under the laws of the Commonwealth with a financial strength rating of "A-" or better as assigned by AM Best Company, or an equivalent rating assigned by a similar rating agency acceptable to the Awarding Authority, or otherwise acceptable to the Awarding Authority.
- C. Contractor shall submit each certificate of insurance, acceptable to the Awarding Authority, simultaneously with the execution of this Contract. Certificates shall show each type of insurance, insurance company, policy number, amount of insurance, deductibles and/or

self-insured retentions, and policy effective and expiration dates. Certificates shall show the Awarding Authority, the Owner and anyone else the Awarding Authority requests as an additional insured as to all policies of liability insurance. Certificates shall specifically note the following:

- (1) that the general liability policy includes contractual liability.
- (2) that the general liability policy includes the Owner and Awarding Authority as additional insureds for ongoing operations (CG 20 10) and for completed operations (CG 37 10) or equivalent endorsements.
- (3) that the automobile liability, umbrella liability and pollution liability policies include the Owner and Awarding Authority as an additional insured;
- (4) that the general liability policy includes endorsement CG 24 04 or equivalents, a waiver of subrogation in favor of the Owner and Awarding Authority.
- (5) that the builders' risk or installation floater is on an all risk basis including earthquake and flood, and includes the Awarding Authority, Owner, Contractor, Subcontractors and suppliers of any tier as a named insured or loss payee as their interests may appear; and
- (6) that none of the coverages shall be cancelled, terminated, or materially modified unless and until thirty (30) days prior notice is given in writing to the Awarding Authority.

Contractor shall submit updated certificates prior to the expiration of any of the policies referenced in the certificates so that the Awarding Authority shall at all times possess certificates indicating current coverage.

- D.** The Contractor shall file one certified complete copy of all policies and endorsements with the Awarding Authority within sixty (60) days after Contract award. If the Awarding Authority is damaged by the Contractor's failure to maintain such insurance and to comply with the terms of this Article, then the Contractor shall be responsible for all costs and damages to the Awarding Authority attributable thereto.
- E.** Termination, cancellation, or material modification of any insurance required by this Contract, whether by the insurer or the insured, shall not be valid unless written notice thereof is given to the Awarding Authority at least thirty(30) days prior to the effective date thereof, which shall be expressed in said notice.
- F.** The Contractor is responsible for the payment of any and all deductibles under all of the insurance required below. The Awarding Authority shall not in any instance be responsible for the payment of deductibles, self-insured retentions, or any portion thereof.

## **2. Contractor's Commercial General Liability.**

- A.** The Contractor shall purchase and maintain general liability coverage on the ISO form CG 00 01 or equivalent, including products and completed operations, on an occurrence basis. The form must be amended to state that the aggregate limit applies on a per location/project basis. The policy shall provide the following minimum coverage to protect the Contractor from claims with respect to the operations performed by Contractor and any employee, Subcontractor, or supplier, or by anyone for whose acts they may be liable unless a higher coverage is specified in Exhibit A to the Contract, in which case the Contractor shall provide the additional coverage:

Bodily Injury & Property Damage	\$1,000,000 each occurrence \$2,000,000 general aggregate per project
Products & Completed Operations	\$1,000,000 annual aggregate
Personal & Advertising Injury	\$1,000,000 each occurrence
Medical Expenses	\$10,000

- B.** This policy shall include coverage relating to explosion, collapse, and underground property damage.
- C.** This policy shall include contractual liability coverage.
- D.** The completed operations coverage shall be maintained for a period of three (3) years after Substantial Completion and acceptance by the Awarding Authority. The Contractor shall provide renewal certificates of insurance to the Awarding Authority as evidence that this coverage is being maintained.
- E.** If the Work includes work to be performed within 50 feet of a railroad, any exclusion for liability assumed under contract for work within 50 feet of a railroad shall be deleted.
- F.** This policy shall include the Awarding Authority, the Owner and anyone else requested by the Awarding Authority as an additional insured via endorsements CG 20 10 for ongoing operations and CG 20 37 for completed operations. This policy shall be primary and non-contributory with respect to any other insurance available to additional insureds.
- G.** The policy shall include endorsement CG 24 04, a waiver of subrogation in favor of the Awarding Authority and Owner.

### **3. Automobile Liability.**

- A.** The Contractor shall purchase and maintain the following minimum coverage with respect to the operations of any owned, non-owned, and hired vehicles including trailers used in the performance of the work, unless a higher coverage is specified in Exhibit A to the Contract, in which case the Contractor shall provide the additional coverage:

Bodily Injury & Property Damage      \$1,000,000 combined single limit

- B.** The policy shall include a CA 99 48 Broadened Pollution Endorsement. If specified in Exhibit A to the Contract, the Contractor, if hauling contaminants and/or pollutants, must adhere to Sections 29 and 30 of the Motor Carrier Act of 1980, which shall include coverage Form MCS-90.
- C.** The policy shall name the Awarding Authority and Owner as additional insureds.
- D.** The policy shall contain a waiver of subrogation in favor of the Awarding Authority and Owner.

### **4. Contractor's Pollution Liability.**

The Contractor shall purchase and maintain coverage for bodily injury and property damage resulting from liability arising out of pollution related exposures such as asbestos abatement, lead paint abatement, tank removal, removal of contaminated soil, etc. The insurance policy shall cover the liability of the Contractor during the process of removal, storage, transport and disposal of hazardous waste and contaminated soil and/or asbestos abatement. The policy shall include coverage for on-Site and off-Site bodily injury and loss of, damage to, or loss of use of

property, directly or indirectly arising out of the discharge, dispersal, release or escape of smoke, vapors, soot, fumes, acids, alkalis, toxic chemicals, liquids or gas, waste materials or other irritants, contaminants or pollutants into or upon the land, the atmosphere or any water course or body of water, whether it be gradual or sudden and accidental. The policy shall also include defense and clean-up costs. The Awarding Authority and Owner shall be named as an additional insureds and coverage must be on an occurrence basis. The amount of coverage shall be as follows unless a higher amount is specified in Exhibit A to the Contract, in which case the Contractor shall provide the additional coverage:

Limit of liability	\$1,000,000 per occurrence
	\$3,000,000 aggregate

## **5. Worker's Compensation.**

**A.** The Contractor shall provide the following coverage in accordance with M.G.L. c.149, § 34A and c. 152, as amended, unless a higher coverage is specified in Exhibit A to the Contract, in which case the Contractor shall provide the higher coverage:

Worker's Compensation	Statutory limits
Employer's Liability	\$ 500,000 each accident
	\$ 500,000 disease per employee
	\$ 500,000 disease policy aggregate

**B.** If specified in Exhibit A to the Contract the policy must be endorsed to cover United States Longshoremen & Harborworkers Act (USLHW), Maritime Liability for \$1,000,000/\$1,000,000 or Federal Employer's Liability Act liability.

**C.** The policy shall contain a waiver of subrogation in favor of the Awarding Authority and Owner.

## **6. Builder's Risk/ Installation Floater/Stored Materials.**

**A.** The Contractor shall purchase and maintain coverage against loss or damage on all Work included in this Contract in an amount equal to the Contract Price. Such coverage shall be written on an all risks basis or equivalent form and shall include, without limitation, insurance against perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, terrorism ("certified" and "non-certified"), collapse, earthquake, flood (if the project is not in an "A" or a "V" flood zone), windstorm, falsework, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Designer's and Contractor's services and expenses required as a result of such insured loss. Unless otherwise specified in this Contract, the limits for earthquake and flood shall be the lesser of the Contract Price or \$10,000,000. This policy and/or installation floater shall include transportation and stored materials coverage in an amount equal to the value of the stored materials as required in Article XIV.6.C. below.

**B.** When Work will be completed on existing buildings owned by the Owner, the Contractor shall provide an installation floater, in the full amount of the Contract Price. Such coverage shall be written on an all risks basis or equivalent form and shall include, without limitation, insurance against perils of fire (with extended coverage) and physical loss or

damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, earthquake, flood (if the project is not in an "A" or a "V" flood zone), windstorm, falsework, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Designer's and Contractor's services and expenses required as a result of such insured loss. Unless otherwise specified in this Contract, the limits for earthquake and flood shall be the lesser of the Contract Price or \$10,000,000. This policy and/or installation floater shall include transportation and Stored Materials coverage in an amount equal to the value of the stored materials as required in Article XIV.6.C. below.

- C. The Contractor shall maintain insurance on delivered and/or stored material designated to be incorporated in the Work against fire, theft or other hazards. Any loss or damage of whatever nature to such material while stored at an off -Site location shall be forthwith replaced by the Contractor at no expense to the Awarding Authority.
- D. The policy or policies shall specifically state that they are for the benefit of and payable to the Awarding Authority, the Owner, the Contractor, Subcontractors, and all persons furnishing labor or labor and materials for the Work, as their interests may appear. The policy or policies shall list the Awarding Authority, the Owner, the Contractor, and Subcontractors of any tier as named insureds.
- E. Coverage shall include any costs for work performed by the Designer or any consultant as the result of a loss experienced during the term of this Contract.
- F. Coverage shall include permission for temporary occupancy and a waiver of subrogation in favor of the Awarding Authority and Owner
- G. Coverage shall be maintained until Final Acceptance by the Awarding Authority and Owner of the Contract and final payment has been made.
- H. A loss under the property insurance shall be adjusted by the Contractor as fiduciary and made payable to the Contractor as fiduciary for the insureds. The Contractor shall pay the Subcontractors their just shares of insurance proceeds received by the Contractor and shall require Subcontractors to make payments to their sub-Subcontractors in similar manner.

## **7. Umbrella Coverage.**

The Contractor shall provide umbrella coverage in a form at least as broad as primary coverages required by subparagraphs 2, 3 and 5 of this Article in the following amount unless a higher amount is specified in Exhibit A to the Contract, in which case the Contractor shall provide the higher amount:

<u>Contract Price:</u>	<u>Limit of Liability:</u>
Under \$1,000,000	\$2,000,000 per occurrence
\$1,000,001 -- \$5,000,000	\$5,000,000 per occurrence
\$5,000,001-- \$10,000,000	\$10,000,000 per occurrence
\$10,000,001 and over	\$25,000,000 per occurrence

## **8. Additional Types of Insurance.**

The Contractor shall provide such other types of insurance as may be required by Exhibit A to the Contract.

## **ARTICLE XV** **INDEMNIFICATION**

### **1. Generally.**

To the fullest extent permitted by law, the Contractor shall indemnify, defend (with counsel appointed as a Special Assistant Attorney General and subject to the supervision of the Attorney General of the Commonwealth of Massachusetts as required by M.G.L. c. 12, § 3) and hold harmless the Owner, Awarding Authority and Designer and their officers, agents, divisions, agencies, employees, representatives, successors and assigns from and against all claims, damages, losses and expenses, including but not limited to court costs and attorneys' fees, arising out of or resulting from the performance of the Work, including but not limited to those arising or resulting from: labor performed or furnished and/or materials used or employed in the performance of the Work; violations by Contractor, any Subcontractor, or by any person directly or indirectly employed or used by any of them in the performance of the Work (including, without limitation, suppliers) or anyone for whose acts any of them may be liable (Contractor, Subcontractor and all such persons herein collectively called "Contractor's Personnel") of any Laws; violations of any provision of this Contract by any of Contractor's Personnel; injuries to any persons or damage to any property in connection with the Work; any act, omission, or neglect of Contractor's Personnel.

The Contractor shall be obligated as provided above, regardless of whether or not such claims, damages, losses and/or expenses, are caused in whole or in part by the actions or inactions of a party indemnified hereunder. In any and all claims by Contractor's Personnel against parties indemnified hereunder, the Contractor's indemnification obligation set forth above shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any Subcontractor under workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts. Such obligation shall not be construed to negate, abridge, or otherwise reduce any other right or obligation of indemnity which would otherwise exist as to any party or person described in this Article XV.

### **2. Designer's Actions.**

The obligations of the Contractor under Section 1 above shall not extend to the liability of the Designer, its agents or employees, arising out of (i) the preparation or approval of maps, Drawings, opinions, reports, surveys Change Orders, designs, or Specifications, or (ii) the giving of or the failure to give directions or instructions by the Designer, its agents to employees provided such giving or failure to give is the primary cause of the injury or damage.

### **3. Survival.**

The provisions of this Article XV are intended to survive Final Acceptance and/or any termination of this Contract.

## **ARTICLE XVI** **PERFORMANCE AND PAYMENT BONDS**

### **1. Contractor Bonds.**

- A.** The Contractor shall provide performance and payment (labor and materials) bonds in the form provided by the Awarding Authority, executed by a surety licensed by the Commonwealth of Massachusetts Division of Insurance and whose name appears on United States Treasury Department Circular 570. Each such bond shall be in the amount of the Contract Price.
- B.** If at any time prior to final payment to the Contractor, the Contractor's surety:
  - (1) is adjudged bankrupt or has made a general assignment for the benefit of its creditors;
  - (2) has liquidated all assets and/or has made a general assignment for the benefit of its creditors;
  - (3) is placed in receivership;
  - (4) otherwise petitions a state or federal court for protection from its creditors; or
  - (5) allows its license to do business in Massachusetts to lapse or be revoked;then the Contractor shall, within twenty-one (21) days of any such action listed above, provide the Awarding Authority with new performance and payment bonds as described in Article XVI.1.A above. Such bonds shall be provided solely at the Contractor's expense.

### **2. Subcontractor Bonds.**

- A.** If the Contractor provided in its General Bid that any or all filed Subcontractors shall provide the Contractor with payment and performance bonds for the full amount of their respective Subcontracts, then the costs for said bonds shall be the responsibility of the Contractor. Irrespective of whether the Contractor requests payment and performance bonds from their respective Subcontractors, the Contractor understands that if the Subcontractor defaults or is terminated, the Contractor shall have full responsibility for all costs and expenses related to said default or termination.
- B.** If the Contractor provided in its General Bid that filed Subcontractors shall provide bonds, and subsequently waives the requirement, the Contractor shall give the Awarding Authority a written certification that the Contractor understands that if the filed Subcontractor defaults or is terminated, the Contractor shall have full responsibility for all costs and expenses related to said default or termination and the Awarding Authority shall be entitled to a credit adjustment to the Contract Price in an amount equal to the bond premium Contractor would have paid had Contractor required the filed Subcontractor to provide such bonds. The Awarding Authority may, at its election, either issue a credit Change Order, withhold such amount from any payments due the Contractor and/or receive a payment from the Contractor for such amount.

## **ARTICLE XVII** **TERMINATION OF CONTRACT**

## **1. Termination for Cause.**

**A.** The Awarding Authority may without prejudice to any other right or remedy deem this Contract terminated for cause if any of the following defaults shall occur and not be cured within three (3) days after the giving of notice thereof by the Awarding Authority to the Contractor and any surety that has given bonds in connection with this Contract:

- (1) The Contractor has filed a petition, or a petition has been filed against the Contractor with its consent, under any federal or state law concerning bankruptcy, reorganization, insolvency or relief from creditors, or if such a petition is filed against the Contractor without its consent and is not dismissed within sixty (60) days; or if the Contractor is generally not paying its debts as they become due; or if the Contractor becomes insolvent; or if the Contractor consents to the appointment of a receiver, trustee, liquidate, custodian or the like of the Contractor or of all or any substantial portion of its assets and such appointment or possession is not terminated within sixty (60) days; or if the Contractor makes an assignment for the benefit of creditors;
- (2) The Contractor refuses or fails, except in cases for which extension of time is provided under this Contract's express terms, to supply enough properly skilled workers or proper materials to perform its obligations under this Contract, or the Awarding Authority as determined that the rate of progress required for the timely completion of the Work is not being met;
- (3) The Contractor fails to make prompt payment to Subcontractors or for materials, equipment, or labor;
- (4) All or a part of the Work has been abandoned;
- (5) 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 expressly permitted in this Contract;
- (6) The Contractor has failed to comply with Laws;
- (7) The Contractor fails to maintain or provide to the Awarding Authority evidence of the insurance or bonds required by this Contract, or
- (8) The Contractor has failed to prosecute the Work or any portion thereof as required under this Contract or has otherwise breached any material provision of this Contract.

**B.** The Awarding Authority shall give the Contractor and any surety notice of such termination for cause, but the giving of notice of such termination shall not be a condition precedent or subsequent to the termination's effectiveness. In the event of such termination, and without limiting any other available remedies, the Awarding Authority may, at its option:

- (1) hold the Contractor and its sureties liable in damages for a breach of Contract;
- (2) notify the Contractor to discontinue all work, or any part thereof, and the Contractor shall discontinue all work, or any part thereof, as the Owner may designate;
- (3) complete the Work, or any part thereof, and charge the expense of completing the Work or part thereof, to the Contractor;
- (4) require the surety or sureties to complete the Work and perform all of the Contractor's obligations under this Contract;

(5) take such other lawful action as is deemed by the Awarding Authority to be in the best interest of the Owner.

If the Awarding Authority elects to complete all or any portion of the Work as specified in Article XVII.1.B.(3) above, it may take possession of all materials, equipment, tools, machinery, implements at or near the Site owned by the Contractor and finish the Work at the Contractor's expense by whatever means the Awarding Authority may deem expedient; and the Contractor shall cooperate at its expense in the orderly transfer of the same to a new contractor or to the Awarding Authority as directed by the Awarding Authority. In such case, the Awarding Authority shall not make any further payments to the Contractor until the Work is completely finished. 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 Site after the Owner has no further use for them. Unless so removed within fifteen days after notice to the Contractor to do so, they may be sold at public auction, after publication of notice thereof at least twice in any newspaper published in the county where the Work is being performed, and the proceeds credited to the Contractor's account; or they may, at the option of the Awarding Authority, be stored at the Contractor's expense subject to a lien for the storage charges.

- C.** Damages and expenses incurred under Article XVII.1.B above shall include, but not be limited to, costs for the Designer's extra services required, in the opinion of the Awarding Authority, to successfully inspect and administer the construction contract through Final Acceptance of the Work.
- D.** Expenses charged under Article XVII.1.B above may be deducted and paid by the Awarding Authority out of any moneys then due or to become due the Contractor under this Contract.
- E.** All sums damages, and expenses incurred by the Owner to complete the Work shall be charged to the Contractor. In case the damages and expenses charged are less than the sum that would have been payable under this Contract if the same had been completed by the Contractor, the Contractor shall be entitled to receive the difference. In case such expenses shall exceed the said sum, the Contractor shall pay the amount of the excess to the Owner.

## **2. Termination For Convenience.**

- A.** The Awarding Authority may terminate this Contract for convenience even though the Contractor is not in default by giving notice to the Contractor specifying in said notice the date of termination.
- B.** In case of such termination without cause, the Contractor shall be paid:
  - (1) all sums due and owing under this Contract through the date of termination, including any retainage withheld to the date of termination, less any amount which the Awarding Authority determines is necessary to correct or complete the Work performed to the date of termination; plus
  - (2) a reasonable sum to cover the expenses which Contractor would not have incurred but for the early termination of the Contract, such as demobilization of the work force, restocking charges, termination fees payable to Subcontractors.
- C.** Lost profits shall not be payable. The payment provided in Article XVII.2.B above 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.

### **3. Contractor's Duties Upon Termination For Convenience.**

Upon termination of this Contract for convenience as provided above in Article XVII.2, the Contractor shall: (1) stop the Work; (2) stop placing orders and subcontracts in connection with this Contract; (3) cancel all existing orders and subcontracts; (4) surrender the Site to the Awarding Authority in a safe condition; (5) transfer to the Awarding Authority all materials, supplies, work in process, appliances, facilities, equipment and machinery of this Contract, and all plans, Drawings, Specifications and other information and documents used in connection with this Contract.

## **ARTICLE XVIII** **MISCELLANEOUS PROVISIONS**

### **1. No Assignment by Contractor.**

The Contractor shall not assign by power of attorney or otherwise, or sublet or subcontract, the Work or any part thereof, without the previous written consent of the Awarding Authority and shall not, either legally or equitably, assign any of the moneys payable under this Contract, or Contractor's claims hereunder, unless with the like consent of the Awarding Authority, whether said assignment is made before, at the time of, or after the execution of the Contract. The Contractor shall remain responsible for satisfactory performance of all Work sublet or assigned. Consent of the Awarding Authority shall not be deemed to constitute a representation or waiver of any right hereunder by the Awarding Authority as to the qualifications or the responsibility of the Contractor or Subcontractor(s).

### **2. Non-Appropriation.**

The Awarding Authority certifies that at the time of the execution of this Contract, sufficient appropriations exist and shall be encumbered to fund the Contract Price. Payments are subject to appropriation and shall be made only for work performed in accordance with the terms of this Contract. The Contractor shall not be obligated to perform and shall not perform work outside the scope of this Contract without an appropriate amendment to this Contract, and a sufficient appropriation(s) to support such additional work. The Awarding Authority may immediately terminate or suspend this Contract in the event that the appropriation(s) funding this Contract is eliminated or reduced to an amount which will be insufficient to support anticipated future obligations under this Contract. Such termination shall be deemed a termination for convenience subject to the provisions of Article XVII.2 of these General Conditions.

### **3. Claims by Others Not Valid.**

No person other than the Contractor shall acquire any interest in this Contract or claim against the Awarding Authority or Owner hereunder, and no claim by any other person shall be valid except as provided in M.G.L. c. 30, § 39F.

### **4. No Personal Liability of Public Officials.**

No public official, employee, or agent of the Awarding Authority or Owner shall have any personal liability for the obligations of the Awarding Authority or Owner set forth in this Contract.

## **5. Severability.**

The provisions of this Contract are severable, and if any of these provisions shall be held unconstitutional or unenforceable by any court of competent jurisdiction, the decision of such court shall not affect or impair any of the other provisions of this Contract.

## **6. Choice of Laws.**

This Contract shall be governed by the Laws of the Commonwealth of Massachusetts for all purposes, without regard to its Laws on choice of law. All proceedings under this Contract or related to the Project shall be brought in the courts of the Commonwealth of Massachusetts.

## **7. Standard Forms.**

Unless directed otherwise in writing by the Awarding Authority, Contractor shall use the standard forms in use by Awarding Authority appearing in Appendix C to these General Conditions.

## **8. No Waiver of Subsequent Breach.**

No waiver of any breach or obligation of this Contract shall constitute a waiver of any other or subsequent breach or obligation.

## **9. Remedies Cumulative.**

All remedies of the Awarding Authority provided in this Contract shall be construed as cumulative and may be exercised simultaneously or in any order as determined by the Awarding Authority in its sole discretion. The Awarding Authority shall also be entitled as of right to specific performance and equitable relief including the right to an injunction against any breach of any of the provisions of this Contract.

## **10. Notices.**

Notices to the Contractor shall be deemed given when hand delivered to the Contractor's temporary field office at or near the Site, or when deposited in the U.S. mail addressed to the Contractor at the Contractor's address specified in the Contract, or when delivered by courier to either location. Unless otherwise specified in writing by the Awarding Authority, notices and deliveries to the Awarding Authority shall be effective only when delivered to the Awarding Authority at the address specified in the Contract and date-stamped at the reception desk or for which a receipt has been signed by the agent or employee designated by the Awarding Authority to receive official notices.

## **11. Additional Information.**

Recognizing that the Awarding Authority may find it necessary during the progress of the Work to establish the current status of performance under the Contract Documents, the Contractor shall, without limitation of any other requirements of the Contract Documents, promptly provide upon request statements, documents, or information to the Awarding Authority or others regarding the status of the Work, compliance of the Work with the Contract Documents, compliance by the Contractor or any Subcontractor with the Contract Documents, the names of Subcontractors or suppliers, amounts due or to become due, amounts previously paid to Subcontractors or suppliers, estimates of the portion of the Work completed and the cost of completing the Work, and such other matters within the scope of the Contractor's performance under the Contract Documents as the Awarding Authority may reasonably require.

## **12. Information Confidential.**

Except as required for the discharge of its duties to the Awarding Authority under this Contract, or required by subpoena or court order, the Contractor and any of its Subcontractors agree to hold all information, documents, and materials obtained or developed in connection with its performance under this Contract (including, without limitation, all prints, plans, policies, procedures, studies, specifications and drawings, which relate to internal layout and structural elements, electrical and mechanical systems, security measures, emergency preparedness, threat or vulnerability assessments, and any other records relating to the security or safety of persons or buildings, structures, facilities, utilities, transportation or other infrastructure located within the Commonwealth) that the Contractor and any of its Subcontractors should reasonably know to be of a confidential or sensitive nature ("Confidential Information") in the strictest confidence, and shall not communicate, release, or disclose Confidential Information in any to any third party without the prior written Approval by the Awarding Authority. The Contractor shall not use any Confidential Information other than for the performance of the Work under this Contract. The Contractor shall inform all persons to whom any such Confidential Information has been or will be communicated, released, or disclosed of the privileged and confidential nature of Confidential Information, and shall ensure that all necessary steps are taken so that such Confidential Information is treated confidentially. Without limiting the foregoing, if the Project is a designated "Security Sensitive Information" project, the Contractor shall execute separate "Security Sensitive Information Procedures" and confidentiality agreements and shall comply with such document protection requirements as may be referenced in said agreement.

## **13. Consequential Damages.**

In no event shall DCAMM be liable to the Contractor except for obligations expressly assumed by the Awarding Authority or the Designer under the Contract Documents, nor shall the Awarding Authority ever be liable to the CM for indirect, special or consequential damages.

## **14. Conflict of Interest.**

The Contractor shall familiarize its employees assigned to perform services under this Contract with the provisions of M.G.L. c. 268A (the Massachusetts conflict-of-interest statute). The Contractor that the CM is an "interested party" for purposes of the aforementioned statute. Accordingly, if the Awarding Authority is a "state agency" for

purposes of the aforementioned statute, the Contractor and its employees and agents shall not offer or provide any employee of the Awarding Authority any gift, gratuity, favor, meal, entertainment, loan or other item of monetary value. The Contractor warrants and represents that it currently has no interest and shall not acquire any interest, direct or indirect, which would be adverse to or conflict in any manner with the performance of its services under this Contract or with the interest of the Awarding Authority or the Project. The Contractor further agrees that in the performance of this Contract no person or entity having any such adverse or conflicting interest shall be employed or granted a Subcontract. Except with the Awarding Authority's knowledge and express consent, the Contractor shall not engage in any activity, or accept any employment, interest or contribution that would reasonably appear to be adverse to the interests of the Awarding Authority or to compromise the Contractor's professional judgment with respect to the Project. The Contractor has a continuing obligation to divulge to the Awarding Authority all circumstances of its relationships with third parties, as well as any other interests that may have an effect on the Awarding Authority or the Project at the time of execution of this Contract or during its effectiveness. If the Awarding Authority believes that there is or has been a conflict of interest, or the appearance of a conflict of interest, it will so notify the Contractor. The Contractor shall make full disclosure of all material facts, and shall have a period of thirty (30) days after receipt of such notice to cure the conflict of interest or the appearance of conflict of interest, including the right to request a meeting with the Awarding Authority to explain its position. If the conflict of interest or appearance of conflict of interest is not cured to the satisfaction of the Awarding Authority or the controversy otherwise resolved prior to expiration of such thirty (30) days period, the Contractor shall be deemed to be in default of this Contract and the Awarding Authority may exercise any remedies available to it under this Contract or applicable law.

## **15. Sexual Harassment and Workplace Violence Prevention.**

The Contractor shall promote a workplace that is free from sexual harassment and workplace violence, and to require all of its subcontractors to agree to the same. The Commonwealth does not tolerate sexual harassment, workplace violence, or a hostile work environment. It is the goal of the Commonwealth of Massachusetts to promote a workplace where people treat each other with dignity and respect. This applies to all Commonwealth employees, consultants, contractors and subcontractors regardless of tier, and covers actions within, by, among, and across these groups as they interact with each other. Without limiting its other rights and remedies of removal and/or termination, the Awarding Authority reserves the right to remove or terminate individuals and/or contractors whose conduct violates any of the provisions of this paragraph.

**END OF GENERAL CONDITIONS  
APPENDICES APPEAR ON THE FOLLOWING PAGES**

## **APPENDIX A to General Conditions of the Contract**

The following provisions form Article XII of the General Conditions of the Contract where DCAMM is the Awarding Authority.

### **EQUAL EMPLOYMENT OPPORTUNITY, NON-DISCRIMINATION AND AFFIRMATIVE ACTION PROGRAM.**

#### **1. Compliance Generally.**

For purpose of this Article, "minority" refers to Asians, Blacks, Western Hemisphere Hispanics, Native Americans, and Cape Verdeans; "Commission" refers to the Massachusetts Commission Against Discrimination. During the performance of this Contract, the Contractor and all of its Subcontractors (hereinafter collectively referred to as the Contractor) shall comply with all applicable equal employment opportunity, non-discrimination and affirmative action requirements, including but not limited to the following:

#### **2. Non-Discrimination and Affirmative Action.**

**A.** The Contractor shall not discriminate against any employee or applicant for employment because of race, color, religious creed, national origin, ancestry, sex, gender identity, sexual orientation, age, handicap, mental illness, genetic information or active military duty. The aforesaid provision shall include, but not be limited to, the following: employment upgrading, demotion or transfer; recruitment advertising; recruitment layoff; termination; rates of pay or other forms of compensation; conditions or privileges of employment; and selection for apprenticeship. The Contractor shall comply with the provisions of M.G.L. c.151B and all other applicable anti-discrimination and equal opportunity laws.

**B.** The Contractor shall comply with the provisions of Executive Order 526, entitled Order Regarding Nondiscrimination, Diversity, Equal Opportunity and Affirmative Action, which prohibits unlawful discrimination based on race, color, age, gender, ethnicity, sexual orientation, gender identity or expression, religion, creed, ancestry, national origin, disability, veteran's status (including Vietnam-era veterans), or background. Executive Order 526 is herein incorporated by reference and made a part of this Contract.

Pursuant to Executive Order 526 the Contractor and any subcontractors may not engage in discriminatory employment practices; and the Contractor must certify that it is in compliance with all applicable federal and state laws, rules, and regulations governing fair labor and employment practices; and commit to purchasing supplies and services from certified minority or women-owned businesses, small businesses, or businesses owned by socially or economically disadvantaged persons or persons with disabilities. These provisions shall be enforced through the contracting agency, the Operational Services Division, and/or the Massachusetts Commission Against Discrimination. Any breach shall be regarded as a material breach of Contract that may subject Contractor to appropriate sanctions.

**C.** In connection with the performance of the Work, the Contractor shall undertake in good faith affirmative action measures designed to eliminate any discriminatory barriers in the terms and conditions of employment on the grounds of race, color, religious creed, national origin, age, sexual orientation, or sex, and to eliminate and remedy any effects of such discrimination in the past. Such affirmative action shall entail positive and aggressive measures to ensure equal opportunity in the areas of hiring, upgrading, demotion or transfer, recruitment, layoff or termination, rate of compensation, and in-service or apprenticeship training programs. This affirmative action shall include all action required to guarantee equal employment opportunity for all persons, regardless of race, color, religious creed, national origin, age, sexual orientation, or sex. A purpose of this provision is to ensure to the fullest

extent possible an adequate supply of skilled tradesmen for future public construction projects.

**D.** If the Contractor shall use any subcontractor on any work performed under this Contract, the Contractor shall take affirmative steps to negotiate with qualified minority and women subcontractors. These affirmative steps shall cover both pre-bid and post-bid periods. It shall include notification to the State Office of Minority and Women Business Assistance or its designee, while bids are in preparation, of all products, work or services for which the Contractor intends to negotiate bids. In all solicitations either by competitive bidding or negotiation made by the Contractor either for work to be performed under a subcontract or for the procurement of materials or equipment, each potential subcontractor or supplier shall be notified in writing by the Contractor of the Contractor's obligations under this Contract relative to non-discrimination and affirmative action.

**E.** As part of its obligation of remedial action under this Article, the Contractor shall maintain on this project not less than the percent ratio set forth in the Owner - Contractor Agreement of minority employee worker hours to total worker hours in each job category including but not limited to bricklayers, carpenters, cement masons, electricians, ironworkers, operating engineers, and those "classes of work" enumerated in M.G. L. c. 149, s. 44F.

**G.** In the hiring of minority journeypersons, apprentices, trainees and advanced trainees, the Contractor shall rely on referrals from a multi-employer affirmative action program approved by the Commission, traditional referral methods utilized by the construction industry, and referrals from agencies, not more than three in number at any one time, designated by the Liaison Committee or the Awarding Authority.

### **3. Liaison Committee, Reports and Records.**

**A.** At the option of the Awarding Authority, there may be established for the term of this Contract a body to be known as the Liaison Committee. The Liaison Committee shall be composed of one representative each from the Awarding Authority, the Commission and such other representatives as may be designated by the Commission in conjunction with the Awarding Authority. The Contractor (or his agent, if any, designated by him as the on-Site equal employment opportunity officer) shall recognize the Liaison Committee as an affirmative action body, and shall establish a continuing working relationship with the Liaison Committee, consulting with the Liaison Committee on all matters related to minority recruitment, referral, employment and training.

**B.** The Contractor shall prepare projected staffing tables on a quarterly basis. These shall be broken down into projections, by week, of workers required in each trade. Copies shall be furnished one week in advance of the commencement of the period covered, and also when updated, to the Awarding Authority and Liaison Committee. The Contractor shall prepare weekly reports in a form approved by the Awarding Authority of hours worked in each trade by each employee, identified as minority or non-minority. Copies of these shall be provided at the end of each such week to the Awarding Authority and to the Liaison Committee.

**C.** Records of employment referral orders, prepared by the Contractor, shall be made available to the Awarding Authority and to the Liaison Committee on request.

**D.** A designee of the Awarding Authority and a designee of the Liaison Committee shall each have right to access to the Site.

**E.** The Contractor shall comply with the provisions of M.G.L. c. 151B as amended, of the Massachusetts General Laws, both of which are herein incorporated by reference and made a part of this Contract.

**F.** The Contractor shall provide all information and reports required by the Awarding Authority or the Commission on forms and in accordance with instructions issued by either

of them and will permit access to its facilities and any books, records, accounts and other sources of information which may be determined by the Awarding Authority or the Commission to affect the employment of personnel. This provision shall apply only to information pertinent to the Owner's supplementary affirmative action Contract requirements. Where information required is in the exclusive possession of another who fails or refuses to furnish this information, the Contractor shall so certify to the Awarding Authority or the Commission as appropriate and shall set forth what efforts he has made to obtain the information.

#### **4. Sanctions.**

**A.** Whenever the Awarding Authority, the Commission, or the Liaison Committee believes the Contractor or any Subcontractor may not be operating in compliance with the terms of this Article, the Commission shall directly, or through its designated agent, conduct an appropriate investigation, and may confer with the parties, to determine if such Contractor is operating in compliance with the terms of this Article. If the Commission or its agent finds the Contractor or any Subcontractor not in compliance, it may make a preliminary report on non-compliance, and notify such Contractor in writing of such steps as will in the judgment of the Commission or its agent bring such Contractor into compliance. In the event that such Contractor fails or refuses to fully perform such steps, the Commission **may** make a final report of non-compliance, and recommend to the Awarding Authority the imposition of one or more of the sanctions listed below. If, however, the Commission believes the Contractor or any Subcontractor has taken or is taking every possible measure to achieve compliance, it shall not make a final report of non-compliance. Within fourteen days of the receipt of the recommendations of the Commission, the Awarding Authority shall move to impose one or more of the following sanctions, as it may deem appropriate to attain full and effective enforcement:

- (1) The recovery by the Awarding Authority from the Contractor of 1/100 of 1% of the Contract award price or \$1,000 whichever sum is greater, in the nature of liquidated damages or, if a Subcontractor is in non-compliance, the recovery by the Awarding Authority from the Contractor, to be assessed by the Contractor as a back charge against the subcontractor, of 1/10 of 1% of the sub-Contract Price, or \$400 whichever sum is greater, in the nature of liquidated damages, for each week that such party fails or refuses to comply;
- (2) The suspension of any payment or part thereof due under the Contract until such time as the Contractor or any subcontractor is able to demonstrate his compliance with the terms of the Contract;
- (3) The termination or cancellation of the Contract, in whole, or in part, unless the Contractor or any Subcontractor is able to demonstrate within a specified time his compliance with the terms of the contract;
- (4) The denial to the Contractor or any subcontractor of the right to participate in any future contracts awarded by the Awarding Authority for a period of up to three years.

**B.** If at any time after the imposition of one or more of the above sanctions a Contractor is able to demonstrate that it is in compliance with this Article, the Contractor may request the Awarding Authority, in consultation with the Commission, to suspend the sanctions conditionally, pending a final determination by the Commission as to whether the Contractor is in compliance. Upon final determination of the Commission, the Awarding Authority, based on the recommendation of the Commission, shall either lift the sanctions or reimpose them.

**C.** Sanctions recommended by the Commission and enumerated under Section 4 above shall not be imposed by the Awarding Authority except after an adjudicatory proceeding, as that term is used M.G.L. c. 30A, has been conducted. No investigation by the Commission

or its agent shall be initiated without prior notice to the Contractor. **D.** Notwithstanding the provisions of 4A-4C above, if the Awarding Authority determines after investigation that the Contractor or any Subcontractor is not in compliance with the terms of this Article, it may suspend any payment or portion thereof due under the Contract until the contractor demonstrates to the satisfaction of the Awarding Authority compliance with the terms of this Article. This temporary suspension of payments by the Awarding Authority is separate from the sanctions set forth in Section 4A-4C of this Article above, which are determined by MCAD and recommend to the Awarding Authority. Payment may be suspended only after the Contractor and any other interested party shall have been given the opportunity to present evidence in support of its position at an informal hearing held by the Awarding Authority, and the Awarding Authority has concluded upon review of all the evidence that such penalty is justified. Payment shall not be suspended if the Awarding Authority finds that the Contractor made its best efforts to comply with this Article, or that some other justifiable reason exists for waiving the provisions of this Article in whole or in part.

## **END OF APPENDIX A**

## **APPENDIX B to General Conditions of the Contract**

The following provisions form Article XIII of the General Conditions of the Contract where DCAMM is the Awarding Authority.

### **GOALS FOR PARTICIPATION BY MINORITY BUSINESS ENTERPRISES AND WOMEN BUSINESS ENTERPRISES (M.G.L. c. 7C, § 6 and EXECUTIVE ORDERS 526 & 565)**

#### **1. Goals.**

**A.** The goals for minority business enterprise and woman business enterprise participation established for this Contract are as set forth in the Owner - Contractor Agreement.

**B.** The Contractor and all Subcontractors, sub-subcontractors, and materials suppliers shall comply with all of the terms and conditions of this Article, which include the provisions pertaining to MBE/WBE participation set forth in the Owner - Contractor Agreement in order to meet the MBE/WBE participation goals established for this Contract.

#### **2. MBE/WBE Participation Credit.**

**A.** If the Contractor is itself an MBE or WBE, MBE or WBE participation credit shall be given in an amount equal to the entire Contract Price less the value of the work actually performed by other MBE or WBE firms on the Contract. If the Contractor is not an MBE or WBE, then MBE/WBE participation credit will be given for the value of the Work that is actually performed by each MBE or WBE subcontractor or sub-subcontractor.

**B.** If the Contractor is a joint venture with one or more MBE/WBE joint venturers, MBE/WBE participation credit shall be given to the joint venture as follows:

(1) If the joint venture is certified by the Massachusetts Supplier Diversity Office (SDO) as an MBE or WBE, MBE/WBE participation credit shall be given in an amount equal to the entire Contract Price.

(2) If the joint venture is not certified as an MBE or WBE by the SDO, MBE/WBE participation credit shall be given to the joint venture for the value of the Work that is performed by the MBE/WBE joint venturer(s), and for the value of the Work that is actually performed by each MBE or WBE subcontractor or sub-subcontractor.

**C.** If an MBE/WBE supplies but does not install equipment or materials, MBE/WBE participation credit shall be given only if the MBE/WBE supplier is regularly engaged in sales of equipment or supplies to the construction industry from an established place of business. MBE/WBE participation credit shall be given the full amount of the purchase order only if the MBE/WBE supplier manufactures the goods or substantially alters them before resale. In all other cases, MBE/WBE participation credit shall be given for 15% of the purchase order.

**D.** MBE participation credit shall be given for the work performed by MBEs only, and WBE participation credit shall be given for the work performed by WBEs only. MBE participation may not be substituted for WBE participation, nor may WBE participation be substituted for MBE participation.

### **3. Establishing MBE/WBE Status.**

**A.** A minority owned business shall be considered an MBE only if it has been certified as a minority business enterprise by the Supplier Diversity Office (“SDO”).

**B.** A woman owned business shall be considered a WBE only if it has been certified as a woman business enterprise by SDO.

**C.** Certification as a disadvantaged business enterprise (“DBE”), certification as an MBE/WBE by any agency other than SDO, or submission of an application to SDO for certification as an MBE/WBE shall not confer MBE/WBE status on a firm for the purposes of this Contract. Please note that only firms SDO certified as MBE or WBEs can be credited toward meeting project MBE or WBE goals.

### **4. Subcontracts With MBE/WBEs.**

Within thirty (30) days after the award of this Contract, the Contractor shall (i) execute a subcontract with each MBE/WBE Subcontractor which has executed a Letter of Intent Approved by the Awarding Authority, (ii) cause its Subcontractors to execute a sub-subcontract with each MBE/WBE sub-subcontractor they committed to utilize, and (iii) furnish the Awarding Authority with a signed copy of each such subcontract and sub-subcontract through DCAMM's Online Compliance Reporting System.

### **5. Performance of Contract Work by MBE/WBEs.**

**A.** The Contractor shall not perform with its own organization, or subcontract or assign to any other firm, work designated to be performed by any MBE/WBE in the Letters of Intent or Schedule for MBE/WBE Participation without the prior written Approval of the Awarding Authority, nor shall any MBE/WBE assign or subcontract to any other firm, or permit any other firm to perform any of its MBE/WBE Work without the prior written Approval of the Awarding Authority. Any such unapproved assignment, subcontracting, sub-subcontracting, or performances of MBE/WBE Work by others shall be a change in the MBE/WBE Work for the purposes of this Contract. The Awarding Authority WILL NOT APPLY TO THE MBE OR WBE PARTICIPATION GOAL(S) ANY SUMS ATTRIBUTABLE TO SUCH UNAPPROVED ASSIGNMENTS, SUB-CONTRACTS, SUB-SUBCONTRACTS, OR PERFORMANCE OF MBE/WBE WORK BY OTHERS.

**B.** The Contractor shall be responsible for monitoring the performance of MBE/WBE Work to ensure that each scheduled MBE/WBE performs its own MBE/WBE Work with its own workforce.

**C.** The Contractor and each MBE/WBE shall provide the Awarding Authority with all information and documentation that the Awarding Authority determines is necessary to ascertain whether or not an MBE/WBE has performed its own MBE/WBE Work. At the discretion of the Awarding Authority, failure to submit such documentation to the Awarding Authority shall establish conclusively for the purpose of giving MBE/WBE participation credit under this Contract that such MBE/WBE did not perform such work.

### **6. Notification of Changes in MBE/WBE Work.**

**A.** If at any time during the performance of the Contract the Contractor determines or has reason to believe that a scheduled MBE/WBE is unable or unwilling to perform its MBE/WBE Work, or that there has been or will be a change in any MBE/WBE Work, or that the Contractor will be unable to meet the MBE/WBE participation goal(s) for this Contract for any reason, the Contractor shall immediately notify the Awarding Authority Contract Compliance Office in writing of such circumstances.

**B.** Any notice of a change in MBE/WBE Work pursuant to subparagraph “A” above shall include a revised Schedule for MBE/WBE Participation, and additional or amended Letters of Intent and subcontracts, as the case may be.

**7. Actions Required If There is a Reduction in MBE/WBE Participation.**

**A.** In the event there is a change or reduction in any MBE/WBE Work which will result in the Contractor failing to meet the MBE/WBE participation goal(s) for this Contract, other than a reduction in MBE/WBE Work resulting from a Change Order initiated by the Awarding Authority, then the Contractor shall immediately undertake a diligent, good faith effort to make up the shortfall in MBE/WBE participation as follows:

(1) The Contractor shall identify all items of the Work remaining to be performed under the Contract that may be made available for subcontracting to MBE/WBEs. The Contractor shall send a list of such items of work to the Awarding Authority, together with a list of the remaining items of the Work that were not made available to MBE/WBEs and the reason for not making such work available for subcontracting to MBE/WBEs.

(2) The Contractor shall send written notices soliciting proposals to perform the items of the Work that may be made available for subcontracting to MBE/WBEs to all MBE/WBEs qualified to perform such work. The Contractor shall advise the Awarding Authority of (i) each MBE/WBE solicited, and (ii) each MBE/WBE listed in the SDO directory under the applicable trade category who was not solicited and the reasons therefor. The Contractor shall also advise the Awarding Authority of the dates notices were mailed and provide a copy of the written notice(s) sent.

(3) The Contractor shall make reasonable efforts to follow up the written notices sent to MBE/WBEs with telephone calls or personal visits in order to determine with certainty whether the MBE/WBEs were interested in performing the work. Phone logs or other documentation must be submitted to the Awarding Authority evidencing this effort.

(4) The Contractor shall make reasonable efforts to assist MBE/WBEs that need assistance in obtaining insurance, bonds, or lines of credit in order to perform work under the Contract, and shall provide the Awarding Authority with evidence that such efforts were made.

(5) The Contractor shall provide the Awarding Authority with a statement of the response received from each MBE/WBE solicited, including the reason for rejecting any MBE/WBE who submitted a proposal, if applicable.

(6) The Contractor shall take any additional measures reasonably requested by the Awarding Authority to meet the MBE/WBE participation goal(s) established for this Contract, including, without limitation, placing advertisements in appropriate media and trade association publications announcing the Contractor's interest in obtaining proposals from MBE/WBEs, and/or sending written notification to MBE/WBE economic development assistance agencies, trade groups and other organizations notifying them of the project and of the work available to be subcontracted by the Contractor to MBE/WBEs.

**B.** If the Contractor is unable to meet the MBE/WBE participation goals for this Contract after complying fully with each of the requirements of paragraph “A” above, and the Contractor is otherwise in full compliance with the terms of this Article, the Awarding Authority may reduce the MBE/WBE participation goals for this Contract to the extent that such goals cannot be achieved.

**8. Suspension of Payment and/or Performance for Noncompliance.**

**A.** If at any time during the performance of this Contract, the Awarding Authority determines or has reason to believe that (1) there has been a change or reduction in any MBE/WBE Work which will result in the Contractor failing to meet the MBE/WBE

participation goal(s) for this Contract, other than a reduction in MBE/WBE Work resulting from a change in the Contract work ordered by the Awarding Authority, and (2) the Contractor has failed to comply fully with all of the terms and conditions of paragraphs 1 through 7 above, the Awarding Authority may:

(1) suspend payment to the Contractor of an amount up to the full value of the work which was to have been performed by an MBE/WBE pursuant to the Contractor's Schedule for MBE/WBE Participation but which was not so performed, in order to ensure that sufficient Contract funds will be available if liquidated damages are assessed pursuant to paragraph 9, and/or

(2) suspend the Contractor's performance of this Contract in whole or in part.

**B.** The Awarding Authority shall give the Contractor prompt written notice of any action taken pursuant to paragraph A above and shall give the Contractor and any other interested party, including any MBE/WBEs, an opportunity to present evidence to the Awarding Authority that the Contractor is in compliance with the requirements of this Article, or that there is some justifiable reason for waiving the requirements of this Article in whole or in part. The Awarding Authority may invite SDO and the Massachusetts Commission Against Discrimination to participate in any proceedings undertaken pursuant to this paragraph.

**C.** Upon a showing that the Contractor is in full compliance with the requirements of this Article, or that the Contractor has met or will meet the MBE/WBE participation goals for this Contract, the Awarding Authority shall release any funds withheld pursuant to clause A(1) above, and lift any suspension of the Contractor's performance under clause A(2) above.

## **9. Liquidated Damages; Termination.**

**A.** If payment by the Awarding Authority or performance by the Contractor is suspended by the Awarding Authority as provided in paragraph 8 above, the Awarding Authority shall have the following rights and remedies if the Contractor thereafter fails to take all action necessary to bring the Contractor into full compliance with the requirements of this Article, or if full compliance is no longer possible because the default of the Contractor is no longer susceptible to cure, if the Contractor fails to take such other action as may be required by the Awarding Authority to meet the MBE/WBE participation goals set forth in this Contract:

(1) the Awarding Authority may terminate this Contract, and/or

(2) the Awarding Authority may retain from final payment to the Contractor, as liquidated damages, an amount equal to the difference between (x) the total of the MBE/WBE participation goals set forth in this Contract, and (y) the amount of MBE/WBE participation credit given to the Contractor for MBE/WBE Work performed under this Contract as determined by the Awarding Authority, the parties agreeing that the damages for failure to meet the MBE/WBE participation goals are difficult to determine and that the foregoing amount to be retained by the Awarding Authority represents the parties' best estimate of such damages. Any liquidated damages will be assessed separately for MBE and WBE participation.

**B.** Before exercising its rights and remedies hereunder, the Awarding Authority may, but the Awarding Authority shall not be obligated to, give the Contractor and any other interested party another opportunity to present evidence to the Awarding Authority that

the Contractor is in compliance with the requirements of this Article or that there is some justifiable reason for waiving the requirements of this Article in whole or in part. The Awarding Authority may invite SDO and the Massachusetts Commission Against Discrimination to participate in any proceedings undertaken hereunder.

## **10. Reporting Requirements.**

The Contractor shall submit to the Awarding Authority all information or documentation that is necessary in the judgment of the Awarding Authority to ascertain whether or not the Contractor has complied with any of the provisions of this Article.

**11. Awarding Authority's Right to Waive Provisions of this Article in Whole or In Part.**

The Awarding Authority reserves the right to waive any provision or requirement of this Article if the Awarding Authority determines that such waiver is justified and in the public interest. No such waiver shall be effective unless in writing and signed by a representative of the Awarding Authority's Compliance Office or the Office of its General Counsel. No other action or inaction by the Awarding Authority shall be construed as a waiver of any provision of this Article.

**END OF APPENDIX B**

## APPENDIX C to the General Conditions of the Contract

### **INDEX OF FORMS REQUIRED CONTRACT ADMINISTRATION FORMS**

**(Forms used during bidding are located in Attachment B  
to the Instructions to Bidders)**

- ~~Form of Subcontract MGL c.149 §44F (attached)~~
- ~~Procedure for Payment to Contractors~~
- ~~Payment Voucher Input Form~~
- ~~Requisition for Payment (DCAMM Form S1b) and Instructions~~
- Instructions and Procedures Regarding Change Orders, Contract Modifications and Equitable Adjustments (DCAMM Form 13)(attached)
- Request for Approval of Wages and Rates for Change Order Pricing (DCAMM Form 14)
- Format for Submission of Change Order (DCAMM Form 15)
- ~~Daily Time and Material Report for Change Orders 10/17 rev~~
- ~~Request and Agreement for a Change in the Plans~~
- Specifications and/or Contract (DCAMM Form 5)
- Weekly Payroll Report Form and Statement of Compliance (sample) (attached)
- ~~Quarterly Projected Workforce Table (sample)~~
- ~~Veteran and Service Disabled Veteran Owned Business Enterprise~~
- ~~(VBE/SDVOBE) Participation Form (if applicable)~~
- ~~Form for Transfer of Title (Work Not Incorporated, DCAMM Form 16)~~
- Payroll Log (General & Subcontractors) Form (11x17 size)
- Payment requisition Transmittal Form ( 3 pages)
- Submittal Transmittal Form ( 1 page)
- Submittal Log Form
- Request for Information Transmittal ( 1 page)
- Request for Information Log
- Weekly site Meeting Template ( 1 Page)
- Certificate of Substantial Completion (E-1)
- Certificate of Final Inspection, Release and Acceptance (E-2)
- Certificate of Payment (attached)

**END OF APPENDIX C**

# DIVISION OF CAPITAL ASSET MANAGEMENT & MAINTENANCE

CONTRACTOR CHANGE REQUEST NO. 0

Rev.  

## Request and Agreement For Change in The Plans And/Or Specifications And/Or Contract

Project No.   Contract No.   Project Name    
Location  

### I. PROPOSED CHANGE

(a) Requested BY  

(b) Proposed Scope/Description:

### II. CONTRACTOR PRICE PROPOSAL

For all costs involved in this change including extensions of time herein requested, the undersigned Contractor/CM proposes to perform the work described above in accordance with the provisions of Article VII of the General Conditions and certifies that: The Change Order Request is made in good faith; The validity of the Contractor/CM/Subcontractor/supplier change requests have been verified; the supporting data is accurate and complete to the best knowledge and belief of the Contractor/CM; and the Contractor/CM actually believes DCAMM is liable for the add amount, or entitled to the deduct amount of the Change Order Request, whichever is applicable. Any attempted amendment to this form shall be interpreted as superseded by the original printed language in the executed contract documents.

Request payment be made on the basis of:

(a)   Predetermined lump sum total of \$  

(b)   Lump sum not to exceed \$    
(max price based on contract unit prices or negotiated agreed unit prices)

(c)   Time and Materials Basis Not to Exceed \$    
(computed in accordance with Article VII of the General Conditions)

Place X beside selected proposal method and identify (add) or (deduct) which ever applies. Attach detailed estimates and breakdown for above in accordance with change order instructions. If additional time is requested, furnish an explanation with the breakdown. A claim for work performed under protest shall be submitted per (c) above.

An extension of contract time of   Calendar days is requested.

Contractor   By   Firm Name   Authorized Signature   Date  

### III. DCAMM REVIEW (This Section To Be Completed By DCAMM PM Team)

(a)   Approved as Submitted (d)   Operating Agency letter Attached    
(b)   Unilaterally Approved as Adjusted (e)   Resident Engineer letter Attached    
Revised Price **add / (deduct)** (f)   Lead Design firm letter Attached    
Revised Time Extension   Calendar Days

(c)   Disapproved; Returned to Prime Contractor by  

### IV. CONTRACT MODIFICATION (This section To Be Completed By Project Controls)

(a) The Original Contract Value \$    
(b) Net Change by previously authorized Change Orders \$    
(c) The Contract Value prior to this Change Order was \$    
(d) The Contract Value will be **add / (deduct)** By this Change Order \$    
in the Amount of \$    
(e) **The new Contract Value including this Change Order will be** \$    
(f) The Contract Time will be **add / (deduct)** by   Calendar Days  
(g) The New contract Completion date is therefore revised from   To  

Approval Recommended By (Initial/Date If Applicable): Deputy Director   Project Manager   Project Engineer  

This change is in the best interest of the Commonwealth and constitutes an equitable adjustment of the Contract in compliance with Art. VII

DCAMM Authorized Signature  

Date  

Project Manager  Deputy Director  Director  Deputy Commissioner

DCAMM Change Order Number

THE COMMONWEALTH OF MASSACHUSETTS  
EXECUTIVE OFFICE FOR ADMINISTRATION AND FINANCE  
DIVISION OF CAPITAL ASSET MANAGEMENT  
ONE ASHBURTON PLACE, 15<sup>th</sup> Floor  
BOSTON, MASSACHUSETTS 02108

**INSTRUCTIONS AND PROCEDURES REGARDING CHANGE ORDERS, CONTRACT MODIFICATIONS AND EQUITABLE ADJUSTMENTS**

**SECTION 1. STATUTORY AND CONTRACTUAL PROVISIONS**

1.01 These procedures and instructions (hereinafter “Procedures”) supplement Article VII of DCAMM’s General Conditions of the Contract. These Procedures and Article VII are to be considered together and are intended to be mutually complementary, so that all terms are to be considered as part of this Contract. All provisions are intended to be consistent with the Massachusetts Laws governing Change Orders and Equitable Adjustments. These laws include, but are not limited to: M.G.L. Chapter 7C, Sections 17-21; M.G.L. Chapter 30, Sections 39I, 39J, 39N, 39O, 39P, and 39Q. All parties must keep themselves informed of these laws and any amendments affecting said statutes.

**NO CHANGES (ADDITIONS, SUBSTITUTIONS OR ELIMINATIONS) IN THE PLANS, SPECIFICATIONS OR CONTRACT SHALL BE COMMENCED UNTIL RECEIPT BY THE CONTRACTOR OF: (a) AN APPROVED DCAMM FORM 5 (Gold Sheet Change Order) OR (b) A WRITTEN DIRECTIVE FROM THE DCAMM PROJECT MANAGER AUTHORIZING OR DIRECTING SUCH CHANGE.** A Directive issued by the Deputy Commissioner, Director, or Deputy Director shall carry the same force as though issued by the Project Manager.

1.02 The purpose of these instructions and procedures is to provide additional detail for calculating equitable adjustments and outlining the change order submission process. The Contractor must provide satisfactory documentation supporting the nature and cost of each change, for an informed decision to be made on whether or not the change order is necessary, justified and priced properly. All parties shall utilize the POTENTIAL CHANGE ORDER PROCESS explained in section 3 below, as well as maintain a POTENTIAL CHANGE ORDER LOG.

1.03 All requests for changes modifying the contract price must be submitted on DCAMM Form 5, prior to the final acceptance of the project. The Contractor waives all rights against the Commonwealth if it fails to comply with this requirement. DCAMM shall be under no obligation to process a request for change after final acceptance of the project.

1.04 The term “request for change” is used throughout these procedures and applies to every request to revise the contract requirements. The request for change must be made in writing, and in accordance with the provisions of the Contract, the General laws, rules, regulations and other procedures of DCAMM.

1.05 If the request for a change is deemed a Life Safety Issue by DCAMM, or if waiting for a formal change order approval will cause damage or increase the cost of the Work, the DCAMM Project Manager may deem the change “Urgent” and issue an email to the Contractor, Deputy Director, Designer, Resident Engineer and any other parties that are involved in the potential change. The email will outline the scope of work, a Not to Exceed dollar value, and a deadline for the paperwork to be submitted to substantiate the cost and completion of the work. The Contractor will add this “Urgent” Potential Change Order to the Log with a status of URGENT and proceed with the work in accordance with the email. If the costs to complete the “Urgent” work are expected to exceed the stated Not to Exceed value, then the Contractor shall advise the DCAMM Project Manager of the anticipated extra costs as soon as known, and shall await further written direction from DCAMM before proceeding with work above the Not to Exceed value.

1.06 Prior to any change order work being performed, the DCAMM Project Manager must have all quotes, estimates and potential costs identified to determine if the change order work should be performed as a lump sum cost to the project, or if the nature of the change is difficult to quantify, then it may be determined to perform the work on a Time and Material basis.

**SECTION 2. DIRECTIONS FOR COMPUTING COSTS FOR CHANGES IN THE WORK**

2.01 Construction Managers, General Contractors, Subcontractors, Sub-tier Subcontractors and service providers must submit for approval the DCAMM Wage Rate Form (Form 14) at the time their contract is awarded and prior to any change order work being started. DCAMM has changed the calculation for establishing **LABOR BILLING RATES**. Billing rates are calculated by taking the job specific **published** Prevailing Wage Rate for each trade classification and multiplying it by 1.40. Union Contractors may submit their collective bargaining agreement if there are excess fringe expenses over the published prevailing wage rate. These excess fringes will be applied with no mark-ups. The attached forms (as noted in Article VII) will automatically calculate rates as described. That rate calculation establishes the **LABOR BILLING RATE** for the project by trade and classification. If a contractor or subcontractor submits documentation from their insurance company that identifies their Workmen's Compensation rate is greater than 12.5% then the multiplier of 1.40 will be adjusted to include the percentage over 12.5%. For example, an Iron Worker's Workmen's compensation percentage is 14.5%; the calculation for that Trade's **LABOR BILLING RATE** would become 1.42 rather than 1.40. In the case of Premium Time, Time and Half, or Double Time DCAMM will accept a multiplier of 1.40 on the premium portion of wages over the approved prevailing wage rate only. These **LABOR BILLING RATES** are inclusive of overhead, profit, and all other expenses incurred. No additional markups on labor are allowed. If a credit is due to the project a percentage of 85% of the approved labor billing rate is to be credited to the project. The **LABOR BILLING RATES** will be established for each trade and classification at the beginning of the project. If there are any disputes regarding the **LABOR BILLING RATES** they must be resolved prior to change order work being started.

2.02 Equipment Schedules and associated rates must be submitted at the beginning of the project for any contractor that anticipates renting or using equipment as part of their scope of work for approval of desired rates to be used on change orders. If the contractor cannot provide an equipment schedule, including established rates, DCAMM has elected to use *R.S. Means* to determine fair market value rates. When computing the cost of equipment the rate resulting in the lowest value (daily, weekly, monthly) is to be used. The Contractor can add 15% for overhead and profit mark up to the equipment rental cost as part of the final change order pricing. The allowance for overhead and profit shall be considered to include all additional expenses associated with hand and power tools normally required in the performance of the base bid work, "tools of the trade".

2.03 Back up for material costs is required and shall be a formal quote from the supplier providing the materials or an agreed upon industry standard determined at the beginning of the project, for example, NECA, MCCA, or Harrison. The Contractor may add 15% overhead and profit mark up to the material cost as part of the final change order pricing.

2.04 Miscellaneous Items and Services such as Police or Fire details, utility charges, and attic stock charges must be identified and estimated as part of the initial change request and back up for the cost is required. For any change that does not include labor performed, Equipment used, or materials installed in the project that results in a net increase in the contract price is considered a miscellaneous item or service. Shipping, handling and fuel surcharges must be estimated prior to orders being placed. Expedited shipping costs must be approved before an order is placed, otherwise normal shipping cost will be paid. The Contractor may add 5% for overhead and profit mark up to Miscellaneous Items and Services as part of the final change order pricing.

2.05 For changes that involve work performed by Subcontractors the Prime Contractor may add 5% markup on all subcontracted work. Subcontractors also shall be permitted to add 5% markup on all work subcontracted to Sub-tier subcontractors. Any work self-performed by either the Prime Contractor or Subcontractor is not subject to the additional 5% markup.

2.06 Travel expenses are only paid in accordance with Union Agreements or documented costs and no additional overhead and profit will be allowed on these costs. Travel will only be paid when requested on changes that result in additional time subject to the approval of the Project Manager on a case by case basis.

2.07 The General Contractor, Construction Manager, or Sub Contractor's (if applicable) bond premium shall be included at the following rates. If a Contractor's bond rate differs from this list verification from the bond carrier must be submitted showing the actual rates prior to any change order work starting on the Project.

	<b>Contract Price</b>	<b>Rates per Thousand</b>
(a)	Contracts up to \$500,000.....	\$14.40
(b)	\$500,000 to \$2,500,000.....	\$ 8.70
(c)	\$2,500,000 to \$5,000,000.....	\$ 6.90
(d)	\$5,000,000 to \$7,500,000.....	\$ 6.30
(e)	\$7,500,000 and up.....	\$ 5.76

2.08 Changes which involve Time and Material slips must have DCAMM Daily Time and Material Reports attached, verified, and signed by the Resident Engineer or authorized representative beginning on the day the work commences, and continuing every day work occurs thereafter until the work is complete. Timesheets verifying labor hours and classification

and invoices verifying actual material cost from vendors are required when submitting the change to substantiate all costs being billed. Costs without back up will be deducted and not reimbursed.

2.09 The Project Manager may approve lump sum change order requests on changes costing \$2,000 or less, without requiring the Contractor to provide a detailed breakdown for the costs incurred on the change order. A basic level breakdown of Labor, material, and equipment on the contractors letterhead is still required.

## **SECTION 3. PROCESSING CHANGE REQUESTS AND EQUITABLE ADJUSTMENTS**

3.01 Article VII of the Contract outlines the notification requirements for any potential change order. Time is of the essence with every potential change order and all parties, Contractors, Subcontractors, User Agency Representatives, Architect/Designer and DCAMM project team members are obligated by the Contract to expedite processing of these potential changes in an efficient and timely manner. The Prime Contractor must maintain a Potential Change Order (PCO) log for the entire project. A sample PCO log is included in the Contract Documents. The PCO log will be reviewed at each weekly Owner Meeting and have status changes updated in writing on a weekly basis.

3.02 If a request for a change has been identified, then the Prime Contractor must create a draft request for equitable adjustment referred to as a Change Order Request (COR) from their own project management system for review by the Architect/Designer and the DCAMM project team. The draft COR shall include requests for equitable adjustment from affected subcontractors, if any. The Prime Contractor's COR form must be approved in writing by the DCAMM project team prior to the first COR submission, otherwise the DCAMM Form 15 shall be used.

Each COR shall be for a specific scope of work and it shall be identified as an extra service with an explanation of reasons the change is not included in the base scope of work, such as; change in plans and specifications or other scope as outlined in Article VII. The Prime contractor shall also review each COR in accordance with Article VII of the Contract General Conditions. A COR may include multiple subcontractors for one scope of work, however all of their back up, including quotes, estimates and labor estimates must be attached to the COR for review. Having more than one COR for the same scope of work because subcontractors are late in submitting is not recommended, however there are times it is necessary. If a time extension to the contract is part of the change request, a critical path schedule from the Prime Contractor must be included in the COR. DCAMM requires all project schedules to be submitted in an electronic format as required by the Specifications of the project.

Each COR will be reviewed by the Architect/Designer, the Resident Engineer, and the Project Manager. If there is additional information required or a correction needs to be made a notification will be sent in a timely manner to the Prime Contractor with all parties copied. The Architect/Designer, Resident Engineer and Project Manager shall request any necessary additional information or corrections within 30 days of when the COR is submitted. If additional time is required to evaluate a COR, then the Contractor shall be notified within the same 30 days of the extended date by which a decision will be made. The Prime Contractor can resubmit the COR with the original COR number with an "R1" noted for the revision. This revision should be noted on the PCO log for tracking purposes and updated each time a revision is needed. No work shall begin until the COR is signed by all parties.

3.03 If the COR is complete and acceptable the Architect/Designer and DCAMM project team will advise the Prime Contractor of its acceptance consistent with section 3.05, below. Once the COR is accepted, the Prime Contractor is authorized to start the work and immediately initiate the formal Change Order ("The Gold Sheet"), Form 5, for billing purposes. Multiple signed CORs may be incorporated into one formal Change Order (Form 5) for approval; however, the original COR and all back up information must be provided. If the formal Change Order (Form 5) is incomplete or incorrect, the entire Change Order will be returned to the contractor. In such a case when multiple CORs are submitted together into one formal Change Order and the submission is either incomplete or incorrect, no single COR will be processed. Prime Contractors cannot bill for the work until a formal Change Order (Form 5) is signed by all parties and a double digit CO number is issued by the DCAMM Project Controls team. This number is to be displayed on the Schedule of Values with the change description when billing.

3.04 If the COR is not acceptable, all parties must work in good faith, and in a timely manner to resolve any issues prior to any work starting. If the issues cannot be resolved at the Project Manager or Deputy Director level within 30 days, a Project Executive from the Prime Contractor and the Director or Deputy Commissioner for Design and Construction will meet in order to reach final resolution. If the issues still cannot be resolved, the Project Manager may issue a unilateral Change Order and the Prime Contractor must commence work in accordance with Article VII of the Contract General Conditions and should refer to Article VII of the Contract General Conditions for performing work under protest and the dispute resolution process. This status will be updated on the PCO log and the Prime Contractor and DCAMM Project Team will continue to work to resolve the issues as outlined in Article VII.

3.05 The Architect/Designer and the Resident Engineer will provide written back up, either in an email or memorandum, approving the Prime Contractor's submitted COR and Form 5 Change Order. They are not required to sign the actual form submitted. The following approvers must sign the actual Change Order for it to be a binding Contract amendment based on the delegation authority granted by the Commissioner of DCAMM:

The Director or Deputy Commissioner for Design and Construction approval shall be required whenever:

- a. the estimate for the work on the Form 5's (CORs) exceeds \$50,000 (absolute value); OR
- b. the cumulative cost of previously approved Form 5's (CORs) exceeds five percent of the original contract award price (or the amount of the GMP amendment in the case of a Chapter 149A project) and the amount of the Form 5 (COR) being approved is greater than \$2,000.00; OR
- c. The change order includes a time extension.

A Deputy Director of Design and Construction shall approve change orders for DCAMM when:

- a. The cumulative cost of previously approved Form 5's (CORs) is less than five percent of the original contract award price and the value of the Form 5 (COR) does not exceed \$50,000.00 (absolute value).

With the prior written approval of the Director or Deputy Commissioner for Design and Construction, the Project Manager shall approve change orders for DCAMM when:

- a. The cumulative cost of previously approved Form 5's (CORs) is less than five percent of the original contract award price and the value of the Form 5 does not exceed \$5,000.00 (absolute value); OR
- b. The estimate for the Form 5 is less than \$2,000.00 (absolute value).

**BILLING FOR CHANGE ORDERS PRIOR TO RECEIVING THE CHANGE ORDER NUMBER FROM THE DCAMM PROJECT CONTROLS TEAM WILL RESULT IN THE PAYMENT APPLICATION BEING REJECTED.**

#### **SECTION 4. RESPONSIBILITY FOR PROCESSING AND APPROVING CHANGES**

4.01 The Prime Contractor is responsible for verifying and validating all subcontractor, vendor and supplier costs and time extensions being requested as part of any change in the work. Refer to Contract General Conditions at Article VII.

4.02 The Prime Contractor, Architect/Designer, and DCAMM project team will review all PCO, COR, and Change Orders during the weekly Owner Meetings. There may be additional time needed to approve the changes and a timeframe for resolution are to be noted in the meeting minutes and on the PCO log.

PROJECT NAME

&lt;project-name&gt;

PROJECT NO.

&lt;project-number&gt;

P. C.

&lt;Prime Contractor&gt;

**REQUEST FOR APPROVAL OF WAGES AND RATES FOR CHANGE ORDER PRICING**

NAME OF SUBCONTRACTOR: \_\_\_\_\_

This form must be completed, submitted and approved prior to the submission of any change order price proposals. Complete the below for every Trade and Classification that is likely to work on the project. If any contractor seeks to utilize a total hourly wage rate (wages plus benefits) for change order pricing that is in excess of the applicable published prevailing wage rate, then this form must be completed, submitted (with backup documentation - i.e. union agreement) and approved prior to the submission of any change order price proposals. The information supplied below must be consistent with certified payroll submissions.

1 Rate (Select type from drop down)  
 2 Trade Description  
 (e.g., Carpenter, Pipefitter, Electrician, etc.)  
 3 Classification  
 (Foreman, Journeyman, Apprentice)  
 4 Prevailing Wage Rate  
 (Per Contract Specifications)

	Employee 1	Employee 2	Employee 3	Employee 4	Employee 5	Employee 6	Employee 7
----->	Straight Time	Straight Time	Straight Time	2x Differential	1/2 Differential	Double Time	Time & Half
	J Journeyman	F Foreman	A Apprentice Step 1	A Apprentice Step 3	A Apprentice Step 5	A Apprentice Step 7	A Apprentice Step 9

5 **Requested Published Rate<sup>2</sup>**  
 (must match certified payroll)  
 Enter Premium Portion of Base Rate  
 (If Applicable)

Rate	Subcontractor Proposed Rates For Approval						
	Premium	Premium	Premium	Premium	Premium	Premium	Premium

6 *O&P, Insurance, and Taxes*  
 Base Prevailing Markups<sup>1 & 4</sup>  
 (Multiply by Item 4 and Item 6 when applicable)

7 Workmen's Compensation Insurance Above 12.5%  
 (applicable to straight time only, Multiply by Item 4)

8 **Subtotal All Inclusive Markups**

40.00%	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
0.00%	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
<b>40.00%</b>	<b>\$</b>	-										

9 Excess Wages/Fringes<sup>3</sup> (Item 5 minus Item 4)

**Subcontractor Proposed Rate**

**Total Loaded Rate**

**Credit Change Order Value**

85.00%	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-

Effective Dates From \_\_\_\_\_ To \_\_\_\_\_

***The Above Total Loaded Rate Is Being Requested For Approval For Use On Change Orders Expected to Be Performed Prior To The Noted Effective Dates***

ENTER EFFECTIVE DATES ABOVE BEFORE SUBMITTING FOR APPROVAL

Sub-contractor Authorized Representative

Prime Contractor Authorized Representative

DCAMM Authorized Representative

## NOTES:

1. Contractor may utilize a rate of 40% for insurance/taxes without providing documentation. If a rate in excess of 40% is requested, documentation must be provided and is only applicable to Workmen's
2. Attach all relevant supporting documentation such as union wage rate sheets and workers compensation rate tables.
3. Excess wages/fringes are those fringes required to be paid which exceed the contract prevailing wage. DCAMM will reimburse these costs, once approved, as cost only (i.e., no markups allowed). Not all excess fringe benefits are reimbursable by DCAMM. Note that the following benefits are explicitly not allowed as part of the Published Rate: Union Dues, Vacation Funds, Uniforms, Earned Sick Leave, Etc.
4. Time and a Half, Double Time, and Differential rates are calculated with 40% markup on the portion of wages above the straight time wage.

**DIVISION OF CAPITAL ASSET MANAGEMENT & MAINTENANCE****c.30, c.149, c.149A ONLY****PROJECT NAME**

&lt;project-name&gt;

**PROJECT NO.**

&lt;project-number&gt;

**P. C. :**

&lt;Prime Contractor&gt;

**PCO NUMBER****PCO DATE****PCO DESC.****FORMAT FOR SUBMISSION OF CHANGE ORDER****WORK OF SUBCONTRACTOR AND/OR PRIME CONTRACTOR****NAME OF FIRM SUBMITTING CHANGE ORDER****1. DIRECT LABOR: "CONTRACTOR":**

Use only DCAM-Approved Billing Rates

Applicable Billing Rate for each Trade and Classification MUST be completed!

Trade	Classification	Total Hrs. Worked	Fully Loaded Wage Rate (per Wage Rate Approval Form) THIS FIELD IS REQUIRED	Total Direct Labor Cost (Includes All Markups as Approved by DCAMM on the Wage Rate Approval Form)
			\$	-
			\$	-
			\$	-
			\$	-
			\$	-
			\$	-

**TOTAL BASE, EXCESS AND DIRECT LABOR COSTS**

\$

-

**2. MATERIALS: "CONTRACTOR" :**(For extensive material lists, attach detailed backup and enter as a lump sum below)

Material Description	Qty	Unit	Cost Per Unit	Total
			\$	-
			\$	-
			\$	-
			\$	-
			\$	-
			\$	-

**TOTAL MATERIALS COST:**

\$

-

## DIVISION OF CAPITAL ASSET MANAGEMENT &amp; MAINTENANCE

c.30, c.149, c.149A ONLY

PROJECT NAME

&lt;project-name&gt;

PROJECT NO.

&lt;project-number&gt;

P. C. :

&lt;Prime Contractor&gt;

PCO NUMBER

PCO DATE

PCO DESC.

## FORMAT FOR SUBMISSION OF CHANGE ORDER

WORK OF SUBCONTRACTOR AND/OR PRIME CONTRACTOR

NAME OF FIRM SUBMITTING CHANGE ORDER

3. EQUIPMENT: "CONTRACTOR":(For extensive equipment lists, attach detailed backup and enter as a lump sum below)

Equipment Description	Qty	Unit	Cost Per Unit	Total
				\$ -
				\$ -
				\$ -
				\$ -
				\$ -
				\$ -

TOTAL EQUIPMENT COST: \$ -

4. SUB TOTAL "CONTRACTOR" DIRECT COST FOR ITEMS 2 & 3:

SUB TOTAL: \$ -

5. MISC. LUMP SUM SERVICES (POLICE DETAIL, UTILITYITIES, ETC.) OR SUBCONTRACTED WORK PROVIDED TO "CONTRACTOR":

Description of Miscellaneous Lump Sum Service - attach backup	Total
	\$ -
	\$ -
	\$ -
	\$ -
	\$ -
	\$ -

TOTAL MISC. LUMP SUM SERVICES COST: \$ -

6. "CONTRACTOR" ALLOWED 5% O&P Mark Up - MISC. LUMP SUM SERVICES:

5.00%

\$ -

7. SUB TOTAL "CONTRACTOR" LINE ITEMS 4., 5. & 6.:

SUB TOTAL: \$ -

**DIVISION OF CAPITAL ASSET MANAGEMENT & MAINTENANCE****c.30, c.149, c.149A ONLY****PROJECT NAME**

&lt;project-name&gt;

**PROJECT NO.**

&lt;project-number&gt;

**P. C. :**

&lt;Prime Contractor&gt;

**PCO NUMBER****PCO DATE****PCO DESC.****FORMAT FOR SUBMISSION OF CHANGE ORDER****WORK OF SUBCONTRACTOR AND/OR PRIME CONTRACTOR****NAME OF FIRM SUBMITTING CHANGE ORDER****8. OVERHEAD AND PROFIT OF "CONTRACTOR":**

The "Contractor" shall receive 15% of actual total cost of Item 4. For a net CREDIT change order amount, use 0%

**Contractor**      **15.00%**      x **ITEM 4:**      \$      -

**9. TOTAL OF ITEMS 1., 7. and 8.**

**TOTAL COST OF WORK PERFORMED BY "CONTRACTOR":** \$      -

**9a. CONTRACTOR PREMIUM FOR BOND**

Only allowed for "Filed Sub Contractor" if required by Page "F." of the Contract. Percentage of bond per contract or verified/approved amount:

Percentage of approved bond x item 9.

**0.00%** x **ITEM 9:**      \$      -

**10 TOTAL COST OF WORK PERFORMED BY PRIME CONTRACTOR, including bond cost**

Enter the Value of Item 10 on the Summary Sheet

**\$0.00**

**NOTE:**

ALL change order proposals and invoices from the PRIME CONTRACTOR AND/OR SUBCONTRACTORS must include a cover letter on company letterhead identifying the PCO number, a description of the scope of work and the total cost of the proposed change order from that company. This information must be completed by every contractor doing work created by the change.

**COMMONWEALTH OF MASSACHUSETTS**  
**EXECUTIVE OFFICE OF ADMINISTRATION AND FINANCE**  
**DIVISION OF CAPITAL ASSET MANAGEMENT AND MAINTENANCE**  
**ONE ASHBURTON PLACE, BOSTON, MA 02108**

**E-1 CERTIFICATE OF SUBSTANTIAL COMPLETION (M.G.L. C.30, Section 39K)**

FROM AWARDING AUTHORITY: Commonwealth of Massachusetts, Division of Capital Asset Management and Maintenance

TO: General Contractor: {Company.Name}

RE: Mass. State Project No.: {Projects.Sequence} {Projects.SuffixID}

Title: {Projects.Name}

Location: {Projects.Territory}, MA

AUTHORITY: 1) ARTICLE VI of Standard Construction Contract

2) M.G.L. Chapter 30, Section 39K

Pursuant to the authority noted above you are notified that the Commonwealth of Massachusetts, through its Division of Capital Asset Management and Maintenance, is satisfied that the portion of the above noted project, as hereinafter enumerated, is substantially complete. [IDENTIFY PORTIONS TO BE USED AND/OR OCCUPIED – IF APPLICABLE]

The Commonwealth of Massachusetts, through its undersigned representatives, hereby accepts from the Contractor, subject to contract stipulation, said portion of the project effective as of Midnight the [INSERT DAY] day of [INSERT MONTH], 20[INSERT YEAR]. The Contractor is relieved of responsibility for performing further work or supplying further materials, equipment or items, with the exception of the attached. (Append a complete list of all incomplete or unsatisfactory items of contract work which in the opinion of the Commonwealth are attributable to the fault, negligence or oversight of the Contractor, his sub-contractor, material suppliers, agents, servants or employees.)

The use of any portion of the project or the occupancy of any building or portion thereof by the Commonwealth shall not constitute a final acceptance of any work not performed in accordance with the Contract, nor relieve the Contractor of liability to perform any work required by the Contract or of liabilities with respect to any warranties or guarantees required by the Contract.

The undersigned recommend the issuance of this Certificate of Substantial Completion.

	Signature	Date
Designer: {LegalDocInfo.ArchName}	by: _____	
Operating Agency: {LegalDocInfo.owner}	by: _____	
DCAMM Resident Engr.: {Projects.ProjectExecutive}	by: _____	
DCAMM Project Engr.: {Projects.ProjectExecutive}	by: _____	
DCAMM Project Mgr.: {Projects.ProjectManager}	by: _____	

APPROVED

\_\_\_\_\_  
Jay Mitchell, Deputy Commissioner, Design and Construction

Date

original: Operating Agency  
Project Manager  
Contracts Manager  
Contractor (include original E1 cover letter)

ecc: Deputy Director  
Project Engineer  
Designer  
Resident Engineer  
Economist, OFA  
Director of Finance, OFA  
Bid Room Manager, OFA  
Deputy Director, Certification

**E-2 Final Acceptance**  
**Certificate of Final Inspection, Release and Acceptance**

Title: \_\_\_\_\_

Location: \_\_\_\_\_

Contractor: \_\_\_\_\_

This is to certify that a complete inspection of the above-referenced project was made on \_\_\_\_\_ by the undersigned, and that the entire work was completed in accordance with the plans and specifications. The undersigned recommends acceptance of the project.

---

Resident Engineer	Date	Project Manager	Date
-------------------	------	-----------------	------

---

---

Project Engineer Date

Project Manager \_\_\_\_\_ Date \_\_\_\_\_

---

Project Engineer \_\_\_\_\_ Date \_\_\_\_\_

## CERTIFICATE OF RELEASE

1.) The undersigned hereby certifies that all work has been completed in accordance with the plans, specifications and contract documents and that all change orders have been supported pursuant to Article VII of the General Conditions of the Contract.

2.) Contract Award Price: \$ Adjusted Contract Price: \$  
Authorized Additions: \$ Paid to Date:\$  
Authorized Deductions:\$ Balance Due: \$

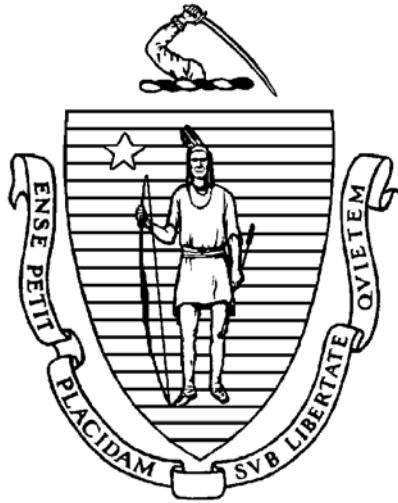
3.) The undersigned further certifies that in addition to the amount set forth above, there are outstanding and unsettled the following change orders as submitted to the DCR.

Request No. Date: Amount:  
Request No. Date: Amount:  
Request No. Date: Amount:

Subject to satisfactory disposition of change orders listed in Item 3 above, the undersigned releases the Commonwealth of Massachusetts from all further claims for wages or payments to subcontractors or suppliers except: (list on attached sheet).

by: \_\_\_\_\_  
\_\_\_\_\_  
Contractor \_\_\_\_\_ Authorized Signature \_\_\_\_\_

Deputy Commissioner, Engineering  
Deputy Director  
Project Manager  
Resident Engineer  
Office of Contract Administration  
Contractor



## **BID PACKAGE**

### **PART IV**

### **SPECIFICATIONS**

**DMH Project#2022-036**  
**IMPROVEMENTS TO THE EAST AND WEST WING FAN ROOMS**  
**AT GOSS BUILDING**  
**Taunton State Hospital**  
**60 Hodges Ave.**  
**Taunton, MA 02780**

**THE COMMONWEALTH OF MASSACHUSETTS  
EXECUTIVE OFFICE OF HUMAN SERVICES**

**DEPARTMENT OF MENTAL HEALTH**

**S P E C I F I C A T I O N S**

**FOR**

**IMPROVEMENTS TO THE EAST AND WEST WING FAN ROOMS AT GOSS BUILDING**

**AT**

**TAUNTON STATE HOSPITAL**

**60 HODGES AVENUE EXTENSION**

**TAUNTON, MA 02780**

\*\*\*\*\*

**PROJECT NO. 2022-036**

\*\*\*\*\*

**DEPARTMENT OF MENTAL HEALTH**

**FACILITIES MANAGEMENT**

**167 LYMAN STREET**

**WESTBOROUGH, MA 01581**

**AUGUST 17, 2021**

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2022-036 Improvements to the East and West Wing Fan Rooms at Goss Building  
Taunton State Hospital

**IMPROVEMENTS TO THE EAST AND WEST WING FAN ROOMS AT GOSS BUILDING**

**TAUNTON STATE HOSPITAL**

**TAUNTON, MASSACHUSETTS**

**SCOPE OF WORK**

Contractor to remove existing pre-heat coils and associated piping in the East and West Fan Rooms. Furnish and install two new heating coils, associated piping, steam traps, and new condensate return pumps with complete piping and electrical work in each fan room. All work to be in accordance with plans and specifications. Completion of work to be by 11/30/21.

**Base bid to include demo and replacement of the East Wing Fan room equipment.  
Add Alternate #1 work to include demo and replacement of the West Wing Fan room equipment in accordance with plans and specifications dated August 17, 2021 which are attached.**

SECTION 23 00 00

HEATING, VENTILATING, AND AIR CONDITIONING

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**PART 1 - GENERAL**

**1.01 GENERAL PROVISIONS**

- A. Division 00 and 01 are hereby made a part of this section.
- B. Examine all conditions as they exist at the project prior to submitting a bid for the work of this SECTION.

**1.02 DESCRIPTION OF WORK**

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
  - 1. Demolition of existing equipment and associated systems. Including but not limited to:
    - a. Mechanical equipment, ductwork, and piping.
    - b. Asbestos.
    - c. Refer to Drawings for items to be salvaged and turned over to the Owner.
  - 2. Condensate receivers and pumps.
  - 3. Steam, condensate, pumped condensate, and equipment drain piping.
  - 4. Steam and hydronic valving and accessories.
  - 5. Steam traps.
  - 6. Steam coils.
  - 7. Special coordination of chases and plenums.
  - 8. Sleeves, inserts and hangers.
  - 9. Equipment bases and supports.
  - 10. Premium efficiency motors.
  - 11. Seismic hangers, bases, and supports as required.
  - 12. Pressure gauges and thermometers.
  - 13. Pipe, valve and equipment identification.
  - 14. Pipe and equipment insulation.
  - 15. Instruction manuals and startup instructions.
  - 16. Testing and balancing.
  - 17. Controls for all installed systems.
  - 18. Hoisting Equipment: The Heating, Ventilating and Air Conditioning subcontractor shall furnish, install and maintain in safe and adequate condition all mechanical hoisting equipment, operating personnel and rigging that is necessary for the proper execution of the Work of this Section.
  - 19. Staging, Planking and Scaffolding: The Heating, Ventilating and Air Conditioning subcontractor shall furnish, install and maintain in safe and adequate condition, all staging, planking and scaffolding up to eight feet in height that is necessary for the proper execution of the Work in this Section.
  - 20. Coordination drawings prior to work
  - 21. Record drawings and similar requirements at close out of work.

- B. Items to Be Installed Only: Install the following items as furnished by the designated Sections:
  1. Section 26 00 01 – ELECTRICAL WORK
- C. Perform work and provide material and equipment as shown on Drawings and as specified or indicated in this Section of the Specifications. Completely coordinate work of this Section with work of other trades and provide a complete and fully functional installation.
- D. Give notices, file plans, obtain permits and licenses, pay fees and back charges, and obtain necessary approvals from authorities that have jurisdiction as required to perform work in accordance with all legal requirements and with Specifications, Drawings, Addenda and Change Orders, all of which are part of Contract Documents.

#### 1.03 SUBMITTALS

- A. Material and equipment requiring Shop Drawing Submittals shall include but not be limited to:
  1. Condensate tanks/pumps.
  2. Steam coils.
  3. Fittings, valves and strainers.
  4. Steam traps.
  5. Duct standards and duct fittings and accessories.
  6. Insulation
  7. Pressure gauges and thermometers.
  8. Motor starters.
  9. Pipe, pipe hangers, sleeves and inserts.
  10. Equipment bases and supports.
  11. Expansion provisions for pipe.
  12. Identification for pipe, valves and equipment.
  13. Complete piping shop drawings, construction details and standards.
  14. Premium efficiency motors.
- B. Color selection charts and samples for equipment and systems in finished areas. Completed Prefunctional Checklists provided by the Commissioning Agent and completed by the contractor, signed by a qualified technician and dated on the date of completion, in accordance with the requirements of 019113 – GENERAL COMMISSIONING REQUIREMENTS.

#### 1.04 DEFINITIONS

- A. As used in this Section, "provide" means "furnish and install" and "HVAC" means "Heating, Ventilating and Air Conditioning" and "POS" means "Provided Under Other Sections". "Furnish" means "to purchase and deliver to the project site complete with every necessary appurtenance and support," and "Install" means "to unload at the delivery point at the site and perform every operation necessary to establish secure mounting and correct operation at the proper location in the project."

#### 1.05 CONTRACT DOCUMENTS

- A. Listing of Drawings does not limit responsibility of determining full extent of work required by Contract Documents. Refer to Architectural, HVAC, Electrical, Plumbing, Fire Protection, Structural, and other Drawings and other Sections that indicate types of construction in which

work shall be installed and work of other trades with which work of this Section must be coordinated.

- B. Except where modified by a specific notation to the contrary, it shall be understood that the indication and/or description of any item, in the drawings or specifications or both, carries with it the instruction to furnish and install the item, regardless of whether or not this instruction is explicitly stated as part of the indication or description.
- C. Items referred to in singular number in Contract Documents shall be provided in quantities necessary to complete work.
- D. Drawings are diagrammatic. They are not intended to be absolutely precise; they are not intended to specify or to show every offset, fitting, and component. The purpose of the drawings is to indicate a systems concept, the main components of the systems, and the approximate geometrical relationships. Based on the systems concept, the main components, and the approximate geometrical relationships, the contractor shall provide all other components and materials necessary to make the systems fully complete and operational.
- E. Information and components shown on riser diagrams but not shown on plans, and vice versa, shall apply or be provided as if expressly required on both.

#### 1.06 DISCREPANCIES IN DOCUMENTS

- A. Where Drawings or Specifications conflict or are unclear, advise Engineer in writing before Award of Contract. Otherwise, Engineer's interpretation of Contract Documents shall be final, and no additional compensation shall be permitted due to discrepancies or unclarities thus resolved.
- B. Where Drawings or Specifications do not coincide with manufacturers' recommendations, or with applicable codes and standards, alert Engineer in writing before installation. Otherwise, make changes in installed work as Engineer requires within Contract Price.
- C. If the required material, installation, or work can be interpreted differently from drawing to drawing, or between drawings and specs, this contractor shall provide that material, installation, or work which is of the higher standard.
- D. It is the intent of these contract documents to have the contractor provide systems and components that are fully complete and operational and fully suitable for the intended use. There may be situations in the documents where insufficient information exists to precisely describe a certain component or subsystem, or the routing of a component. In cases such as this, where the contractor has failed to notify the Engineer of the situation in accordance with Paragraph (A) above, the contractor shall provide the specific component or subsystem with all parts necessary for the intended use, fully complete and operational, and installed in workmanlike manner either concealed or exposed per the design intent.
- E. In cases covered by Paragraph (D) above, where the contractor believes he needs engineering guidance, he shall submit a sketch identifying his proposed solution and the Engineer shall review, note if necessary, and approve the sketch.

#### 1.07 MODIFICATIONS IN LAYOUT

- A. HVAC, Plumbing, Fire Protection, and Electrical Drawings are diagrammatic. They indicate general arrangements of mechanical and electrical systems and other work. They do not show

all offsets required for coordination nor do they show the exact routings and locations needed to coordinate with structure and other trades and to meet Architectural requirements.

- B. In all spaces, prior to installation of visible material and equipment, including access panels, review Architectural Drawings for exact locations and where not definitely indicated, request information from Engineer.
- C. Check Contract Drawings as well as Shop Drawings of all subcontractors to verify and coordinate spaces in which work of this Section will be installed.
- D. Maintain maximum headroom at all locations. All piping, duct, conduit, and associated components to be as tight to underside of structure as possible.
- E. Make reasonable modifications in layout and components needed to prevent conflict with work of other trades and to coordinate according to Paragraphs A, B, C, D above. Systems shall be run in a rectilinear fashion.
- F. Where conflicts or potential conflicts exist and engineering guidance is desired, submit sketch of proposed resolution to Engineer for review and approval.

#### 1.08 EXISTING CONDITIONS AND PREPARATORY WORK

- A. Before starting work in a particular area of the project, visit site and examine conditions under which work must be performed including preparatory work done under other Sections or Contracts. Report conditions that might affect work adversely in writing through Contractor to Engineer. Do not proceed with work until defects have been corrected and conditions are satisfactory. Commencement of work shall be construed as complete acceptance of existing conditions and preparatory work.

#### 1.09 CODES, STANDARDS, AUTHORITIES AND PERMITS

- A. Perform work strictly as required by rules, regulations, standards, codes, ordinances, and laws of local, state, and Federal governments, and other authorities that have legal jurisdiction over the site. Materials and equipment shall be manufactured, installed and tested as specified in latest editions of applicable publications, standards, rulings and determinations of:
  - 1. Local and state building, plumbing, mechanical, electrical, fire and health department codes.
  - 2. American Gas Association (AGA).
  - 3. National Fire Protection Association (NFPA).
  - 4. American Insurance Association (A.I.A.) (formerly National Board of Fire Underwriters).
  - 5. Occupational Safety and Health Act (OSHA).
  - 6. Underwriters' Laboratories (UL).
- B. Material and equipment shall be listed by Underwriters' Laboratories (UL), and approved by ASME and AGA for intended service.
- C. Most recent editions of applicable specifications and publications of the following organizations form part of 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 Water Works Association (AWWA).
6. American Society for Heating, Refrigerating and Air Conditioning Engineers (ASHRAE).
7. Air Moving and Conditioning Association (AMCA).
8. Sheet Metal and Air Conditioning Contractors National Association (SMACNA).
9. American Diffuser Council (ADC).
10. Air Conditioning and Refrigeration Institute (ARI).
11. Thermal Insulation Manufacturers Association (TIMA).
12. Institute of Electrical and Electronics Engineers (IEEE).
13. Insulated Cable Engineers Association (ICEA).
14. Certified Ballast Manufacturers (CMB).
15. Illuminating Engineering Society (IES).

#### 1.10 GUARANTEE AND 24 HOUR SERVICE

- A. Guarantee Work of this Section in writing for one year following the date of beneficial occupancy by the User Agency. If the equipment is used for ventilation, temporary heat, etc. prior to initial beneficial occupancy by the Owner, the bid price shall include an extended period of warranty covering the one year of occupancy, starting from the initial date of beneficial occupancy by the User Agency. The guarantee shall repair or replace defective materials, equipment, workmanship and installation that develop within this period, promptly and to Engineer's satisfaction and correct damage caused in making necessary repairs and replacements under guarantee within Contract Price.
- B. In addition to guarantee requirements of Division 01 and of Subparagraph A above, obtain written equipment and material warranties offered in manufacturer's published data without exclusion or limitation, in Owner's name.
- C. Replace material and equipment that require excessive service during guarantee period as defined and as directed by Engineer.
- D. Provide 24 hour service beginning on the date the project is first beneficially occupied by the Owner, whether or not fully occupied, and lasting until the termination of the guarantee period. Service shall be at no cost to OWNER. Service can be provided by this contractor or a separate service organization. Choice of service organization shall be subject to Engineer and OWNER approval. Submit name and a phone number that will be answered on a 24 hour basis each day of the week, for the duration of the service.
- E. Submit copies of equipment and material warranties to Engineer before final payment.
- F. At end of guarantee period, transfer manufacturers' equipment and material warranties still in force to Owner.
- G. This Paragraph shall not be interpreted to limit Owner's rights under applicable codes and laws and under this Contract.
- H. Part 2 Paragraphs of this Specification may specify warranty requirements that exceed those of this Paragraph.
- I. Use of systems provided under this Section for temporary services and facilities shall not constitute Final Acceptance of work nor beneficial use by Owner, and shall not institute guarantee period.

J. Provide manufacturer's engineering and technical staff at site to analyze and rectify problems that develop during guarantee period immediately. If problems cannot be rectified immediately to the Owner's Project Manager's satisfaction, advise Engineer in writing, describe efforts to rectify situation, and provide analysis of cause of problem. Engineer will suggest course of action.

**1.11 RECORD DRAWINGS**

A. Drawings shall show record condition of details, sections, riser diagrams, control changes and corrections to schedules. Schedules shall show actual manufacturer and make and model numbers of final equipment installation.

**1.12 MANUALS, AND OPERATING INSTRUCTIONS, AND PROTECTION**

A. Obtain at time of purchase of equipment, three hard copies of operation, lubrication and maintenance manuals for all items. Assemble literature in coordinated manuals with additional information describing combined operation of field assembled units, including as-built wiring diagrams. Manual shall contain names and addresses of manufacturers and local representatives who stock or furnish repair parts for items or equipment. Divide manuals into three sections or books as follows:

1. Directions for and sequence of operation of each item of HVAC system, e.g. air handling units, energy recovery units, pumps, and boilers. Sequence shall list valves, switches, and other devices used to start, stop and control system. Detail procedure to be followed in case of malfunctions. Include detailed approved flow diagrams of temperature control, heating, etc. as appropriate for systems provided. Include approved valve directory showing each valve number, location of each valve, and equipment or fixture controlled by valve.
2. Detailed maintenance and trouble shooting manuals containing data furnished by manufacturer for complete maintenance. Include copy of balancing report.
3. Lubrication instructions detailing type of lubricant, amount, and intervals recommended by manufacturer for each item of equipment. Include additional instructions necessary for implementation of first class lubrication program. Include approved summary of lubrication instructions in chart form, where appropriate.

B. Furnish three hard copies of manuals to Engineer for approval and distribution. Deliver manuals no less than 30 days prior to acceptance of equipment to permit User Agency'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 operating personnel in any or all parts of various systems. Instructions shall be performed by factory-trained personnel. Owner shall determine which systems require additional instructions. Duration of instructions shall take equipment through complete cycle of operation (at least five working days). Make adjustments under operating conditions.

D. Each contractor shall be responsible for his work and equipment until finally inspected, tested, and accepted. Carefully store materials and equipment which are not immediately installed after delivery to site. Close open ends of work with temporary covers or plug during construction to prevent entry of obstructing material.

E. Each separate contractor shall protect the work and material of other trades that might be damaged by his work or workmen and make good all damage thus caused.

#### 1.13 COORDINATION DRAWINGS

A. Coordination Drawings include but are not necessarily limited to:

1. Structure.
2. Partition/room layout.
3. Ceiling tile and grid.
4. Light fixtures.
5. Access panels.
6. Sheet metal, heating coils, boxes, grilles, diffusers, etc.
7. All heating piping and valves.
8. All refrigerant piping and valves.
9. Smoke and fire dampers and combination smoke/fire dampers.
10. Soil, waste and vent piping.
11. Major water and gases.
12. Roof drain piping.
13. Major electrical conduit runs, panelboards, feeder conduit and racks of branch conduit.
14. Above ceiling miscellaneous metal.
15. Sprinkler piping and heads.
16. Heat tracing of piping.
17. Condensate drain pipe.

### PART 2 - PRODUCTS

#### 2.01 DUCTWORK AND AIR DISTRIBUTION EQUIPMENT

A. Reference Standards

1. Material, construction and installation shall meet requirements of most recent editions of the following standards and references, except for more stringent requirements specified or shown on Drawings:

<b>A. Standard</b>	<b>B. As Applicable To</b>
International Mechanical Code - 2009	HVAC systems.
SMACNA HVAC Duct	Sheet Metal Ductwork;
Construction Standards	Duct Liners; Adhesives;
Metal and Flexible	Fasteners; Flexible Ductwork.
SMACNA HVAC Air Duct Leakage Test Manual	Duct Leakage Testing
ADC and TIMA Flexible Duct Performance Standards	Flexible Ductwork
NFPA 90A	Fire Dampers; Fire Resistance Standards for Ducts and Liners
ADC Test Code 1062 R4	Ratings of Diffusers, Registers Grilles
SMACNA Guidelines for Welding Sheetmetal	Welded Galvanized, Black Iron and Stainless Steel Ductwork

B. General

1. Provide supporting and hanging devices necessary to attach entire HVAC system including ductwork and equipment, and to prevent vibration.
2. Provide vertical and horizontal supports as required by codes to meet minimum applicable earthquake resistance standards.
3. Ductwork shall be free from vibration under all conditions of operation. Dimensions shown on Drawings for lined ductwork are net inside dimensions. Increase ductwork to accommodate lining requirements.
4. Pipe or conduit crossing duct:
  - a. No pipe, conduit, hanger, Architectural element nor structural member shall pass through duct without Engineer's written approval.
  - b. Where it is impossible to re-route pipe or conduit and when written approval has been obtained, increase duct size to maintain constant cross-sectional area at point of interference. Provide streamlined enclosure for pipe or conduit, as illustrated in SMACNA.
5. When making offsets and transformations necessary to accommodate structural conditions, preserve full cross-sectional area of ductwork shown on Drawings.
6. Ductwork shall have pressure-velocity classifications as follow:

DUCT CONSTRUCTION CLASS	STATIC PRESSURE RATING	PRESSURE	SMACNA SEAL CLASS	SMACNA LEAKAGE CLASS	SMACNA VELOCITY
4"	4"	Pos.*	A	6	4000 fpm or less
3"	3"	Pos. or Neg.	A	6	4000 fpm or less
2"	2"	Pos. or Neg.	B	12	2500 fpm or less
1"	1"	Pos. or Neg.	B	12	2500 fpm or less
½"	½"	Pos. or Neg.	B	12	2000 fpm or less

\*For negative pressures over 3" w.g., refer to SMACNA Round and Rectangular Industrial Duct Construction Standards for joint and intermediate reinforcement requirements.

- a. Unless otherwise specified or shown on the drawings, the following pressure classifications shall be used for the types of ductwork listed below:
 

4" Class:	All supply ductwork from discharge of air units to inlets of terminal volume boxes.
2" Class:	All other ductwork.

7. Sealing Requirements for Class A, Leakage Class 6, Galvanized, Non-Welded Aluminum or Non-Welded Stainless Steel Ductwork.
  - a. Transverse Joints
    - (1) During assembly seal all flanged transverse joints with sealing tape of quality equal to Hardcast Inc. 1902-FR. Corners shall be sealed as described by SMACNA and when applicable per manufacturer's published procedures.
    - (2) Seal all non-flanged transverse joints with Hardcast Inc. Versa Grip 102 or approved equal.
  - b. Longitudinal Seams
    - (1) Seal all longitudinal seams during ductwork fabrication with Hardcast Inc. Cold Seal 1001 or approved equal.
  - c. Joints and Ductwall Penetrations
    - (1) Seal all duct joints at takeoffs, access doors, damper bearing penetrations, flexible duct connections etc., with Hardcast Inc. Versa Grip 102 or approved equal.
8. Sealing Requirements for Class B, Leakage Class 12, Galvanized, Non-Welded Aluminum or Non-Welded Stainless Steel, Ductwork.
  - a. Transverse Joints
    - (1) During assembly seal all flanged transverse joints with sealing tape of quality equal to Hardcast Inc. 1902-FR. Corners shall be sealed as described by SMACNA and when applicable per manufacturer's published procedures.
    - (2) Seal all non-flanged transverse joints with Hardcast Inc. Versa Grip 102 or approved equal.
  - b. Longitudinal Seams
    - (1) Seal all longitudinal seams during ductwork fabrication with Hardcast Inc. Cold Seal 1001 or approved equal.
9. Support
  - a. Space hangers as required by SMACNA (8 ft max) for horizontal duct on 8 ft. centers, unless concentrated loadings require closer spacing.
  - b. Support vertical duct on each floor or slab it penetrates.
  - c. Supports for ductwork and equipment shall be galvanized unless specified otherwise.
10. Connections
  - a. Connect inlets and outlets of air handling units and fans to ductwork with flexible connections unless fan has vibration isolator mounts inside unit with flexible connections and no external vibration isolators. Exception: Do not use flex on life safety smoke exhaust fans.
  - b. Indoors, flexible connections shall be neoprene-coated fibrous glass fire retardant fabric, by Ventfabrics, or Durodyne. Outdoors, flexible connections

shall be Dupont hypalon- coated fibrous glass fire-, weather-, and UV-resistant by Ventfabrics or Durodyne.

- c. Secure flexible connections tightly to air handlers with metal bands. Bands shall be same material as duct construction.
- d. Connections from trunk to branch ducts shall be as detailed on Drawings.

11. Construction

- a. No sharp metal edges shall extend into air streams.
- b. Install drive slips on air-leaving side of duct with sheet metal screws on 6" centers.
- c. Spin in collars shall NOT be used for branch connections in 3" or higher pressure class ductwork.

12. Joints

- a. Longitudinal lock seams shall be double-locked and flattened to make tight joints.
- b. Make transverse joints, field connections, collar attachments and flexible connections to ducts and equipment with sheet metal screws or bolts and nuts. Do not use rivets and staples.

13. Prefabricated Transverse Duct Joints

- a. Transverse joints in galvanized sheet metal ductwork may be made with galvanized gasketed frame and angle duct joint system by Ductmate, TDF, TDC or approved equal. Angles shall be at least 20 gauge. Prefabricated transverse duct joints shall not be used for duct 16 GA. and heavier, nor for duct 23 GA. or lighter.
- b. Secure angles to duct with screws (using clutched arbor) or spot-welds spaced as recommended by manufacturer for duct pressure class.

14. Elbows and Bends

- a. Elbows and bends for rectangular ducts shall have centerline radius of 1-1/2 times duct width wherever possible. Elbows for grease exhaust and fume hood exhaust shall be full radius. Vanes or mitered duct are not allowed.
- b. Where centerline radius is less than 1-1/2 times duct width (on supply, return and exhaust ductwork), elbows shall be radius throat (square throat allowed when turning around column or other close objects) with radius heel. For elbows whose width is greater than 48 inches and/or where shown on plans, provide splitter vanes. Install vanes in accordance with SMACNA. Where multiple elbows are separated by less than ten duct diameters use splitter (full length) vanes.
- c. For round ductwork provide stamped elbows, with centerline radii equal to 1-1/2 times duct diameter, or gored elbows as follows:

Elbow Angle	No. of Gores
0°-36°	2
37°-72°	3
73°-90°	5

- d. Elbows for flat oval ducts shall have centerline radii equal to 1-1/2 times duct diameter in plane of bend, or gored elbows with gores as specified for round ducts.
- 15. Access Panels/Doors
  - a. Provide proper pressure and leakage rated, gasketed, duct mounted access panels/doors for the following items with minimum sizes, as indicated. Access doors shall be of double wall construction - doors in insulated ducts shall be insulated. Gauges of door materials, no. of hinges, no. and type of door locks shall be as required by the SMACNA Duct Construction Standards. Hinged doors are not acceptable, screwed or bolted access panels are not acceptable. Doors shall be chained to frame with a minimum length of 6" to prevent loss of door. For seal Class A, access doors shall be leakage rated, neoprene gasketed UL 94 HF1 listed, DUCTMATE "sandwich" or approved equal. Door metal shall be the same as the attached duct material. For grease and high temperature ducts, door assembly shall be rated for 2300°F. The minimum sizes are:
    - (1) Fire dampers - 12" x 12", or larger.
    - (2) Combination Fire/Smoke dampers - 12" x 12", or larger.
    - (3) Smoke dampers - 6" x 6" minimum.
    - (4) Automatic control dampers - 6" x 6" minimum.
    - (5) Manual volume dampers 2 sq. ft. and larger - 6" x 6" minimum.
    - (6) Inlet side to all coils - 12" x 12", or larger.
    - (7) Suction and discharge sides of inline fans - 24" x 24" minimum.
    - (8) At additional locations indicated on drawings, or specified elsewhere - 12" x 12" minimum.
  - b. Generally access doors are not shown on the drawings, but shall be provided in accordance with the above.
- 16. Extractors shall have adjusting rod and locknut on outside of duct.
- 17. Connections to roof fans:
  - a. Shall be at least 22 ga. galvanized steel soldered watertight.
  - b. Solder side seams at least 12" up from bottom.
  - c. Provide suitable dielectric gaskets to join dissimilar materials.
- 18. Plenums and connections to louvers:
  - a. Shall be 18 ga. minimum cross-broken and properly reinforced with galvanized angle irons to SMACNA requirements.
  - b. Shall have bottom and corner seams soldered watertight at least 12" up from bottom.
  - c. Shall have neoprene gaskets or other non-corrosible material to make connections to louvers watertight.
  - d. Shall pitch connection back towards the louver. Provide half-coupling drain connection at bottom of plenum unless noted otherwise. Pipe drain to nearest floor drain.
  - e. Shall have unused portions of louvers blocked-off with sheet metal; sealed air- and water-tight; insulated with 2" thick 6-lb. density rigid or board insulation.

19. Duct Pressure Tests

- a. Pressure test ducts after takeoffs and wall penetrations are in place and before applying exterior insulation. Correct any leaks.
- b. Pressure and leak test 25% of medium and low pressure duct work at 150% of duct construction class pressure. Duct shall be constructed so there is no joint or structural failure at the test pressure.

20. Duct Leakage Tests

- a. Leak testing shall be per SMACNA HVAC Air Duct Leakage Test Manual. Provide orifice assembly including straightening vanes, orifice-plate mounted in straight tube with properly located pressure taps, and U-tube manometer or other device as specified by SMACNA. Orifice assembly shall be calibrated accurately and shall come with calibration curve. Leakage classes shall be as previously specified. Submit leak test report (per SMACNA format) for Engineer review. Drawings of ductwork tested shall also be submitted with report, indicating presence of takeoffs, wall penetrations, joints, etc.

21. Materials

- a. Sheet metal ducts shall be constructed of hot-dipped galvanized sheet metal with G90 Commercial coating according to ASTM 527 unless specified otherwise.
- b. Stainless steel (SS) ductwork shall be 18 gauge for kitchen hoods; and as required by SMACNA for other ducts. Materials shall be 316/No. 4 finish for exposed duct, 304/No. 1 finish for concealed ducts. Joints and seams shall be welded as required by SMACNA Guidelines for Welding Sheetmetal.
- c. Aluminum ductwork shall be Alclad 3003-1414 or alloy 5052-H32, of thickness required by the SMACNA duct construction standards with Alloy 6061 bracing angles, and Pittsburgh lock longitudinal corner and double side seaming. Aluminum ductwork shall be utilized in shower/locker rooms.
- d. Flexible Ductwork
  - (1) Flexible ductwork, connecting to uninsulated or unlined duct, shall be polyester core with corrosion-resistant helical wire reinforcing. The polyester core shall be minimum two ply and shall have a minimum thickness of 0.0017". Flex duct shall be U.L. rated for 6" W.C. positive pressure, 2" W.C. negative pressure with a maximum velocity of 4000 FPM. Flexduct must be listed as a Class 1 Connector according to UL 181 and shall meet the requirements of NFPA 90A - maximum ASTM E-84 fire hazard rating shall be 25 flame spread, 50 fuel contributed and 50 smoke developed. Uninsulated flexible duct shall be equivalent to Wiremold, Type WB, or Flexmaster Types 2 and 4 (not type 9).
  - (2) Flexible duct connected to insulated or lined duct shall also be insulated and shall be equivalent to Wiremold Type WK or Flexmaster Types 2 or 4 (not type 9), with 1-1/2", 3/4 lb. density fiberglass insulation and an aluminized reinforced vapor barrier.
  - (3) Submittals shall include data on no. of polyester plies and minimum thickness of polyester core, in addition to other data listed above

required to ensure that submitted product meets the requirements of these specifications.

- (4) If flexduct other than the model numbers of the vendors listed above is submitted, a sample of the flex shall be submitted to the Engineer. The Engineer shall have sole discretion in determining whether the submitted flex is equivalent to that of the named vendors above.
- (5) Unless otherwise indicated, flexible duct shall not exceed 5'-0" long.

C. 2" and Lower Pressure Class Ductwork - Rectangular

- 1. Ducts wider than 19" with more than 10 square feet of unbraced panel shall be beaded or cross-broken.
- 2. Internal stiffening struts shall only be used upon prior written approval of the Engineer.
- 3. Make changes in duct size with tapered connections as required by SMACNA. Changes shall NOT exceed 30° from line of air flow. Take-off to the diffusers shall be 45° leading edge type or Bellmouth type.
- 4. Transverse joints shall be TDF/TDC or slip joints; use flat or standing seam according to SMACNA. Where duct size requires standing seam but space restrictions dictate flat seam, notify Engineer prior to fabrication.

D. 2" and Lower Pressure Class Ductwork - Round

- 1. Joints
  - a. Longitudinal joints shall be spiral seam, butt welded, lap and seam welded, or ACME lock-grooved seam. Snap lock seams shall be used on ½" w.g. pressure class duct only.
  - b. Transverse joints shall be beaded sleeve joint or other approved joints listed in SMACNA. Use three or more sheet metal screws at 15" uniform intervals along circumference of joints.
- 2. Branch fittings shall be conical tee (Buckley or equal) or combination tee as shown in SMACNA.

E. Flexible Rigid Duct

- 1. Flexible ductwork shall be Flexmaster Triple-Lock Buck Duct Flexible Air Duct (insulated or non-insulated) as manufactured by Buckley Associates or equal (617-878-5000). Flexible duct, non-insulated, shall be Underwriters Laboratory Listed UL 181 Class 0 air duct and constructed in accordance with NFPA Standards 90A and 90B. It shall have a smoke/flame spread rating of 50/25.
- 2. Duct shall be made from a tape of dead soft aluminum sheet, spiral wound into a tube and spiral corrugated to provide strength and stability. The joint shall consist of a triple lock mechanically performed without the use of adhesives to make a durable airtight seam. A double lock is not acceptable.
- 3. Flexible duct connected to insulated or lined duct shall also be insulated. Flexmaster insulated flex shall have a gray Fire Retardant Polyethylene outer jacket with a ½ lb. density, 1-1/2" thick fiberglass insulation blanket, factory wrapped. Flexible Duct, insulated, shall be Underwriters Laboratory Listed and constructed in accordance with NFPA standards 90A and 90B. It shall have a smoke/flame spread rating of 50/25.
- 4. The flexible duct shall be supported as required.

5. Flexible duct work shall be rated at 12" positive pressure. Duct from 3 to 16" shall have a negative pressure of 12", 8" for duct work 18 and 20.
6. All flexible duct shall be individually cartoned and labeled for delivery to the job site for maximum protection.
7. Submittals shall include data on minimum thickness of aluminum core, in addition to other data listed above, required to ensure that submitted product meets the requirements of these specifications.
8. Provide sealing compound for installation. See further paragraphs in this specification and details for other installation requirements.

F. Volume Dampers

1. Provide Young Regulator manual adjustable rectangular opposed blade dampers for duct heights less than 12" with factory-installed locking hand quadrants extended 2" for all dampers installed in externally insulated duct:
  - a. On each supply, return and general exhaust duct take-off.
  - b. At each take-off to register, grille or diffuser (not all are shown on drawing).
2. Dampers are manufactured approximately 5/16" smaller in width and 1/8" smaller in height than size of duct in which they are installed; e.g., nominal damper size is 24" x 10"; actual size is approximately 23-11/16" x 9-7/8".
3. Damper frame shall be constructed of #6063 extruded aluminum reinforced channel with minimum thickness of .050". Opposed damper blades shall be #6063 extruded aluminum with minimum thickness of .050" and shall include reinforcing ribs. Each blade shall be supported in the damper frame by individual Teflon axle bearings, and shall be driven by stainless steel connecting slide linkage controlled by 3/8" square steel control shaft.
4. Note: All required volume dampers are not indicated on drawings but dampers shall be provided as necessary for systems balancing and as stated in this specification section.
5. Dampers 12" and larger in height shall be opposed multi-blade equal to Greenheck, Nailor, or Vent Products.
6. Where dampers are inaccessible, use Young Regulator locking type ceiling regulators and miter gear or worm gear for all horizontal dampers. Bearing coupling for bottom duct control may be used for shaft on vertical blade dampers. The 3/8" rod between ceiling regulator and damper shall be provided by contractor. This method is preferred over providing access panels in ceilings.
7. Damper blades shall be two gauges heavier than adjoining ductwork, and shall be riveted to supporting rods. Hem over edges parallel to rods.
8. Brackets shall be galvanized metal, secured to ductwork with sheet metal screw with locking quadrant arms (see seal class section for additional requirements). Provide 2" handle extension for all dampers on externally insulated ductwork.
9. Note: All required volume dampers are not indicated on Drawings but dampers shall be provided as necessary for system balancing.

G. Automatic Dampers: Install automatic dampers furnished under the Automatic Temperature Controls section of this specification, as shown on Drawings, and as specified. Provide sealed wall penetrations for Seal Class A ductwork.

H. Diffusers, Registers and Grilles

1. Provide diffusers, registers and grilles for supply, return and exhaust outlets, of size, type and design shown on Drawings. Acceptable manufacturers shall be Anemostat, Krueger, Metalaire or Titus.
2. Equipment shall be tested and rated per ASHRAE 91.
3. Equipment shall handle air quantities at operating velocities:
  - a. With maximum diffusion within space supplied or exhausted.
  - b. Without objectionable air movement as determined by Engineer.
  - c. With sound pressure level not to exceed NC 30.
4. Supply, return and exhaust outlets shall have opposed blade volume dampers operable from front.
5. Supply registers shall have two sets of directional control blades.
6. Diffusers within same room or area shall be of same type and style to provide Architectural uniformity.
7. Diffusers, registers and grilles shall be furnished with gaskets and installed with faces set level and plumb, tightly against mounting surface.
8. Finish shall be as directed by Engineer.
9. Coordinate diffusers, registers and grilles with ceiling and wall construction. Refer to Architectural Drawings for exact lengths and for framing and mitering arrangements that may differ from those shown on HVAC Drawings.

I. Branch Duct Take-off Fittings

1. Contractor shall provide Buckley Bellmouth Take-offs at all branch duct locations.
2. Bellmouth Fitting shall be Model BMD with damper. In areas where sufficient duct height is not available, the contractor shall provide the Buckley Mini-mouth fitting, Model M-BMD with damper or the flat oval Bellmouth, Model FOBMD with damper.
3. Bellmouths shall be constructed of heavy-duty galvanized steel. Bellmouths shall include an air-tight Neoprene gasket to ensure a tight fitting with minimal leakage. Pre-drilled holes shall be provided for quick mounting. Bellmouth shall be as manufactured by Buckley Associates or equal (617-878-5000).
4. Standard damper hardware to be constructed of 26-gauge galvanized material with a quadrant damper and tight-fitting gasketing to ensure minimal leakage at damper pivot points.
5. Optional heavy-duty hardware shall be provided at locations of higher static pressure where shown on the drawings.
6. Ninety-degree take-offs are not permitted on this project.

## 2.02 DUCT INSULATION

### A. General

1. Insulation shall be Certain-Teed, Knauf, Manville or Owens Corning. Install insulation, mastics, adhesives, coatings, covers, weather-protection and other work exactly as required by manufacturer's recommendations. Materials shall meet requirements of Adhesive and Sealant Council Standards and SMACNA.
2. Apply insulation after systems have been tested, proved tight and approved by Engineer. Remove dirt, scale, oil, rust and other foreign matter prior to installation of insulation.
3. Leaks in vapor barrier or voids in insulation will not be accepted.

4. ASTM E-84 minimum fire hazard ratings shall be 25 flame spread, 50 fuel contributed and 50 smoke developed.
5. Where ducts are insulated, flexible connections to ducts shall be insulated.
6. Insulate standing seams with same material and thickness as duct.
7. Acoustically lined ductwork shall not be insulated externally, except as noted otherwise.
8. Return ductwork in ceiling plenums shall not be insulated.
9. Insulation shall be continuous through wall and ceiling openings and in sleeves.
10. Transmission rates of vapor barriers shall not exceed 0.02 perms.
11. Do not insulate fibrous glass duct.
12. All insulated ductwork shall be insulated to a minimum of R-6. This shall be the installed R-value of the insulation, not the out-of-package R-value.
13. In mechanical rooms, all supply, return, and fresh air ductwork and plenums that are installed less than 8 feet above the floor level shall be provided with board insulation.
14. All outside air and exhaust plenums in mechanical rooms shall be insulated to a minimum of R-6. This shall be the installed R-value of the insulation, not the out-of-package R-value.

B. Concealed Rectangular and Circular Ductwork

1. Insulate supply, return, and fresh air ducts and plenums in concealed spaces and return duct not in ceiling plenum with 2" thick fibrous glass duct wrap, with foil-kraft flame resistant vapor barrier.
2. Insulation density shall be 3/4 lb/cf and maximum K-factor shall be 0.30 at 75°F mean temperature.
3. Increase insulation thickness or density as required above these values to ensure installed R-value of ductwork insulation is at least R-6.
4. If insulation does not have pre-cut lap, make lapped butt joints by cutting 2" strip of insulation away from vapor barrier. Apply 6" strips of approved adhesive on 16" centers and wrap duct with insulation. Staple lapped joint with outward-clinching staples. Seal stapled joints air-tight with approved vapor barrier mastic or pressure-sensitive tape.
5. For rectangular duct 24" or larger in any dimension, augment application method specified in item 3 with approved mechanical fasteners, such as weld pins with speed washers, on 18" centers on bottom of duct.
6. Cover breaks in vapor material with patches of same material, secured with adhesive and staples. Seal staples with approved vapor barrier coating.
7. Fill voids in insulation at jacket penetrations and seal with vapor barrier coating.
8. Seal and flash terminations and punctures with fibrous glass cloth between two coats of vapor barrier coating.
9. Terminate vapor barrier and extend insulation at standoff brackets.

C. Exposed Rectangular Ductwork

1. Insulate exposed supply, return, and fresh air ducts and exposed plenum with 1.5" thick, semi-rigid fibrous glass boards with factory-applied fire retardant foil-reinforced kraft vapor barrier facing.
2. Insulation density shall be 3 lb./cf with maximum K-factor of 0.23 at 75°F mean temperature.
3. Increase insulation thickness or density as required above these values to ensure installed R-value of ductwork insulation is at least R-6.

4. Impale insulation on mechanical fasteners applied to duct surface on 12" centers. Use at least two rows of fasteners on each side of duct. Provide fastener rows within 3" of seams and edges. Secure insulation with suitable speed washers or clips firmly embedded in insulation. Provide additional fasteners as necessary on cross-broken ducts.
5. Extend insulation to standing seams, reinforcing, and other vertical projections 1" and less; do not carry over. Vapor barrier jacket shall be continuous across seams, reinforcing and projections. Insulation and jacket shall be carried over projections that exceed insulation thickness.
6. Transverse joints shall be butted tightly. Longitudinal joints shall be butted, ship-lapped or 45° mitered. Seal joints with 4" wide strips of approved vapor barrier patch material and adhesive, or with approved pressure sensitive vapor barrier tape.
7. Cover breaks, ribs and standing seam penetrations with patch of jacket material no less than 2" beyond break; secure with adhesive and staple. Seal staples and joints with brush-coat of vapor barrier coating.
8. Fill voids in insulation at jacket penetrations and seal with vapor barrier coating.
9. Seal and flash-terminations and punctures with fibrous glass cloth between two coats of vapor barrier coating.
10. Terminate vapor barrier and extend insulation at standoff brackets.

D. Exposed Round Ductwork

1. Exposed supply, return, and fresh air ducts and exposed plenum, which are located in mechanical and electrical rooms, storage rooms, unoccupied areas, unconditioned areas and/or as indicated on plans, shall be insulated with at least 2" fibrous glass ductwrap with foil-kraft flame resistant vapor barrier.
2. Insulation density shall be 3/4 lb/cf and maximum K-factor shall be 0.30 at 75°F mean temperature.
3. Increase insulation thickness or density as required above these values to ensure installed R-value of ductwork insulation is at least R-6.
4. If insulation does not have pre-cut lap make lapped butt joints by cutting 2" strip of insulation away from vapor barrier. Apply 6" strips of approved adhesive on 16" centers and wrap duct with insulation. Staple lapped joint with outward-clinching staples. Seal stapled joints air-tight with approved vapor barrier mastic or pressure-sensitive tape.
5. Cover breaks in vapor material with patches of same material, secured with adhesive and staples. Seal staples with approved vapor barrier coating.
6. Fill voids in insulation at jacket penetrations and seal with vapor barrier coating.
7. Seal and flash terminations and punctures with fibrous glass cloth between two coats of vapor barrier coating.
8. Terminate vapor barrier and extend insulation at standoff brackets.
9. Cover with fibrous glass cloth embedded between two coats of suitable water-proof coating. Total dry film thickness shall be 1/8".

2.03 PIPING AND FITTINGS

A. General

1. Pipe materials and fitting materials shall be as indicated in Schedule of Pipe and Fitting Materials.

a. Schedule of Pipe and Pipe Fitting Materials:

SERVICE	SYSTEMS DESCRIPT- TION	PIPE SIZE	PIPE MATERIAL	JOINTS	FITTING MATERIA L	FITTING RATING PSI/CLASS / WEIGHT
Cold Water	CW	All	Copper, B88, Type L	Soldered Silvabrite	Wrought Copper, B16.22	Class 150
LP Steam (Under 15 psig)	LPS	2" and under	Steel, A53, Grade B, Smls or ERW, Schedule 40	Threaded	Malleable Iron, B16.3	Class 150
Chemical Feed	CF	2-1/2" and over	Steel, A53, Grade B, Smls or ERW, Schedule Standard	Butt Welded	Wrought Steel, A234 Grade WPB	Standard Weight
Steam Boiler Drain / Blowdown	D					
LP Steam Return	LPR	2" and under	Steel, A53, Grade B, Smls or ERW, Schedule 80	Threaded	Malleable Iron B16.3	Class 300
Pumped Condensate	PC	2-1/2" and over	Steel, A53, Grade B, Smls or ERW, Schedule Extra Strong	Butt Welded	Wrought Steel, A234 Grade WPB	Extra S- trong W- eight

b. Connections:

- (1) Provide dielectric fittings or waterways at connections of dissimilar materials.
- (2) Provide eccentric reducing couplings to bring pipes flush on top for water service and flush on bottom for steam service.
- (3) Branch lines in welded piping shall be made with welding tees except that branch lines less than one half diameter of main may be made with Weld O Lets or Sock-O-Lets.
- (4) Nipples shall be same material, make and thickness as pipe with which they are used. Close nipples shall not be used.
- (5) Make piping connections 2 1/2" diameter and larger to valves and equipment with welding neck flanges, ANSI B16.5, pressure rating to match system, flat or raised face as required.

- (6) Make piping connections 2" dia. and smaller to valves and equipment with steel body, 300 psi brass seat unions on steel piping and with heavy semi flushed brass unions on copper tubing.
- (7) Fit flanged joints with Johns Manville or approved equal full face gaskets. Flanges shall be faced and drilled to ASA standards and fitted with semi finished hexagon machine bolts and nuts of proper number and size.
- (8) Make screw joints tight with Teflon (polytetrafluoroethylene) tape or litharge glycerin mixture applied to male threads. Use tapered threads.
- (9) Make fusion welded joints as required by ANSI B31.1. Make changes in direction of pipe with welded fittings only. Bevel connections before welding, mechanically or by flame cutting.

2. Grooved Piping Systems

- a. No grooved piping shall be installed except where to allow for a transition from existing grooved piping to new threaded or welded pipe.

2.04 VALVES AND STRAINERS

- A. Valves on hot water services shall be 125 psi unless noted otherwise. Provide balancing valves where shown on Drawings and where required for proper balancing. All valves may not be shown.
- B. Valves shall have name of manufacturer and guaranteed working pressure cast or stamped on bodies. Valves of similar type shall be by single manufacturer. Provide chain operators for valves 7 feet and higher above floor.
- C. Provide butterfly valves for shutoff on hot water services 2-1/2" and larger. Do not use butterfly valves for balancing service.
  1. Valves shall be rated 175 psi maximum working pressure, iron body, threaded-lug with resilient EPDM seats, bronze disc and 416 stainless stem, by Centerline, DeZurik, Keystone, or Bray.
  2. Valves 6" and larger shall have gear or chain operators.
  3. Valves smaller than 6" shall have seven-position lever or chain operators.
  4. Test valves at 110% of rated pressure.
- D. Provide bronze-body ball valves with reinforced teflon seats, seals, bearings and packing. Ball valves shall be used for hot water services in sizes 2" and smaller. Do not use ball valves for balancing service. Valves on insulated piping shall have 2" extended stems. Valves shall be by Apollo, Cannon, Nibco, Milwaukee, or Watts. Valves shall be rated 600 psi wog.
- E. Check valves sized 2-1/2" and larger shall be iron body, flanged ends, bronze mounted, swing pattern. Check valves 2" and smaller shall be bronze, screwed ends, swing pattern. Check valves for hot water pump discharge shall be spring loaded, silent check, by APCO, Milwaukee, Mueller or Stockham.
- F. Relief valves shall be brass with external lever, ASME-approved. Pipe discharge to floor drain with open connection at floor.
- G. Strainers

1. Strainers 2" and smaller shall be 250 lb. bronze body, stainless steel, screen with 20 mesh screen opening, Y-pattern, screwed ends, Sarco Type BT, Mueller, Watts or Armstrong.
2. Strainers 2-1/2" and larger shall be 125 lb., cast iron body, stainless steel screen with manufacturer's recommended screen openings, Y-pattern, flanged, Sarco Type AF-125 or equivalent by Mueller, Watts or Armstrong.
3. Provide blow-off valve on each strainer.
4. Pump suction strainers 2" and smaller shall have 0.062 screen openings. Pump suction strainers 2-1/2" and larger shall have 0.125 screen openings.
5. Strainer gaskets shall not contain asbestos.

H. Provide threaded vacuum breakers with ball, spring, O-ring flexible seat, and screen. Ball shall be 440 stainless steel; seat shall be EPR. Spring shall be 316 stainless steel; screen and cap shall be 304 stainless steel and threaded collar shall be 416 stainless steel. Body shall be brass. Vacuum breakers shall be Johnson Series VB8 size 1-1/4 IPS, or equivalent by Watts or ITT Hoffman.

I. Provide unions for threaded end valves to facilitate removal from pipe.

J. Automatic Flow Control Valves

1. Provide automatic pressure compensating flow control valves by Griswold, or Autoflow where indicated on the drawings. Valves shall have the capacities and pressure differential characteristics, as indicated, and conform to the following specifications. Valves 2" and smaller shall be threaded bronze valves 2-1/2" and larger shall be flanged iron or steel body.
2. Valves shall be factory set and shall automatically limit the rate of flow to required engineered capacity within +5% accuracy over an operating pressure differential of at least 14 times the minimum required for control.
3. The control mechanism of the valve shall consist of self-contained, open-chamber cartridge assembly with unobstructed flow passages that eliminate accumulation of particles and debris. All internal working parts shall be stainless steel or nickel plated brass. Body shall be ductile iron, cast iron or bronze.
4. The cartridge assembly shall consist of a spring-loaded cup. The cup shall utilize the full available differential pressure across the valve to actuate the cup and, thereby, reduce friction and hysteresis and eliminate binding.
5. Valves shall be available in minimum of three pressure differential ranges, with the minimum range requiring less than 2 psig to control flow. Valve bodies shall be provided with inlet and outlet tappings suitable for connection of instruments for verification of flow rates and temperature and shall be marked to show direction of flow. Valve bodies shall be rated for use at not less than 150% of system designed operating pressures.
6. Certified performance data for the flow control valve, based on independent laboratory tests, supervised and witnessed by a registered professional engineer, shall be available.
7. All flow control valves shall be supplied by a single source responsibility.
8. Each automatic flow control valve shall be furnished with a valve kit consisting of 1/4" x 2" minimum size nipples, quick-disconnect valves (to be located outside of insulation), and fittings suitable for use with the measuring instruments specified, as well as temperature.

9. Provide a metal identification tag, with chain, for each installed valve. The tag to be marked with zone identification, valve model number and rated flow in GPM.
10. Flow control valve shall be warranted for period of five years from date of start-up.
11. Provide Owner with dual hose meter kit including pressure gauge with 4-1/2" dial, 3-way push button operated valve, 5' long dual connection hoses, dual shutoff and vent valves, dual special valves for connection to standard valve kit, flow conversion chart and carrying case.

K. Combination Balancing/Flow Measurement/Shut-off Valves

1. Valves shall be Y-pattern style with multi-turn hand wheel.
2. Valves shall be capable of being installed in any direction without affecting flow measurement and shall provide the following functions:
  - a. Precise flow measurement.
  - b. Precision flow balancing.
  - c. Positive shut-off with no drip seat.
  - d. 3/4" drain port suitable for hose bib fitting. (Sizes 2" and below.)
3. Valves shall have four, 360° adjustment turns (2" and below), eight, 360° adjustment turns (2-1/2" - 6"), twelve, 360° adjustment turns (8", 10"), and sixteen, 360° adjustment turns (12"). Handwheels shall have digital indicators with hidden memory and tamper-proof setting features.
4. Valves 2" and below shall be non-ferrous, pressure die-cast, non-porous A metal copper alloy, with soldered ends.
5. Valves 2-1/2" and over shall be ductile iron body with all other metal parts of non-ferrous copper alloy. End connections shall be flanged or grooved.
6. Pressure ratings shall be 300 psi for 2" and below and 250 psi for flanged and 300 psi for grooved ends.
7. Each valve shall have pressure/temperature readout ports with EPDM seals and attached shut-off valves.
8. One, computerized hand-held, balancing meter shall be furnished to the Owner's Project Manager. The Testing and Balancing Contractor shall utilize this instrument for his work. The meter shall include the following:
  - a. Flow measurement direct in GPM.
  - b. Differential pressure measurement.
  - c. Temperature measurement.
  - d. Automatic calibration.
  - e. Automatic air purging.
  - f. Extended data logging functions.
9. Balance valves 2" and under shall be Caleffi Quicksetter or approved equal. Valves 2-1/2" and over shall be Tour and Anderson Models STAF-SG or STAG. The handheld meter shall be Tour and Anderson Model CBI with PCB data logging features. Balance valves manufactured by Armstrong or Victaulic shall be considered equivalent.

## 2.05 PIPE INSULATION

A. Insulation shall be fibrous glass insulation with factory-applied fire retardant vapor barrier jacket with K factor of 0.21 at 75°F mean temperature: by Owens Corning, Certain-Teed,

Manville or Knauf, installed as required by manufacturer. ASTM E-84 fire hazard ratings shall be 25 flame spread, 50 smoke developed and 50 fuel contributed.

- B. Apply insulation after systems have been tested, proved tight and approved by Engineer. Remove dirt, scale, oil, rust and foreign matter prior to installation of insulation.
- C. Insulation on cold water piping and fittings must have a continuous vapor barrier.
- D. No leaks in vapor barrier or voids in insulation will be accepted.
- E. Insulation and vapor barrier on piping which passes through walls or partitions shall pass continuously through sleeve, except that piping between floors and through fire walls or smoke partitions shall have space allowed for application of approved packing between sleeves and piping, to provide fire stop as required by NFPA. Seal ends to provide continuous vapor barrier where insulation is interrupted.
- F. Insulate flexible connections to same thickness and with same material as adjoining pipe insulation.
- G. Drain piping other than PVC piping shall have  $\frac{1}{2}$ " thick insulation. Insulation thickness for indoor hot water and cold water piping shall be as follows:

TABLE A Insulation Thickness (inches)							
PIPING SYSTEM TYPES	FLUID TEMPERATURE RANGE, °F	<1"	1" to 1-1/2"	1-1/2" to <4"	4" to <8"	≤8"	INSULATION CONDUCTIVITY (BTU*IN)/(F.HR.SF) AT MEAN TEMP °F
<b>HEATING SYSTEMS</b>							
High Pressure Steam	251-350	3.0	4.0	4.5	4.5	4.5	0.29-0.32 @ 200°F
Low Pressure Steam/Condensate	201-250	2.5	2.5	2.5	3.0	3.0	0.27-0.30 @ 150°F
Hot Water	141-200	1.5	1.5	2.0	2.0	2.0	0.25-0.29 @ 125°F
Hot Water	105-140	1.0	1.0	1.5	1.5	1.5	0.21-0.28 @ 100°F
<b>COOLING SYSTEMS / MAKE-UP WATER</b>							
Cold Water	40 to 60	1.0	1.0	1.0	1.0	1.0	0.21-0.28 @ 100°F

- H. Provide longitudinal lap and 6" wide vapor barrier joint seal strips secured with approved adhesive.
- I. Seal ends of pipe insulation and seal insulation to pipe with approved fire retardant vapor barrier, at flanges, valves and fittings and at intervals of no more than 21 feet on continuous runs of piping.
- J. Secure covers on concealed pipe with metal bands at least 3/4" wide and no more than 18" apart, spaced to hold ends and centers of each section.

- K. Insulation on outdoor piping shall be twice the thickness listed in Table A above, but not more than 4". Waterproof with 0.016" thick aluminum jacket with 2" transverse and longitudinal lapped seams oriented to shed water. Fill seams with weatherproof adhesive. Secure jacket with 1" wide aluminum draw-bands on 12" centers.
- L. Outdoor Pipe Insulation and Water-proofing
  - 1. Provide 1" thick flexible unicellular elastomeric foam rubber tubing insulation by Armstrong (Armaflex), Manville, Owens Corning or Halstead/Nomaco (Insultube), with maximum K-factor of 0.27. Install as recommended by manufacturer.
  - 2. Insulate valves and fittings with same thickness insulation as duct using manufacturer's pre-formed fitting and valve insulation or field-fabricated covers made with manufacturer's templates.
  - 3. Adhere insulation to duct and seal butt joints with full coverage of insulation manufacturers approved adhesive.
  - 4. Apply two coats of finish material to insulation.
  - 5. Apply two coats of approved vinyl lacquer coating over woven glass yarn mesh adhered to insulation surface with Insulcolor or approved equal lagging adhesive.
  - 6. Provide cork or dowel supports and metal shields at pipe hangers and supports as recommended by manufacturer.
- M. Insulation on Fittings, Valves and Flanges
  - 1. Fittings, valves and flanges shall be insulated with pre-cut, factory-supplied fibrous glass, by Certain-Teed, Knauf, Owens Corning or Manville.
  - 2. Fittings, valves and flanges shall be insulated with same material and to same thickness as adjoining pipe insulation.
  - 3. Pipe fittings shall be pre-tested, clean and dry before insulation.
  - 4. Installation of insulation on fittings shall be as follows, in order:
    - a. Wrap insulation around fitting and tuck ends into fitting throat.
    - b. Edges of adjacent insulation shall be tufted and tucked in, to fully insulate fitting to thickness of adjacent pipe insulation. Use two or more thicknesses if necessary.
    - c. If two layers of insulation are used on fittings, wrap and secure first layer with twine before applying second layer.
    - d. Top layer of insulation shall be covered with one piece, PVC, Zeston molded fitting cover. Secure cover with stainless steel tack fasteners inserted into jacket throat overlap seam.
    - e. Tape joints with pressure-sensitive vapor barrier tape; tape shall extend 2" on either side of joint.
  - 5. For strainers and other valves or fittings which need maintenance, provide preformed removable insulation section.

## 2.06 PIPE HANGERS AND SUPPORTS

- A. Provide pipe stands, supports, hangers and other supporting devices in accordance with ANSI B31.9 and MSS-69, as necessary to support work required by Contract Documents.
- B. Secure vertical piping to building construction to prevent sagging or swinging.
- C. Space hangers for horizontal steel piping as follows:

Pipe Size	Rod Diameter	Maximum Spacing
Up to 1-1/4"	3/8"	8 ft.-0"
1-1/2 and 2"	3/8"	10 ft.-0"
2-1/2 and 3"	1/2"	10 ft.-0"
4 and 5"	5/8"	12 ft.-0"

- D. Horizontal copper tubing shall have maximum hanger spacing of 5 ft. for tubing 1-1/4" dia. and smaller and 10' for tubing 1-1/2" and larger. Maximum spacing for PVC pipe hangers shall be 4'.
- E. Reduce spacing to a maximum of 10'- 0" apart, regardless of pipe size, as necessary for fittings, valves and other concentrated loads.
- F. Support piping 4" dia. and larger from structure with pipe roll hangers with adjustable steel rod hangers, sized to accommodate insulation.
- G. Support piping 3" dia. and under from structure with Carpenter and Patterson Fig. 100 clevis hangers or approved equal.
- H. Hangers shall be by Carpenter and Patterson, F & S, or Grinnell Co. Figure numbers of Carpenter and Patterson are specified to establish standards of quality for performance and materials.
- I. Provide spring hangers with travel stops as specified in Vibration Isolation Paragraph where necessary and where shown on Drawings.
- J. Pipe supports for 4" and larger pipe and insulated high-temperature piping shall have welded inserts of equal thickness to insulation to prevent compression of insulation. Other insulated pipe shall have 12", 14 GA shields at hangers, composed of 180°coverage of galvanized sheet metal and high density, pre-formed, rigid insulation. Where rollers are required, shield shall be steel pipe.
- K. Hangers for horizontal lines shall be vertically adjustable to obtain pitch requirements of Piping Paragraph.

## 2.07 SLEEVES AND PENETRATIONS

- A. Pipe Sleeves
  - 1. Sleeves through floors and through exterior, structural and fire-rated construction shall be hot-dipped galvanized Schedule 40 steel pipe.
  - 2. Sleeves through partitions and non-fire-rated construction shall be 26 gauge galvanized steel with lock longitudinal seams, or approved plastic pipe.
  - 3. Provide waterproofing membrane locking devices at floors. Provide 150 lb. slip-on welding flanges at exterior wall penetrations.
- B. Duct Sleeves and Openings
  - 1. Sleeves through floors, through exterior structure, through fire-rated construction and through smoke partitions that require smoke dampers shall be Schedule 40 galvanized steel pipe for round duct and shall meet SMACNA Fire Damper and Heat Stop Guide for rectangular and flat oval ducts. Fireproof packing shall be applied to seal any openings between sleeve and wall. Materials shall maintain the fire rating of the wall,

and shall be installed in accordance with the SMACNA Fire Damper and Heat Stop Guide.

2. Openings in walls, partitions and other fire-rated construction that do not require smoke dampers shall meet NFPA 90A, Section 3-3.8.
3. Materials for prepared openings in partitions shall match construction penetrated.

C. Pipe Sleeve Packing

1. Packing between the pipe and the sleeve (or wall or slab opening) in fire rated walls or slabs shall be a combination of fireproof insulation and fireproof caulk. The combination of materials shall have the same fire rating, in hours, as the wall or slab, as tested in accordance with the latest edition of ASTME-814 (UL 1479). The combination of materials shall be classified by UL, (fill, void or cavity materials) for the fire rating required and shall be listed as a numbered system in the UL Fire Resistance Directory. Fiberglass shall not be used as the insulation material.
2. Acceptable fireproof insulation materials shall be: Kaolin (Kaowool by Babcock and Wilcox); ceramic fiber blanket (Fiberfrax by Standard Oil) or fire rated mineral wool (Thermafiber by USG). Acceptable fireproof caulk shall be: Silicone (Firestop by Dow Corning, Hilti CS240); ceramic fiber (Fyrepuit by Standard Oil) or intumescent synthetic elastomer (Fire Barrier Caulk by 3M, Hilti CS2420).
3. Packing for sleeves that do not require maintenance of fire rating shall be oakum, silicate foam, ceramic fibre or mineral fibre with approved sealant. Pack or foam to within 1" of both wall surfaces. Seal penetration packing with approved caulking and paintable water-proof mastic surface finish or silicone caulking.
4. All materials must be installed in accordance with manufacturers instructions; all gaps must be sealed. Finish caulk flush with wall or slab surface if piping runs exposed.

D. Other Water-proof Pipe Penetrations

1. Modular mechanical penetration seals shall be interlocking synthetic rubber links shaped to fill annular space continuously, with galvanized carbon steel bolts, nuts and pressure plates to expand rubber seal between pipe and sleeve. Sleeve seal shall be water-tight.
2. Prefabricated modular sleeves shall be Mason Industries (SWS) or approved equal stiffened galvanized steel sleeves with preformed closed-cell elastomeric seal (non-fire-rated) or preformed mineral fiber or silicone foam seal (fire-rated).
3. Provide water-proof 1" single ring set in silicone and bolted to floor or wall at chipped and drilled penetrations of existing slabs on grade and existing walls below grade.

2.08 ESCUTCHEONS AND DUCT COLLARS

- A. Provide adjustable escutcheons on exposed piping that passes through finished floors, walls and ceilings. Escutcheons shall be chromium-plated cast brass, sized to cover sleeve opening and to accommodate pipe and insulation.
- B. Provide 4" wide 20 gauge galvanized sheet metal collars at sleeves and prepared openings, sized to cover entire duct penetration including sleeve and seal, and to accommodate duct and insulation as necessary. Edges shall have milled lips ground smooth. Paint to match finish of duct or as directed by Engineer.

2.09 EQUIPMENT INSULATION

A. General

1. Apply insulation after systems have been tested, proved tight and approved by Engineer. Remove dirt, scale, oil, rust and foreign matter prior to installation of insulation.
2. No leaks in vapor barrier or voids in insulation will be accepted.
3. Insulation shall be Certain-Teed, Knauf, Manville or Owens Corning and shall be installed in strict accordance with manufacturer's recommendations.
4. Insulate the following equipment:
  - a. Condensate tank.
5. Insulation shall be 2" thick fibrous glass rigid block or semirigid board rated for temperature intended. Insulation shall be formed or fabricated to fit equipment. Ensure tight fit. Bevel edges and butt and stagger joints.
6. Insulation shall have FSK facing.

B. Secure with bands or wires at intervals recommended by manufacturer, no more than 12" centers. Provide corner angles.

C. Set cellular glass insulation and seal joints with bedding compound. Fill mineral fiber joints with insulating cement.

D. Apply two coats of adhesive with fibrous glass cloth embedded in first coat before application of second. Dry film thickness of finish shall be 1/8". Apply insulating cement over coated insulation; do not coat removable sections.

E. Equipment which needs servicing, such as pumps and heat exchangers, shall be provided with removable insulation sections.

F. Nameplates on all equipment shall be kept visible.

2.10 MOTORS, STARTERS AND WIRING

- A. Provide motors and controls for HVAC equipment. Provide control and other related wiring including interlocks. Power wiring (to panelboards, disconnect switches, starters and motors) will be provided under Section 260001, ELECTRICAL WORK. Starters that are not integral to equipment will be furnished, installed and wired under Section 260001, ELECTRICAL WORK.
- B. Unless otherwise specified, motors shall be NEMA Design B, constant speed, self-ventilated squirrel cage induction. Motors shall have 1.15 service factor unless totally enclosed. Motors shall have Class B insulation.
  1. Motors under 1/2 hp, shall be designed for 120 V, 60 Hz, single phase, unless otherwise specified.
  2. Motors 1/2 hp and over shall be as required in schedules.
- C. All motors shall be high or premium efficiency type. They shall conform to NEMA Standard MG-1-2006 in Tables 12-12 and 12-13. Refer to <http://www.nema.org/stds/complimentary-docs/upload/MG1premium.pdf> to find the mentioned tables.
- D. Starters furnished integral to equipment, and that require interlocks or remote control shall be magnetic with HAND-OFF-AUTOMATIC switch in cover. Provide magnetic starters as necessary, with auxiliary contacts, buttons and switches in required configurations. Refer to

paragraph AUTOMATIC TEMPERATURE CONTROLS and to Control Drawings for interlock requirements.

1. Each 3-phase, 60 Hz motor shall be provided with magnetic starter with either ON-OFF push button or hand-off-automatic switch.
2. Other motors shall be provided with a manual starter with ON-OFF switch.
3. Control relay for each starter shall be for operation on 120 V, single phase, and transformer of sufficient capacity within starter case shall be furnished for this purpose.
4. Provide inverse time limit overload and under voltage protection in each leg and with pilot lights. Provide red and green On-Off pilot lights.
5. Provide nameplates with engraved white lettering to designate area and equipment served.
6. Starters for refrigeration machines shall be furnished by unit manufacturer.
7. Provide starters for two-speed motors with deceleration relay.
8. Furnish for all single speed motors, 25 hp and above, 95% power factor correction capacitors. Capacitors shall be in NEMA enclosure of the same rating as the motor's starter.

## 2.11 DUPLEX CONDENSATE PUMP SET

### A. General

1. Unit shall be a Domestic heating boiler feedwater duplex unit, series CMHD, as manufactured by Bell & Gossett, or approved equal.
2. Furnish and install extended life pumps with capacities as indicated in the plans.
3. The Unit shall be UL listed or recognized by Underwriters' Laboratories, Inc as a complete Boiler Feedwater Package.

### B. Components

1. Condensate steel receiver
  - a. Shall be horizontal welded steel construction.
  - b. Receiver heads shall be convex (dished).
  - c. Head and shell thickness shall be a minimum of 3/16" (5mm) as indicated in the drawings.
  - d. Receiver shall have a net working capacity of no less than that shown in the drawings.
  - e. Receiver shall be floor mounted on fabricated heightless steel cradles.
  - f. Receiver shall have an inlet with cascade baffle, vent, and overflow opening to provide means of secondary venting.
  - g. Receiver shall be sized for 5 minutes net storage.
  - h. Receiver shall be furnished with:
    - (1) One water level gauge glass for visual tank level inspection.
    - (2) One dial thermometer.
    - (3) Two lifting eyes for unit placement.
  - i. The water make up shall be installed on the receiver of capacity equal to one boiler feed pump. The make up assembly shall consist of:

- (1) One electric solenoid that shall be packless, piston pilot operation type with cushioned closing feature and epoxy resin molded waterproof coil.
- (2) One water level float switch.
- (3) One Y-strainer located upstream of the solenoid valve.

2. Water pump

- a. Two water pumps shall each be a series C35<sup>TM</sup>, C17<sup>TM</sup>, or B35<sup>TM</sup> bronze fitted, centrifugal pump, close-coupled to a 3500 RPM or 1750 RPM motor, permanently aligned, and flange mounted for vertical operation.
- b. C35 and C17 pumps shall include:
  - (1) One cast Iron volute with:
    - (a) One discharge gauge port tapping.
    - (b) One drain tapping.
  - (2) One dynamically balanced enclosed bronze centrifugal impeller.
  - (3) One renewable bronze wearing ring.
  - (4) One stainless steel shaft.
  - (5) Carbon/ceramic/Buna N/stainless steel mechanical seal suitable for 250°F (121°C) operation.
- c. Each B35 pump shall deliver its full capacity with condensate temperatures up to 210° F (99° C) at sea level at 2 ft. NPSH (net positive suction head). The pumps shall include, in addition to the components of the C35 and C17:
  - (1) One bronze propeller stem.
  - (2) One bronze diffuser.
  - (3) One cast bronze, axial flow, first-stage impeller.
- d. Each pump shall be sized for two times the system return rate.
- e. Each motor shall meet NEMA specifications and shall be the size, voltage, insulation class, duty rating, and enclosure called for in the plans.

3. Manual by-pass valve around the water make-up solenoid consisting of:

- a. Two ball valves to isolate the solenoid valve.
- b. One gate valve for the direct water feed line.

4. Air gap fitting for make-up valve.

5. Pump discharge pressure gauge.

6. Cast iron inlet basket strainer with vertical self-cleaning bronze screen and large dirt pocket for sediment collection. The screen shall be easily removable for cleaning, requiring no additional floor space for servicing. This option ships loose for field installation.

7. Consolitrol<sup>®</sup> NEMA 2, UL electrical panel mounted and wired with drip lip and piano hinged door is available with the following options:

- a. Two magnetic starters with thermal overload protection. Starters may be provided with disconnect devices, either:
  - (1) Fusible disconnect with cover interlock or

- b. One fused control circuit transformer when the motor voltage exceeds 250V.
- c. Two selector switches:
  - (1) "Auto-Off-Hand" selector switches
- d. Two pump running pilot lights.
- e. Two "Push to Test" buttons.
- f. One numbered terminal strip.
- g. Two auxiliary contacts on the magnetic starters normally open for remote monitoring of pump operation.
- h. A removable control component mounting plate.
- i. Two elapsed time meters (UL).
- j. An audible alarm to indicate water level conditions.
  - (1) Audible alarm is available with or without silencing relay.
  - (2) A tank mounted level switch should be provided with audible alarm.
  - (3) Alarm may be provided with alarm light to provide visual indication of alarm condition.
- k. One single point power connection.
- l. One electrical alternator.
- m. Control power switching relay shall allow the switch over of control power from one pump to the other in the event of a power failure or pump failure.

C. Installation

- 1. Install equipment in accordance with manufacturer's instructions.
- 2. Power wiring, as required, shall be the responsibility of the electrical contractor. All wiring shall be performed per manufacturer's instructions and applicable state, federal and local codes.
- 3. All factory wiring shall be numbered for easy identification and the numbers shall coincide with those shown on the wiring diagram.
- 4. All interconnecting wiring between the pump controls and control panel shall be enclosed in liquid tight flexible conduit.
- 5. The unit shall be factory tested as a complete unit and the unit manufacturer shall furnish elementary and connection-wiring diagrams and piping diagrams. Installation and operation instructions shall also be provided.
- 6. The unit manufacturer shall furnish, mount on the unit and wire a NEMA 2 control cabinet with drip lip and piano hinged door.
- 7. The factory shall provide a certified test report.

2.12 STEAM HEATING COILS

- A. Provide non freeze tube in tube steam distributing coils.
- B. Tubes shall be 1" outside diameter copper tubing expanded mechanically into helically wound aluminum fins. Casing shall be galvanized steel, drilled for bolting. Headers shall be steel with external pipe threads. Tubes shall be brazed to header. Supply and return connections shall be on same end of coil.
- C. Leak test at 250 psi air pressure.
- D. Coils shall be by Aerofin (Type A), Trane, Carrier, McQuay, or York.

2.13 STEAM TRAPS

- A. Provide traps by Armstrong, ITT Hoffman, Spirax Sarco or approved equal where required and where shown on Drawings.
- B. Continuous float and thermostatic traps shall have stainless steel floats, bronze fittings and integral thermostatic air bypasses. Bodies and covers shall be of stainless steel or cast iron. Working parts of each trap shall be accessible by removing cover without necessitating disconnection from pipe.
- C. Inverted bucket traps shall be cast iron with stainless steel bucket and heat treated chrome steel valve and seat.
- D. Thermostatic traps shall have brass bodies and caps with natural brass finish. Bellows, valve head and renewable valve seat shall be stainless steel.

2.14 PRESSURE GAUGES, THERMOMETERS AND TEST PLUGS

- A. Provide bronze Bourdon tube pressure gauges where shown on Drawings and where specified, by U.S. Gauge, Trerice, or Weksler, accurate to +1%.
  - 1. Gauges shall have white faces with black-filled engraved lettering. Gauge bodies shall be set in phenolic cases. Provide siphons and ball valves.
  - 2. Gauges shall be easily accessible and easily read. Gauges readable from floor at less than five feet shall have 4-1/2" dials. Other gauges shall have 6" dials. Gauges graduations shall meet limit requirements of normal operation. Gauge shall indicate at mid-scale.
- B. Provide separable well V-case thermometers by U.S. Gauge, Trerice, or Weksler where shown on Drawings and where specified. Thermometers shall have 9" scale and white face with black-filled engraved letters. Thermometers shall be angular or straight stemmed, as conditions necessitate. Thermometer wells shall be bronze and shall be installed so as to ensure minimum restriction of water flow in pipe.
  - 1. Provide thermometer in hot water system at each boiler, coil and pump connection, unless specified otherwise. Scale range shall be 30°-300°F with 2°scale division.
  - 2. Provide additional thermometers where shown on Drawings.
- C. Combination Pressure/Temperature Test Plugs
  - 1. Provide in the supply and return piping at VAV boxes, duct coils, unit ventilators, boilers, and pumps combination pressure temperature test plugs by Peterson Equipment Company "Petes Plug" or Sisco, Inc. "P/T Plugs".
  - 2. Plug shall be 1/4" or 1/2" NPT, constructed of solid brass with a Nordel valve core suitable for temperatures up to 350°F. Plug shall be rated zero leakage from vacuum to 1000 psig.
  - 3. Provide extension fitting for each plug suitable for use with 2" maximum pipe insulation.
  - 4. Provide gauge test kit consisting of the following items:
    - a. (2) 3-1/2" dial face gauges 0-100 psi and 0-231 feet.
    - b. (2) Gauge adapters with 1/8" O.D. probe.
    - c. (2) 5" stem pocket testing thermometers ranges 25-125°F; 0-220°F.
    - d. (1) Carrying case.

- e. (2) 4' length of flexible hose with adapters.

### PART 3 - EXECUTION

#### 3.01 SPECIAL RESPONSIBILITIES

- A. Coordination: Cooperate and coordinate with work of other Sections in executing work of this Section.
  1. Perform work such that progress of entire project including work of 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 installation information from manufacturers of equipment provided under this Section.
  4. Obtain final roughing dimensions or other information as needed for complete installation of items furnished under other Sections.
  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. Give full information so that openings required by work of this Section may be coordinated with other work and other openings and may be provided for in advance. In case of failure to provide sufficient information in proper time, provide cutting and patching or have same done, at own expense and to full satisfaction of Engineer.
  6. Provide information as requested as to sizes, number and locations of concrete housekeeping pads necessary for floor-mounted vibrating and rotating equipment provided under this Section.
  7. Notify Engineer of location and extent of existing piping, ductwork and equipment that interferes with new construction. In coordination with and with approval of Engineer, relocate piping, ductwork and equipment to permit new work to be provided as required by Contract Documents. Remove non-functioning and abandoned piping, ductwork and equipment as directed by Engineer. Dispose of or store items as requested by Engineer.
- B. Installation Only Items
  1. Where this contractor is required to install items which it does not purchase, it shall coordinate their delivery and be responsible for their unloading from delivery vehicles and for their safe handling and field storage up to the time of installation. This trade shall be responsible for:
    - a. Any necessary field assembly and internal connections, as well as mounting in place of the items, including the purchase and installation of all dunnage supporting members and fastenings necessary to adapt them to architectural and structural conditions.
    - b. Their connection to building systems including the purchase and installation of all terminating fittings necessary to adapt and connect them to the building systems.
  2. This contractor shall carefully examine such items upon delivery. Claims that any of these items have been received in such condition that their installation will require procedures beyond the reasonable scope of work of this contractor will be considered

only if presented in writing within one week of their date of delivery. Unless such claims have been submitted this contractor shall be fully responsible for the complete reconditioning or replacement of the damaged items.

- C. Maintenance of equipment and systems: Maintain HVAC equipment and systems until Final Acceptance. Ensure adequate protection of equipment and material during delivery, storage, installation and shutdown and during delays pending final test of systems and equipment because of seasonal conditions. Do not use boilers before providing water treatment where required; this includes use of boilers for temporary heat or for testing.
- D. Use of premises: Use of premises shall be restricted as directed by Engineer and as required below.
  - 1. Remove and dispose of dirt and debris, and keep premises reasonably clean. Upon completion of work, remove equipment and unused material. 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 CLEANING paragraph.
  - 2. It shall be this trade's responsibility to store his materials in a manner that will maintain an orderly clean appearance. If stored on-site in open or unprotected areas, all equipment and material shall be kept off the ground by means of pallets or racks, and covered with tarpaulins.
  - 3. Do not interfere with function of existing sewers and water and gas mains. Extreme care shall be observed to prevent debris from entering ductwork. Confer with Engineer as to disruption of heating services or other utilities due to testing or connection of new work to existing. Interruption of heating services shall be performed at time of day or night deemed by Engineer to provide minimal interference with normal operation. Obtain Engineer 's approval of the method proposed for minimizing service interruption.
- E. 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 written instructions have been issued by Engineer.
- F. Fireproofing:
  - 1. Clips, hangers, clamps, supports and other attachments to surfaces to be fireproofed shall be installed, insofar as possible, prior to start of spray fiber work.
  - 2. Ducts, piping and other items which would interfere with proper application of fireproofing shall be installed after completion of spray fiber work.
  - 3. Patching and repairing of spray fireproofing due to cutting or damaging to fireproofing during course of work specified under this Section shall be performed by installer of fireproofing and paid for by trade responsible for damage and shall not constitute grounds for an extra to OWNER.
- G. Temporary Heat:

1. Coordinate work under this Section with progress of construction so that permanent heating system will be ready to provide temporary heating if permitted by Engineer as soon as building is closed in.
2. Provide and direct labor required for attendance, operation and final restoration of permanent heating system if used for temporary heating purposes. Continuous direct attendance shall be provided whenever permanent system is in operation prior to acceptance of permanent heating system by OWNER's Project Manager.
3. Provide supplemental temporary heat if the permanent systems cannot be utilized after October 1<sup>st</sup> to meet the above requirements.

H. Gypsum Drywall Enclosures:

1. Coordinate and supervise construction of drywall and related work affecting work of this Section.
2. Work shall include but not be limited to following:
  - a. Supply and return air duct enclosures on rooftop air handling units.
  - b. Supply air plenums located above labs and computer rooms.
  - c. Return air shafts.
3. Ensure tightness of plenums and chases used as part of air distribution system. System will not be accepted until proved tight, without leakage. Notify Engineer in writing after system test for leakage, if construction and finish of plenums and ducts are not satisfactory.

I. Airbound Coils

1. If, after plant is in operation, any coils or other apparatus are stratified or air bound (by vacuum or pressure), they shall be repiped with new approved and necessary fittings, air vents, or vacuum breakers at no extra cost. If connections are concealed in furring, floors, or ceilings, this trade shall bear all expenses of tearing up and refinishing construction and finish, leaving same in as good condition as before it was disturbed.

**3.02 MATERIALS AND WORKMANSHIP**

- A. Work shall be neat and rectilinear. Ductwork and piping shall run concealed except in mechanical rooms and areas where no hung ceiling exists. Install material and equipment as required by manufacturers. Installation shall operate safely and without leakage, undue wear, noise, vibration, corrosion or water hammer. Work shall be properly and effectively protected, and pipe and duct openings shall be temporarily closed to prevent obstruction and damage before completion.
- B. Except as specified otherwise, material and equipment shall be new. Provide supplies, appliances and connections necessary for complete and operational installation. Provide components required or recommended by OSHA and applicable NFPA documents.
- C. References to manufacturers and to catalog designation, are intended to establish standards of quality for materials and performance but imply no further limitation of competitive bidding.
- D. Finish of materials, components and equipment shall be as approved by Engineer and shall be resistant to corrosion and weather as necessary.
- E. OWNER will not be responsible for material and equipment before testing and acceptance.

### 3.03 CONTINUITY OF SERVICES

- A. Do not interrupt existing services without the Architect's approval.
- B. Schedule interruptions in advance, according to the Architect's instructions. Submit, in writing, with request for interruption, methods proposed to minimize length of interruption.
- C. Interruptions shall be scheduled at such times of day and work so that they have minimal impact on the User Agency's operations.

### 3.04 TAGS

- A. Upon completion of work, attach engraved laminated tags to all valves (listed in the valve directory called for in the "Bulletins, Manuals and Instructions" paragraph of these specifications) and all pieces of HVAC equipment (including but not limited to pumps, fans, air handlers, coils and all other equipment listed in the HVAC schedules). Valve tags shall have black characters on white face, consecutively numbered and prefixed by letter "V". Equipment tags shall have black characters on white face, with labels corresponding to drawing schedule numbers.
- B. Embossed or engraved aluminum or brass tags may be substituted if desired. Tags shall be at least 1/8" thick.
- C. Valve tags shall be at least 1" in diameter with numerals at least 3/8" high and attached by "S" hooks or chains. Equipment tags shall be at least 2" diameter securely attached to apparatus.
- D. Provide manufacturers equipment nameplates, catalog numbers and rating identification securely attached to electrical and mechanical equipment with screws or rivets. Adhesives or cements will not be permitted.

### 3.05 PIPE AND DUCT IDENTIFICATION

- A. Ductwork shall be stenciled at each junction or branch takeoff, at least once in each room, and at intervals not longer than 20 ft. Stencil shall clearly identify duct service (S for supply, R for return, X for exhaust), area served by branch, and arrow indicating direction of flow.
- B. Provide color-coded pipe identification markers on piping installed under this Section. Pipe markers shall be snap-on laminated plastic protected by clear acrylic coating. Pipe markers shall be applied after architectural painting where such is required.
- C. Provide arrow marker with each pipe content marker to indicate direction of flow. If flow can be in either direction, use double-headed arrow marker.
- D. Mains shall be labeled at points of entrance and exit from mechanical room, adjacent to each valve, on each riser, at each tee fitting, at points of entrance and exit from building, at least once in each room, and at intervals no longer than 20 ft.
- E. Size of legend letters on markers and length of color field shall be per the latest edition of ANSI A13.1.
- F. Markers shall be "Setmark" by Seton Name Plate Corp. or approved equal.
- G. Following color coding shall be used with names in black letters on background and white letters on green background.

Service	Legend	Background Color
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Low Pressure Steam	LPS	Yellow
Condensate Return	LPR	Yellow
Pumped Condensate	PC	Yellow
Cold water	CW	Green
Drain	D	Yellow

H. Color banding shall meet latest edition of ANSI A13.1 and OSHA.

3.06 WELDING

- A. Weld only by approved acetylene or electric welding processes and welders shall hold certificate from approved insurance company.
- B. Conduct test to demonstrate suitability of procedures to be used in making welds which conform to specified requirements.
- C. Specification for welding procedure shall meet requirements of Welding Qualifications, Section IX, ASME Boiler and Pressure Vessel Code and ANSI B31.1.
- D. Align components. No strain shall be placed on weld during welding. No part of pipe shall be offset more than 20% of thickness. Set flanges and branches properly.
- E. Welder Qualification:
  1. Test welders to demonstrate ability to make acceptable welds. Tests conducted for qualification of welder for work under one Division or Section shall not qualify welder for work under another Division or Section.
  2. Tests shall be as prescribed for welder qualification in Section IX of the ASME code.
  3. Records of such tests shall be as follows: Each welder shall be assigned an identifying number, letter or symbol. Identifying mark shall be stamped adjacent to welds made by this welder. Identification shall be at top of horizontal piping and at front of vertical piping.
  4. Maintain record of welders employed, showing dates and results of tests and identifying mark assigned to each welder. Certify records and make them accessible to the OWNER Project Manager. Before completion of project, one copy of records shall be turned over to OWNER.
  5. No qualification shall be older than three years when welder commences work on this project. If welder has not welded in required welding process for a period of six months, he shall be re-certified.
- F. Welding Tests
  1. As designated by Engineer, remove welds for destructive testing or for testing by non-destructive means. Tests shall be as determined by Engineer.
  2. If, in Engineer's opinion, welds so tested do not meet requirements of Sections VIII and IX of ASME, remove welds welded by that welder, at no cost to OWNER. Rewelding shall be performed by qualified welder other than welder whose welds did not pass test. Welders whose welds were defective shall not be employed on site for remainder of project.

3. Welding of stanchions, brackets, anchors and other welding not performed on pipe joints shall be in accordance with requirements of AWS specifications and requirements.

### 3.07 PENETRATIONS AND SLEEVES

#### A. General

1. Provide pipe and duct sleeves and packing materials as specified and as shown on Drawings at penetrations of foundations, walls, slabs (except on-grade), partitions and floors. Sleeves shall meet NFPA-101 requirements and materials requirements of Part 2 of this Section.
2. Coordinate work carefully with architectural and structural work. Set sleeves in forms before concrete is poured. Provide core drilling as necessary if walls are poured, or otherwise constructed, without sleeves and a wall penetration is required. Provide core drilling as required for penetrations of existing construction. Do not penetrate structural members without Engineer's approval.
3. Sleeves for insulated pipe and duct in non-fire rated construction shall accommodate continuous insulation without compression. Sleeves and/or penetrations in fire rated construction shall be packed with fire rated material which shall maintain the fire rating of the wall. Seal ends of penetrations to provide continuous vapor barrier where insulation is interrupted. See Part Two of these specifications for requirements for packing materials.
4. Sleeves through floors shall be water-tight and shall extend 2" above floor surface.

#### B. Pipe Sleeves

1. Annular space between pipe and sleeve shall be at least 1/4".
2. Sleeves are not required for slabs-on-grade unless specified otherwise.
3. Sleeves and packing materials, through rated fire walls and smoke partitions shall maintain fire rating of construction penetrated.
4. Do not support piping risers on sleeves.

#### C. Duct Sleeves and Prepared Openings

1. Provide duct sleeves for round ducts 15" and smaller; provide prepared, framed openings for round ducts larger than 15" and for square, rectangular and flat oval ducts, except as specified otherwise. Sleeves shall meet SMACNA requirements.
2. Provide sleeves for ducts through 1-, 2- or 3-hour fire-rated construction and smoke partitions, regardless of size and shape of ducts. Sleeves shall maintain fire rating of construction penetrated. Sleeve and seal materials, construction and clearances shall meet requirements of SMACNA Fire Damper and Heat Stop Guide for Air Handling Systems.
3. Prepared openings shall be framed to provide 1" clearance between framing and duct or duct insulation.

#### D. Installation Testing, Listings and Approvals

1. Installation shall meet material manufacturer's recommendations exactly, particularly as regards safety, ventilation, removal of foreign materials and other details of installation. Dam openings as recommended. Remove flammable materials used for damming and forming seals in fire-rated construction.

2. Sleeve penetration methods shall be water- and gas-tight and shall meet requirements of ASTM E-119 Standard Methods of Fire Tests of Building Construction and Materials.
3. Fire-stop penetration seal methods and materials shall be FM-approved and UL-listed as applicable.
4. Inspect foamed sealants to ensure manufacturer's optimum cell structure and color ranges.

#### 3.08 ANCHORS AND INSERTS

- A. Inserts shall be iron or steel of type to receive machine bolt head or nut after installation. Inserts shall permit adjustment of bolt in one horizontal direction and shall develop strength of bolt when installed in properly cured concrete.
- B. Provide anchors as necessary for attachment of equipment supports and hangars.

#### 3.09 INSTALLATION OF EQUIPMENT

- A. Avoid interference with structure and with work of other trades, preserving adequate headroom and clearing doors and passageways, to satisfaction of Engineer and in accordance with code requirements. Installation shall permit clearance for access to equipment for repair, servicing and replacement.
- B. Install equipment so as to properly distribute equipment loads on building structural members provided for equipment support under other Sections. Roof-mounted equipment shall be installed and supported on structural steel provided under other Sections.
- C. Provide suspended platforms, strap hangers, brackets, shelves, stands or legs as necessary for floor, wall or ceiling mounting of equipment provided under this Section (e.g. heating and ventilating units, fans, ducts and piping) as indicated on Drawings and in Specifications.
- D. Provide steel supports and hardware for proper installation of hangers, anchors, guides, etc.
- E. Provide cuts, weights, and other pertinent data required for proper coordination of equipment support provisions and installation.
- F. Structural steel and hardware shall conform to Standard Specifications of ASTM; use of steel and hardware shall conform to requirements of Section Five of Code of Practice of American Institute of Steel Construction.
- G. Verify site conditions and dimensions of equipment to ensure access for proper installation of equipment without disassembly which will void warranty. Report in writing to Engineer, prior to purchase or shipment of equipment involved, on conditions which may prevent proper installation.

#### 3.10 PAINTING

- A. Equipment installed under this Section shall have shop coat of non-lead gray paint. Hangers and supports shall have one coat of non-lead red primer. Machinery such as pumps, fans, etc., shall be stenciled with equipment name. Stencil shall be at least 6" high for large equipment, 2" high for small equipment. Finish painting, including painting of various piping and duct systems, shall be done under other Sections.

- B. Note requirement for Engineer 's approval invoked under Part 3 article, MATERIALS AND WORKMANSHIP regarding finish of material and equipment which are visible or subject to corrosive or atmospheric conditions.

### 3.11 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. Take-offs from mains to runouts shall not have less than three elbow swing.
- B. Mains and risers with loops or offsets shall be securely anchored to structure so as to impart expansion towards loops or offsets. Anchors shall be constructed of heavy forged wrought iron, secured to pipe and to structure. Provide vibration isolation as required.
- C. Provide pipe alignment guides as required to guide expanding pipe to move freely from anchor points toward expansion joints, offsets, etc.
- D. Expansion compensation is required at building expansion joint.

### 3.12 CLEANING

- A. Ductwork
  - 1. Ducts shall be thoroughly cleaned so that no dirt or dust shall be discharged from diffusers, registers or grilles, when system is operated.
  - 2. Provide temporary connections required for cleaning. Provide cheesecloth for openings during cleaning.
  - 3. Replace filters prior to final inspection and testing.
- B. Piping
  - 1. Furnish pipe cleaning chemicals, chemical feed equipment, materials and labor necessary to clean piping.
  - 2. Permanently install necessary chemical injection fittings complete with stop valves.
  - 3. After heating hot water piping have been pressure tested and approved for tightness, clean and flush piping specified under WATER TREATMENT Paragraph.
  - 4. Maintain continuous blowdown and make-up, as required during flushing operation.
- C. Equipment
  - 1. After completion of project, clean the exterior surface of equipment included in this section, including concrete residue.

### 3.13 STARTUP, TESTING AND BALANCING

- A. General
  - 1. Provide qualified personnel, equipment, apparatus and services for start up, testing and balancing of mechanical systems, to performance data shown in schedules, as specified, and as required by codes, standards, regulations and authorities having jurisdiction including City Inspectors, Owner's Project Manager and Designer. Note that some ATC start up procedures listed below require the cooperation of the balancing contractor and the equipment manufacturer's representative and some balancing procedures require the cooperation of the ATC contractor and the manufacturer representative (if appropriate). Ensure that all contractors are present on

site during the entire time that these procedures take place. Note that some procedures listed below have a distinct order of precedence, e.g., the testing of the temperature control system shall not occur until major pieces of mechanical equipment have been started up and testing is complete. Ensure that any listed orders of precedence for procedures are followed.

2. Startup, testing and balancing shall not diminish guarantee requirements.
3. Notify Designer and authorities involved at least two weeks before startup testing and balancing begins.
4. Before temperature control testing begins a meeting shall be held between the HVAC engineer, the balancing contractor, the automatic temperature control contractor and the mechanical contractor. The mechanical contractor shall present the HVAC engineer with the completed checklists (contained in this specification) certifying that equipment startup and testing has been completed. The temperature control contractor shall then present his procedures for testing the ATC system to the HVAC engineer for review and approval. Allow one full day for this meeting.
5. When the temperature control testing has been completed a second meeting shall be held. At this time the temperature control contractor shall present the HVAC engineer with the completed controls startup checklist (contained in this specification). The balancing contractor shall present HVAC engineer with certificates of calibration for balancing instruments, proposed balancing forms and proposed balancing procedures to the HVAC engineer, for review and approval. Allow one full day for this meeting.
6. If, through no fault of the Designer, the above two meetings do not take place and the temperature control startup and balancing proceeds the following shall occur.
  - a. All balancing reports shall be rejected.
  - b. The contractors requisition for monies covering the ENTIRE portion of the testing and balancing work will be rejected. Others will be hired to complete the work. These requirements shall be strictly enforced.
7. Do not cover or conceal work before testing and inspection and obtaining approval.
8. Instruments for testing and balancing shall have been calibrated within one month prior to testing and balancing. Calibration shall be traceable to NBS Standards. Provide Photostat of certificate of calibration to Designer 's representative at meeting demonstrating balancing procedures mentioned in Paragraph 4 above.
9. Leaks, damage and defects discovered or resulting from startup, testing and balancing shall be repaired or replaced to like new condition with acceptable materials. Tests shall be continued until system operates without adjustments or repairs.
10. Report on reporting forms, submitted to Designer for approval in advance, and on forms provided by Designer.
11. For each piece of equipment, copy nameplate data and include in report.
12. Submit six copies of testing and balancing reports to Designer for approval.
13. Provide capacity and performance of equipment by field testing. Install equipment and instruments required for testing, thermo wells and gauge connections at no additional cost to the Owner.
14. Qualified representative of equipment manufacturer shall be present at test.
15. Startup, testing and balancing procedures outlined below are the minimum effort required for the project. Contractor shall use any additional procedures he feels will be necessary to properly startup, test and balance the job.

16. Completed Prefunctional Checklists provided by the Commissioning Agent and completed by the contractor, signed by a qualified technician and dated on the date of completion, in accordance with the requirements of 019113 – GENERAL COMMISSIONING REQUIREMENTS.

B. Equipment Startup

1. Start up the following pieces of equipment in strict accordance with manufacturers instructions and with manufacturers representative present:
  - a. Condensate Pumps
  - b. Complete the following checklist to certify to the Designer that startup of the above pieces of equipment has successfully been accomplished. Copy multiple checklists as required. Edit inappropriate items as required.

EQUIPMENT LIST	DATE CONFIRMED	MANUFACTURERS REPRESENTATIVE NAME AND SIGNATURE	CONSTRUCTION MANAGER REPRESENTATIVE NAME AND SIGNATURE
Condensate Pumps (LIST NOS. BELOW)			

C. Equipment and Piping Testing

1. Tests: No tests shall be started until systems have been cleaned as described under CLEANING Paragraph. Provide temporary piping and connections for testing, flushing or draining systems to be tested. If leaks develop, repairs shall be made and tests repeated. Tests shall be continued until systems operate without adjustments and repair to equipment or piping. Tests are further specified under other paragraphs of this Section. Test requirement specifically includes, but is not limited to the following:
  - a. Condensate Pump
2. Circulating Water Pumps and Fans
  - a. Take field measurements on vibration and alignment of pumps, and fans driven by motors over 10 hp. Readings shall include:
    - (1) Shaft alignment
    - (2) Equipment vibration
    - (3) Bearing housing vibration
    - (4) Foundation vibration
    - (5) Building structure vibration
    - (6) Readings directed by Designer
    - (7) Maximum vibration at any point listed shall not exceed 2 mils.
  - b. Hydrostatic Test of Piping
    - (1) Conduct hydrostatic leak tests in accordance with ANSI B31.3, Power Piping Code.

- (2) Testing medium shall be water at ambient temperature.
- (3) When designated test pressure is applied, connections shall be inspected by Designer's representative for acceptance.
- (4) Leaks discovered during testing shall be repaired at no cost to the Owner; retest system.
- (5) Isolate system piping from system components during test.
- (6) If any thermostatic traps are present, isolate and remove them before and during testing.
- (7) Before test, piping shall be cleaned and flushed as required under CLEANING Paragraph.
- (8) After testing, stuffing boxes and valves shall be repacked as directed by Engineer.
- (9) Test pressurized piping system to 150% of design operating pressure, no more than 500 psi and no less than 125 psi.

3. When testing is complete fill in the following checklist certifying satisfactory completion of testing. Make multiple copies of checklist as required, edit out items which are not appropriate.

#### EQUIPMENT AND PIPING TESTING CHECKLIST

TEST ITEM	DATE CONFIRMED	MANUFACTURERS REPRESENTATIVE NAME AND SIGNATURE	CONSTRUCTION MANAGERS REPRESENTATIVE NAME AND SIGNATURE
VIBRATION AND ALIGNMENT			
PUMPS			
HYDROSTATIC TESTS OF PIPING			

#### D. Air and Water Balancing

1. General
  - a. Provide qualified personnel, equipment and services for balancing and adjusting of mechanical systems. Submit resumes at demonstration of balancing meeting.
  - b. Personnel shall be experienced and qualified to perform, record, and evaluate all procedures contained here and/or as outlined on drawings.

- c. For each air handler on job, provide, under the work of the mechanical section, one spare sheave of size to be determined after traverses are complete.
- d. Submit procedures, recording forms, and test equipment for review prior to balancing, as described in Paragraph A.4 above.
  - (1) Balancing procedure or sequence is contained herein.
  - (2) Recording forms used for balancing must be submitted to Designer for approval before balancing is started.
    - (a) Failure to submit forms will result in rejection of entire submittal.
    - (b) Submit description of balancing equipment being used.
  - (3) Balancing shall not begin until system has been installed complete and capable of normal operation.
    - (a) All grilles, dampers, fans, coils, pumps, valves and linkages shall be installed and operating prior to balancing.
    - (b) System shall be capable of operating under control as specified on drawings and/or contained herein.
  - (4) Independent balancing agency shall have the following qualifications:
    - (a) Agency is known to have specialized in balancing commercial HVAC system for at least 3 years.
    - (b) Agency shall provide proof of qualifications to Designer's satisfaction. Qualification shall include submitted at least three sample balancing reports prepared for commercial HVAC system over 100,000 ft<sup>2</sup> in floor area.
    - (c) Agency employed balancing technicians shall be qualified to balance HVAC system to Designer's satisfaction. Submit resume of technician.
    - (d) At least one balancing technician shall remain on from start to acceptance of final balance report.
    - (e) Agency shall be approved by Designer.

2. Water Balancing and Adjusting

- a. Balancing shall not begin until systems have been installed complete, including pumps, piping, valves and coils.
- b. Make adjustments as required to deliver water volumes at coils and equipment within 5% of design flow, or as required to properly balance cooling and heating loads throughout conditioned areas.
- c. Adjustments in water volumes shall be made in manner satisfactory to Designer.
- d. Report on system performance shall include:
  - (1) Manufacturer, size, type, location including room number, and zone of each coil and piece of equipment.
  - (2) Design and actual water flow.
  - (3) Complete nameplate data for each piece of equipment reported.
  - (4) Complete identification of data.

END OF SECTION

SECTION 260001

ELECTRICAL WORK

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the Specifications.
- B. Time, Manner and Requirements for Submitting Sub-Bids:
  - 1. Sub-bids for work under this Section shall be for the complete work and shall be submitted through DCAMM's E-Bid Room as stipulated in the DCAMM Instructions to Bidders.
  - 2. Sub-bids filed with the Division of Capital Asset Management and Maintenance shall be accompanied by BID BOND or CASH or CERTIFIED CHECK or TREASURER'S CHECK or CASHIER'S CHECK issued by a responsible bank or trust company payable to the Commonwealth of Massachusetts in the amount of five percent of the sub-bid. A sub-bid accompanied by any other form of bid deposit than those specified will be rejected.
- C. Sub Sub-Bid Requirements:
  - 1. Sub bidder's attention is directed to Massachusetts G.L. Chapter 149 Section 44F, as amended, which provides in part as follows.
  - 2. Each sub-bidder shall list in Paragraph E of the "Form for Sub-bids" the name and bid price of each person, firm or corporation performing each class of work or part thereof for which the Section of the Specifications for that sub trade requires such listing, provided that, in the absence of a contrary provision in the Specifications, any sub-bidder may, without listing any bid price, list his own name or part thereof and perform that work with persons on his own payroll, if such sub-bidders, after sub-bid openings, shows to the satisfaction of the Awarding Authority that he does customarily perform such class of work with persons on his own payroll and is qualified to do so. This Section of the Specifications requires that the following classes of work shall be listed in Paragraph E under the conditions indicated herein.

CLASS OF WORK

REFERENCE SECTION

None

- D. Reference Drawings: The Work of this Filed-Sub Bid is shown on the following Contract Drawings:

E-000                    Electrical Legend and Schedules

## E-100 Electrical Basement Floor Plan

## 1.2 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
  - 1. All Work of the following sections:
  - 2. Certified seismic restraints to meet the Commonwealth of Massachusetts Building Code applicable at the time the building permit is issued.
  - 3. Coordination drawings and record drawings and similar requirements.
  - 4. CAMIS excel spreadsheet data collection for Equipment Template and PM Procedure tabs as described in Section 017700 - CONTRACT CLOSEOUT
- B. Alternates: Not Applicable.
- C. Items to Be Installed Only: Install the following items as furnished by the designated Sections:
  - a. None.
- D. Items to Be Furnished Only: Furnish the following items for installation by the designated Sections:
  - a. None
- E. Related Work: The following items are not included in this Section and will be performed under the designated Sections:
  - 1. Section 312000 – EARTH MOVING for excavation and backfilling for underground work.
- F. The Electrical Sub-Contractor shall be responsible for filing all documents, payment of all fees, and securing of all inspections and approvals necessary for the electrical work.

### 1.3 SUBMITTALS

- A. Comply with requirements specified in Section 013300 – SUBMITTAL REQUIREMENTS.
- B. Shop Drawing: Shop drawings shall include, but not be limited to, the following:
  - 1. Hangers and supports.
  - 2. Wiring and cables.
  - 3. Grounding and bonding.
  - 4. Conduit.
  - 5. Boxes and fittings.
  - 6. Safety switches.

## 1.4 REFERENCES

A. Except where modified by a specific notation to the contrary, it shall be understood that the indication and/or description of any electrical item in the drawings or specifications for

electrical work carries with it the instruction to furnish, install and connect the item as part of the electrical work, regardless of whether or not this instruction is explicitly stated.

B. It shall be understood that the specifications and drawings for electrical work are complimentary and are to be taken together for a complete interpretation of the electrical work except that indications on the drawings, which refer to an individual element of work, take precedence over the specifications where they conflict with same.

#### 1.5 REGULATORY REQUIREMENTS

- A. Comply with all applicable federal and state laws, and all local codes, by-laws and ordinances.
- B. Where provisions of the Contract Documents conflict with any codes, rules or regulations, the latter shall govern. Where the contract requirements are in excess of applicable codes, rules or regulations, the contract provisions shall govern unless the Designer rules otherwise.
- C. Request inspections from authorities having jurisdiction, obtain all permits and pay for all fees and inspection certificates as applicable and/or required. All permits and certificates shall be turned over to the DCAMM's Project Manager s at the completion of the work. Copies of permits shall be given to the resident engineer prior to the start of work.
- D. Unless otherwise specified or indicated, materials and workmanship and equipment performance shall conform with the latest edition of the following standards, codes, specifications, requirements and regulations:
  1. State Building Code
  2. State Electrical Code
  3. National Fire Protection Association (NFPA)
  4. Local Town Regulations and By-laws
  5. Underwriter's Laboratories, Inc. (UL)
  6. National Electrical Manufacturer's Association (NEMA)
  7. American National Standards Institute (ANSI)
- E. All electrical work shall meet or exceed any other state and local codes and/or authorities having jurisdiction including all other standards indicated herein.

#### 1.6 SURVEYS AND MEASUREMENTS

- A. Base all required measurements, both horizontal and vertical, on reference points established by the Construction Manager and be responsible for the correct laying out of the electrical work. In the event of a discrepancy between actual measurements and those indicated, notify the Construction Manager in writing, and do not proceed with the work required until written instructions have been issued by the Construction Manager.

#### 1.7 COORDINATION

- A. HVAC, Plumbing, Fire Protection, and Electrical Drawings are diagrammatic. They indicate general arrangements of mechanical and electrical systems and other work. They do not show

all offsets required for coordination nor do they show the exact routings and locations needed to coordinate with structure and other trades and to meet architectural requirements.

1. Grounding: Plans showing dimensioned locations of grounding features specified including test wells, ground rods, ground rings, grounding arrangements and connections for separately derived systems.
- B. Work shall be performed in cooperation with other trades on the project and so scheduled as to allow speedy and efficient completion of the work.
- C. Furnish to other trades advance information on locations and sizes of all frames, boxes, sleeves and openings needed for their work, and also furnish information and shop drawings necessary to permit trades affected by the work to install same properly and without delay.
- D. In all spaces, prior to installation of visible material and equipment, including access panels, review Architectural Drawings for exact locations and where not definitely indicated, request information from Designer. Where the electrical work shall interfere with the work of other trades, assist in working out the space conditions to make satisfactory adjustments before installation. Without extra cost to DCAMM, make reasonable modifications to the work as required by normal structural interferences. Pay the Construction Manager for additional openings, or relocating and/or enlarging existing openings through concrete floors, walls, beams and roof required for any work which was not properly coordinated. Maintain maximum headroom at all locations. All piping, duct, conduit, and associated components to be as tight to underside of structure as possible.
- E. If any electrical work has been installed before coordination with other trades so as to cause interference with the work of such trades, all necessary adjustments and corrections shall be made by the electrical trades involved without extra cost to DCAMM.
- F. Where conflicts or potential conflicts exist and engineering guidance is desired, submit sketch of proposed resolution to Designer for review and approval.
- G. Protect all materials and work of other trades from damage which may be caused by the electrical work, and repair all damages without extra cost to DCAMM.

#### 1.8 MECHANICAL AND ELECTRICAL COORDINATION

- A. All power wiring and local disconnect switches will be provided by the Electrical Subcontractor for the line voltage power. All control and interlocking wiring shall be the responsibility of the Heating and Ventilating Subcontractor.
- B. 120V and above power wiring sources extended and connected to heating and ventilating control panels, transformers and switches shall be the responsibility of the Electrical Subcontractor. All low voltage thermostat, zone valve and any switch wiring shall be the responsibility of the Heating and Ventilating Subcontractor.
- C. The Electrical Subcontractor will provide all magnetic starters except those furnished as an integral part of packaged equipment.

1.9 MECHANICAL AND ELECTRICAL COORDINATION DRAWINGS

- A. Refer to Section 013100 – PROJECT MANAGEMENT AND COORDINATION for coordination drawing requirements

1.10 INSTALLATION REQUIREMENTS

- A. The arrangement of all electrical work shown on the drawings is diagrammatic only and indicates the minimum requirements of the work. Conditions at the building including actual measurements shall determine the details of the installation. All work shall be laid out and installed so as to require the least amount of cutting and patching.
- B. Check the architectural plans and specifications before ordering any material and equipment. Any discrepancies shall be brought to the attention of the Designer for his determination prior to proceeding with the work.

1.11 TYPICAL DETAILS

- A. Typical details where shown on the drawings shall apply to each and every item of the project where such items are applicable. They are not repeated in full on the drawings, which in many cases are diagrammatic only, but with the intention that such details shall be incorporated in full. Any alternate method proposed for use by the Contractor shall have the prior approval of the Designer.

1.12 SLEEVES, INSERTS

- A. Furnish and install all sleeves, inserts, anchor bolts and similar items to be set into masonry or concrete, as required for mechanical and electrical work. Internal diameter of sleeve shall be 2" larger than the outside diameter of the pipe or insulation covered line passing through it.

1.13 ACCESSIBILITY

- A. Install all work such that parts requiring periodic inspection, operation, maintenance and repair are readily accessible.
- B. Furnish all access panels appropriate to particular conditions, to be installed by trades having responsibility for the construction of actual walls, floors or ceilings at required locations.

1.14 SUPPLEMENTARY SUPPORTING STEEL

- A. Provide all supplementary steelwork required for mounting or supporting equipment and materials.
- B. Steelwork shall be firmly connected to building construction as required.

- C. Steelwork shall be of sufficient strength to allow only minimum deflection in conformity with manufacturer's published requirements.
- D. All supplementary steelwork shall be installed in a neat and workmanlike manner parallel to floor, wall and ceiling construction; all turns shall be made at forty-five and ninety degrees, and/or as dictated by construction and installation conditions.
- E. All manufactured steel parts and fittings shall be galvanized.

1.15 TOOLS AND EQUIPMENT

- A. Provide all tools and equipment required for the fabrication and installation of the mechanical and electrical equipment at the site.

1.16 PORTABLE AND DETACHABLE PARTS

- A. Contractors shall retain in their possession all portable and/or detachable parts and portions of materials, devices, equipment etc. necessary for the proper operation and maintenance of the mechanical and electrical systems until final completion of the work, at which time they shall be handed over to DCAMM's Project Manager.

1.17 RECORD DRAWINGS, PROJECT CLOSEOUT

- A. Comply with requirements specified in Section 017700 – CONTRACT CLOSEOUT.
- B. This trade shall submit the record set for approval by the fire and building departments in a form acceptable to the departments, when required by the jurisdiction.
- C. Drawings shall show record condition of details, sections, riser diagrams, control changes and corrections to schedules. Schedules shall show actual manufacturer and make and model numbers of final equipment installation.

1.18 GUARANTEE/WARRANTY

- A. Guarantee Work of this Section in writing for one year from the date of Certificate of Agency Use and Occupancy. Guarantees or warranties that start at the date of shipment from the factory, or from the completion date of an individual portion of the project, are not acceptable. The guarantee shall repair or replace defective materials, equipment, workmanship and installation that develop within this period, promptly and to Designer's satisfaction and correct damage caused in making necessary repairs and replacements under guarantee within Contract Price.
- B. In addition to guarantee requirements of Division 01 and of Subparagraph A above, obtain written equipment and material warranties offered in manufacturer's published data without exclusion or limitation, in User Agency's name.

1. Upon receipt of notice from DCAMM's Project Manager of failure of any part of the systems or equipment during the warranty period, the affected part or parts shall be replaced by this Contractor without any reimbursement.
2. At nine months into the one-year guarantee period, the contractor shall perform a 100% test of all installed equipment. Any device and/or part found to be defective shall be repaired and/or replaced at no cost to DCAMM. The Contractor shall notify the fire department one month in advance of the 100% test.
3. Replace material and equipment that require excessive service during guarantee period as defined and as directed by Designer.
4. Provide 24 hour service beginning on the date the project is accepted by DCAMM, whether or not fully occupied, and lasting until the termination of the guarantee period. Service shall be at no cost to DCAMM. Service can be provided by this contractor or a separate service organization. Choice of service organization shall be subject to Designer and DCAMM's Project Manager's approval. Submit name and a phone number that will be answered on a 24-hour basis each day of the week, for the duration of the service.
5. Submit copies of equipment and material warranties to Designer before final payment.
6. At end of guarantee period, transfer manufacturers' equipment and material warranties still in force to User Agency.
7. This Paragraph shall not be interpreted to limit DCAMM's rights under applicable codes and laws and under this Contract.
8. Part 2 Paragraphs of this Specification may specify warranty requirements that exceed those of this Paragraph. Those paragraphs will govern.
9. Use of systems provided under this Section for temporary services and facilities shall not constitute Final Acceptance of work by DCAMM's Project Manager, and shall not initiate the guarantee period.
10. Non-durable items, such as electric lamps, shall be replaced up to the date of acceptance, such that they shall have had no more than 100 hours use prior to this date.
11. Provide manufacturer's engineering and technical staff at site to analyze and rectify problems that develop during guarantee period immediately. If problems cannot be rectified immediately to DCAMM's Project Manager's satisfaction, advise Designer in writing, describe efforts to rectify situation, and provide analysis of cause of problem. Designer will direct course of action.

#### 1.19 OPERATING, INSTRUCTION AND MAINTENANCE MANUALS

- A. Comply with requirements specified in Section 017700 – CONTRACT CLOSEOUT, including CAMIS spreadsheet data collection for Equipment Template and PM Procedure tabs.
- B. Each copy of the approved operating and maintenance manual shall contain copies of approved shop drawings, equipment literature, cuts, bulletins, details, equipment and engineering data sheets and typewritten instructions relative to the care and maintenance for the operation of the equipment, all properly indexed. Each manual shall have the following minimum contents:

1. TABLE OF CONTENTS
2. Introduction
  - a. Explanation of manual and its purpose and use.
  - b. Description of the electrical systems.
  - c. Safety precautions necessary for equipment.
  - d. Illustrations, schematics and diagrams.
  - e. Installation drawing.

3. Maintenance
  - a. Maintenance and lubricating instructions.
  - b. Replacement charts.
  - c. Trouble shooting charts for equipment components.
  - d. Testing instructions for each typical component.
  - e. Two typed sets of instructions for ordering spare parts. Each set shall include name, price, telephone number and address of where they may be obtained.
4. Manufacturer's Literature
  - a. The equipment for which shop drawings have been submitted and approved.
  - b. Power Monitoring: Software and Firmware Operational Documentation:
    - 1) Software operating and upgrade manuals.
    - 2) Software licenses.
    - 3) Software service agreement.
    - 4) PC installation and operating documentation, manuals, and software for the PC and all installed peripherals. Provide separately for each PC.
    - 5) Hard copies of manufacturer's specification sheets, operating specifications, design guides, user's guides for software and hardware, and PDF files on compact disk or portable storage device with a USB interface of the hard-copy submittal.
    - 6) Program Software Backup: On compact disk or portable storage device with a USB interface, complete with data files.
    - 7) Device address list.
    - 8) Printout of software application and graphic screens.

#### 1.20 QUALITY ASSURANCE

- A. The requirements of the State Building Code and local regulations establish the minimum acceptable quality of workmanship and materials, and all work shall conform thereto unless more stringent requirements are indicated or specified herein.
- B. All work shall comply with the latest editions of the codes as referenced herein.
- C. Follow manufacturer's directions for articles furnished, in addition to directions shown on drawings or specified herein.
- D. Protect all work, materials, and equipment from damage during process of work. Replace all damaged or defective work, materials and equipment without additional cost to DCAMM.
- E. All equipment and materials for permanent installation shall be the products of recognized manufacturers and shall be new.
- F. Equipment and materials shall:
  1. Where normally subject to Underwriters Laboratory Inc. listing or labeling services, be so listed or labeled.
  2. Be without blemish or defect.
  3. Not be used for temporary light and power purposes.
  4. Be in accordance with the latest applicable NEMA standards.
  5. Be products which will meet with the acceptance of all authorities having jurisdiction over the work. Where such acceptance is contingent upon having the products examined,

tested and certified by Underwriters or other recognized testing laboratory, the product shall be so examined, tested and certified.

- G. Except for conduit, conduit fittings, outlet boxes, wire and cable, all items of equipment or material of one generic type shall be the product of one manufacturer throughout.
- H. For items which are to be installed but not purchased as part of the electrical work, the electrical work shall include:
  - 1. The coordination of their delivery.
  - 2. Their unloading from delivery trucks driven into any point on the property line at grade level.
  - 3. Their safe handling and field storage up to the time of permanent placement in the project.
  - 4. The correction of any damage, defacement or corrosion to which they may have been subjected. Replacement if necessary shall be coordinated with Contractor who originally purchased the item.
  - 5. Their field make up and internal wiring as may be necessary for their proper operation.
  - 6. Their mounting in place including the purchase and installation of all dunnage, supporting members, and fastenings necessary to adapt them to architectural and structural conditions.
  - 7. Their connection to building wiring including the purchase and installation of all termination junction boxes necessary to adapt and connect them to this wiring. Included also shall be the purchase and installation of any substitute lugs or other wiring terminations as may be necessary to adapt their terminals to the building wiring as called for and to the connection methods set forth in these specifications.
- I. Items which are to be installed but not purchased as part of the electric work shall be carefully examined upon delivery to the project. Claims that any of these items have been received in such condition that their installation will require procedures beyond the reasonable scope of the electric work will be considered only if presented in writing within one week of the date of delivery to the project of the items in question. The electric work includes all procedures, regardless of how extensive, necessary to put into satisfactory operation, all items for which no claims have been submitted as outlined above.

## 1.21 DELIVERY, STORAGE AND HANDLING

- A. All materials for the work of this section shall be delivered, stored and handled so as to preclude damage of any nature. Manufactured materials shall be delivered and stored in their original containers, plainly marked with the products' and manufacturer's name. Materials in broken containers or in packages showing watermarks or other evidence of damage, shall not be used and shall be removed from the site.
- B. Transformers: On receipt, inspect for and note any shipping damage to packaging and transformer.
  - 1. If manufacturer packaging is removed for inspection, and transformer will be stored after inspection, re-package transformer using original or new packaging materials that provide protection equivalent to manufacturer's packaging.
  - 2. Store in a warm, dry, and temperature-stable location in original shipping packaging.

3. Apply temporary heat according to manufacturer's written instructions within the enclosure of each ventilated-type unit, throughout periods during which equipment is not energized and when transformer is not in a space that is continuously under normal control of temperature and humidity.
4. Follow manufacturer's instructions for lifting and transporting transformers.

1.22 TEMPORARY POWER AND LIGHTING

- A. The Electrical Subcontractor shall furnish and install feeders for temporary construction power as indicated in Section 015000 Temporary Facilities.
- B. All necessary transformers, wood poles, overhead cables, wiring and conduit, panelboards, switches, temporary lamp replacements and accessories required for the temporary light and power installation shall be provided by the Electrical Subcontractor.
- C. The Electrical Subcontractor shall provide and maintain on each floor of the building, a feeder or feeders of sufficient capacity for the requirements of the entire floor and he shall provide a sufficient number of outlets, located at convenient points, so that extension cords of not over 50 ft. in length will reach all work requiring temporary light or power.
- D. The Electrical Subcontractor shall install and maintain the wiring and accessories for the offices of the Construction Manager and DCAMM's Project Manager as specified in the contract form.
- E. All temporary electrical work shall meet the requirements of the National Electrical Code Article 305 Temporary Wiring, the Local Utility Company, and all Federal Standards and Laws.
- F. All temporary wiring and accessories thereto installed by the Electrical Subcontractor shall be removed after their purposes have been served.
- G. All lamps installed in permanent lighting fixtures and used for lighting during construction shall be replaced by the Electrical Subcontractor just prior to date of Use and Occupancy or Final Acceptance.
- H. Provide all temporary power required above during the normal working hours of the project or a total of ten (10) hours per normal working day; Saturdays, Sundays and legal holidays are excluded. The ten hours per day shall include manning the temporary power and lighting 2 hour before and 2 hour after a normal eight (8) hour working day. In addition to the above, provide and maintain, to the satisfaction of the local authorities having jurisdiction, all temporary lighting and power that may be required for safety purposes. The Electrical Subcontractor will be compensated by the Construction Manager for any additional standby time, materials or equipment required by the Construction Manager or other Subcontractors beyond the normal working hours, as defined above.

1.23 STAGING AND SCAFFOLDING

- A. Refer to requirements specified hereinabove.

1.24 EXTRA MATERIALS

- A. Furnish extra materials described in following product specification sections that match products installed, are packaged with protective covering for storage, and are identified with labels clearly describing contents.

1.25 PHASING, DEMOLITION AND MAINTAINING EXISTING SERVICES

- A. Refer to Phasing in Section 011000 Summary.
- B. During the execution of the work, required relocation, etc., of existing equipment and systems in the existing building areas where new work is to be installed or new connections are scheduled to be made, shall be performed by the Electrical Subcontractor, as required by job conditions and as determined by the Designer in the field, to facilitate the installation of the new system, while demolition, relocation work or new tie ins will be performed. Outages required for construction purposes shall be scheduled for the shortest practical periods of time, in coordination with the User Agency's designated representative, for specified, mutually agreeable periods of time, after each of which the interruption shall cease and the service shall be restored. This procedure shall be repeated to suit the User Agency's working schedule, as many times as required until all work is completed. Any outages of service shall be approved by DCAMM's Project Manager, prior to commencing the work. No outages or shutdowns of service shall occur without the written authorization of the DCAMM's Project Manager prior to commencing the work. Give notice of any scheduled shutdowns, a minimum of weeks in advance. User Agency shall make their best efforts to meet this request without adversely affecting the electric service to the existing building.
- C. Prior to any deactivation and relocation or demolition work, consult the drawings and arrange a conference with the Designer and the DCAMM's Project Manager in the field to inspect each of the items to be deactivated, removed or relocated. Care shall be taken to protect all equipment designated to be relocated and reused or to remain in operation and be integrated with the new systems.
- D. All deactivation, relocation and temporary tie ins of electrical systems and equipment shall be provided by the Electrical Subcontractor. All demolition and removal of electrical systems and equipment designed to be demolished shall be provided by the Electrical Subcontractor. Place all demolished electrical materials except hazardous materials (PCB lighting ballasts, fluorescent lamps, etc.) As determined by the Authority having jurisdiction in Construction Managers provided dumpster. All hazardous electrical materials shall be legally disposed by the electrical subcontractor.
- E. DCAMM's Project Manager reserves the right to inspect the material scheduled for removal and salvage any items he deems usable as spare parts.
- F. Phasing:
  1. The Electrical Subcontractor shall construct the subject project in phases as directed by the Designer to suit the project progress schedule, as well as the completion date of the project.
  2. For additional information related to phasing, review the General Conditions and Supplementary Conditions and the architectural drawings.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. Product specifications are written in such a manner so as to specify what materials may be used in a particular location or application and therefore do not indicate what is not acceptable or suitable for a particular location or application. As an example: non-metallic sheathed cable is not specified; therefore, it is not acceptable.
- B. For purpose of establishing a standard of quality and not for purpose of limiting competition, the basis of this Specification is upon specified models and types of equipment and materials, as manufactured by specified manufacturers.
- C. In all cases, standard cataloged materials and systems have been selected. Materials such as lighting fixtures specially manufactured for this particular project and not part of a manufacturers standard product line will not be acceptable. In the case of systems, the system components shall be from a single source regularly engaged in supplying such systems. A proposed system made up of a collection of various manufacturers products will be unacceptable.

### 2.2 RACEWAYS AND FITTINGS

- A. Raceways - General:
  - 1. No raceway shall be used smaller than 3/4" diameter. No conduit shall have more than three (3) 90 degree bends in any one run, and where necessary, pull boxes shall be provided. Intermediate metal conduit is not allowed.
  - 2. Rigid metal conduit conforming to, and installed in accordance with, Article 346 of NFPA 70 shall be heavy wall zinc coated steel conforming to American Standard Specifications C80-1 and may be used for service work, exterior work, slab work, and below grade level slab, wet locations, and in mechanical rooms and where raceway may be subject to mechanical damage, i.e., loading docks, work shops, etc.
  - 3. Flexible metal conduit shall be used for connections to recessed lighting fixtures and motors. Liquid tight flexible metal conduit shall be used for the above connections which are located in moist locations. All flexible connections shall include a grounding conductor.
  - 4. Rigid non-metallic conduit may be used at the contractors option for underground electric and telephone services outside the foundation wall and shall be polyvinyl chloride (PVC) schedule 40, 90oC. If option of rigid non-metallic conduit is exercised, underground runs outside the foundation wall shall be concrete encased at contractor's expense.
  - 5. Fittings:
    - a. Provide insulated bushings on all raceways 1 inch diameter or larger.
    - b. Manufacturer's standard fittings shall be used for raceway supports.
    - c. Expansion Fittings: Expansion fittings shall be used where structural and concrete expansion joints occur and shall include a ground strap.
    - d. Couplings for rigid metal conduit shall be threaded type.
    - e. Threadless fittings for EMT shall be watertight compression type. Set-screw type fittings are not acceptable. All fittings shall be concrete tight. No diecast fittings allowed except for raceways larger than 1 inch diameter.

- f. Cable supports in vertical raceways shall be of the split wedge type. Armored cable supports for vertical runs to be of wire mesh basket design.
- g. Wall entrance seals shall be equal to O.Z. Gedney type "WSK".
- h. Couplings, elbows and other fittings used with rigid nonmetallic raceways shall be of the solvent cemented type to secure a waterproof installation.
- i. Acceptable Manufacturers:
  - 1) O.Z.
  - 2) Crouse Hinds
  - 3) Appleton
  - 4) EFCOR
  - 5) Steel City

## 2.3 WIRING MATERIALS

- A. Building Wire and Cable shall be copper with 600V insulation, THWN for branch circuitry and XHHW for feeders.
- B. Conductors shall be of soft drawn 98% minimum conductivity properly refined copper, solid construction where No. 10 AWG and smaller, stranded construction where No. 8 AWG and larger.
- C. Exterior of wires shall bear repetitive markings along their entire length indicating conductor size, insulation type and voltage rating.
- D. Exterior of wires shall be color coded, so as to indicate a clear differentiation between each phase and between each phase and neutral. In all cases, grounded neutral wires and cables shall be identified by the colors white or gray. In sizes and insulation types where factory applied colors are not available, wires and cables shall be color coded by the application of colored plastic tapes in overlapping turns at all terminal points, and in all boxes in which splices are made. Colored tape shall be applied for a distance of 6 inches along the wires and cables, or along their entire extensions beyond raceway ends, whichever is less.
- E. Final connections to motors shall be made with 18" of neoprene sheathed flexible conduit.
- F. Minimum branch circuit conductor size shall be No. 12 AWG installed in conduit. Motor control circuit wiring shall be minimum No. 14 AWG installed in conduit.
- G. Other wires and cables required for the various systems described elsewhere in this section of the Specifications shall be as specified herein, as shown on the Contract Drawings, or as recommended by the manufacturer of the specific equipment for which they are used, all installed in conduit.
- H. Wiring materials except MI cable shall be manufactured by Triangle, Essex, General Cable or equal.

## 2.4 WIRING MATERIALS - 600V OR LESS SYSTEMS

- A. Conductors shall be copper with 600V insulation, THWN for branch circuitry and XHHW for feeders.

- B. Conductors shall be of soft drawn 98% minimum conductivity properly refined copper, solid construction where No. 10 AWG and smaller, stranded construction where No. 8 AWG and larger.
- C. Exterior of wires shall bear repetitive markings along their entire length indicating conductor size, insulation type and voltage rating.
- D. Exterior of wires shall be color coded, so as to indicate a clear differentiation between each phase and between each phase and neutral. In all cases, grounded neutral wires and cables shall be identified by the colors white or gray. In sizes and insulation types where factory applied colors are not available, wires and cables shall be color coded by the application of approved colored plastic tapes in overlapping turns at all terminal points, and in all boxes in which splices are made. Colored tape shall be applied for a distance of 6 inches along the wires and cables, or along their entire extensions beyond raceway ends, whichever is less.
- E. Final connections to motors shall be made with 18" of neoprene sheathed flexible metal conduit.
- F. Minimum conductor size shall be No. 12 AWG installed in conduit. Motor control circuit wiring shall be minimum No. 14 AWG installed in conduit.
- G. For fire alarm and other specialty systems wiring, refer to manufacturers shop drawings and wiring diagrams for conductor size, electrical characteristics, and approved wire manufacturers.
- H. Other wires and cables required for the various systems described elsewhere in this section of the Specifications shall be as specified herein, as shown on the Contract Drawings, or as recommended by the manufacturer of the specific equipment for which they are used, all installed in conduit.
- I. Wiring materials shall be manufactured by Triangle, Republic, Anaconda, General Cable, or equal.

## 2.5 CAM LOK CONNECTORS

- A. 100A, 480V equal to Crouse Hinds J series E1016.
- B. Double cam principle provides a positive, vibration-proof connection. Self-compensating for wear. No moving contact surfaces, eliminating arcing or burning. Locked contacts will withstand a pulling force of 1,000 lbs.. 1 /3 of a turn assures a high pressure contact approaching 600 lbs. per sq. in., providing minimum resistance. Watertight elastomeric insulators molded from colorfast material, color-coded for easy phase identification. Recessed contacts protected by insulating jacket that extends beyond contact ends for safety. Integrated strain relief system features a retaining wire that prevents cable jacket pull-away and bare conductor exposure. Plugs feature a high strength, molded-in-place locking ring to capture and secure the insulator to the contact.
- C. TPE insulator, NEMA 3R, rated for temperatures between -40°C to 105°C

2.6 OUTLET, JUNCTION, PULL BOXES, AND WIRING TROUGHS FOR ALL SYSTEMS

A. Outlets:

1. Each outlet in wiring or raceway systems shall be provided with an outlet box to suit conditions encountered. Boxes installed in normally wet locations shall be of cast-metal type having hubs. Concealed boxes shall be cadmium plated or zinc coated sheet metal type. Old work boxes with Madison clamps not allowed in new construction.
2. Each box shall have sufficient volume to accommodate number of conductors in accordance with requirements of NFPA 70. Boxes shall not be less than 1-1/2" deep unless shallower boxes are required by structural conditions and are specifically approved by Designer. Ceiling and bracket outlet boxes shall not be less than 4" octagonal except that smaller boxes may be used where required by particular fixture to be installed. Flush or recessed fixtures shall be provided with separate junction boxes when required by fixture terminal temperature requirements. Switch and receptacle boxes shall be 4" square or of comparable volume.
3. Acceptable Manufacturers:
  - a. Appleton
  - b. Crouse Hinds
  - c. Steel City
  - d. RACO

B. Pull and Junction Boxes: Where necessary to terminate, tap off, or redirect multiple raceway runs or to facilitate conductor installation, furnish, and install appropriately designed boxes. Boxes shall be fabricated from code gauge steel assembled with corrosion resistant machine screws. Box size shall be as required by Code. Where intermediate cable supports are necessary because of box dimensions, provide insulated removable core brackets to support conductors. Junction boxes are to be equipped with barriers to separate circuits. Where splices are to be made, boxes shall be large enough to provide ample work space. All conductors in boxes are to be clearly tagged to indicate characteristics. Boxes shall be supported independently of raceways. Junction boxes in moist or wet areas shall be galvanized type. Boxes larger than 4 inches square shall have hinged covers. Boxes larger than 12 inches in one dimension will be allowed to have screw fastened covers, if a hinged cover would not be capable of being opened a full 90 degrees due to installation location.

2.7 PANELBOARDS

- A. Panelboards shall consist of factory completed deadfront assemblies of back pans, main busses, overcurrent and switching units, sheet metal cabinets and trims. They shall be so designed that switching and overcurrent devices can be replaced without disturbing adjacent units and without removing the main bus connectors, so that circuits may be changed without machining drilling or tapping.
- B. Panelboards shall have NEMA 3R enclosure and suitable for mounting outside.
- C. Where indicated as power or distribution panels, they shall be of the "I-Line" (Square D), "Pow-R" (Cutler Hammer) or "spectra" (General Electric).
- D. Bus bars for their mains shall be of copper having current capacities as indicated and sized for such capacities in accordance with Underwriter Laboratory standards. Bus bar taps for panels

with single pole branches shall be arranged for sequence phasing of the branch circuit devices. Bussing shall be braced throughout to conform to industry standard practice governing short circuit stresses in panelboards. Phase bussing shall be full height without reduction.

- E. A ground bus shall be provided for each panel. Each ground bus shall be of the same material as the phase and neutral buses.
- F. Cabinets shall be fabricated from industry standard gauge galvanized sheet steel with corners lapped and riveted, or fastened by approved methods.
- G. The inside and outside of the trims shall be factory painted with one rustproofing primer coat and one finish coat. The finish paint shall be of a type to which field applied paint will bond. All trims shall be hinged.
- H. Cabinets and trims shall be suitable for the required mounting. Trims shall be fastened to cabinets and shall be of a type that are self supporting on cabinets. Trims for flush panels shall overlap cabinets by at least 3/4" all around. Where two section panels are required, cabinets shall be of equal height including those cases where there is one main for both sections.
- I. Cabinets and trims for lighting and appliance panels shall accommodate and conform to the following limiting dimensions:
  - 1. Minimum wiring gutter width on each side: 5 3/4".
  - 2. Maximum overall width: 24".
  - 3. Maximum overall depth: 6".
- J. Where wires or cables are used within panelboards to make up internal connections (factory installed or otherwise) such wire or cable shall have copper conductors only.
- K. Any cabinet for a power or distribution panel shall (regardless of the actual devices required to be in it) have a width, depth and bussing adequate for a three pole branch device equal in rating to the panel mains. In no case shall the cabinet be wider than 42 inches or deeper than 18 inches.
- L. Hinged doors covering all switching device handles shall be included in all panel trims.
- M. Doors in panelboard trims shall conform to the following:
  - 1. In making switching device handles accessible, doors shall not uncover any live parts.
  - 2. Doors shall have flush type paracentric cylinder locks and catches. Two keys shall be supplied for each lock and each key shall open all panelboards. Locks and keys shall conform to a "standard keying policy" as directed.
- N. Where "spaces only" for overcurrent protection and switching devices are called for in a panel, its main bus, and backpan, as well as its cabinet and trim, shall be extended to accommodate these spaces and shall include all necessary hardware including bus connectors to add future devices.
- O. Panelboards shall comply with the following industry standards:
  - 1. UL Standards:

- a. Panelboards: UL67
- b. Cabinet & Boxes: UL50
- 2. NEMA Standard: PB1

P. Panelboards shall be labeled with a UL short circuit rating adequate for the available short circuit and based on the lowest panel mounted circuit breaker available UL listed interrupting current rating, but in no case less than 65 ka for 480 volt and 22 ka for 240 volt panelboards.

Q. Panelboards shall be manufactured by General Electric, Cutler Hammer or Square D.

**2.8 GROUNDING REQUIREMENTS**

- A. Ground all systems and equipment in accordance with best industry practice, the requirements of NFPA 70 and the following:
- B. The ground bus of the main switchboard shall be connected to the main grounding electrode specified below by means of insulated conductors run in conduit.
- C. The main grounding electrode shall be an accessible point on the nearest metallic main water service pipe. Connection shall be made on the street side of the main valve utilizing a ground clamp of a type specifically manufactured for the purpose. Bonding jumpers shall be provided around the water meters and around insulating joints and/or sections.
- D. Establish a ground bonding connection from the effectively grounded structural building steel to each cold water mains entering the building. Each bonding connection shall consist of insulated conductors run in conduit.
- E. The water pipe ground shall be supplemented by an additional electrode consisting of (3) buried 3/4" diameter by 10' 0" long copperweld ground rods spaced 10' 0" apart, and provided in sufficient quantity so as to have measured resistance to ground of not more than 10 ohms. Provide independent certification confirming this. Establish a bonding connection from the electrode consisting of green insulated conductors run in conduit and sized as indicated hereinafter for main and supply side of service bonding jumpers.
- F. Provide grounding bonds between all metallic conduits of the light and power system which enter and leave cable chambers or other non metallic cable pulling and splicing boxes. Accomplish this by equipping the conduits with bushings of the grounding type individually cross connected.
- G. Bond metallic conduits containing grounding electrode conductors and main bonding conductors to the ground bus service enclosure and/or grounding electrode at both ends of each run utilizing grounding bushings and jumpers.
- H. Provide grounding bonds for all metallic conduits of the light and power system which terminate in pits below equipment for which a ground bus is specified. Accomplish this by equipping the conduits with bushings of the grounding type connected individually to the ground bus.
- I. 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. Exclude the jumpers where directed. This exclusion will be required where an isolated ground for electronic equipment is to be maintained.

- J. Each grounding type bushing shall have the maximum ground wire accommodation available in standard manufacture for the particular conduit size. Connection to bushing shall be with wire of this maximum size.
- K. Bonding conductors on the load side of the service device and equipment grounding conductors shall be sized in relation to the fuses or trip size of the overcurrent device supplying the circuit.

## 2.9 DISCONNECT SWITCHES

- A. Disconnect (safety) switches shall conform to industrial standards of NEMA, be UL listed and shall be heavy duty type, quick-make, quick-break type with interlocking cover mechanism and provisions for padlocking switch handle in "OFF" position. Three pole toggle switches are not acceptable as substitute for disconnect switches.
- B. Disconnect switches shall be of fused or unfused type as indicated with number of disconnecting poles indicated. The grounded conductor shall not be switched. Switches shall be for use with current limiting fuses with rejection type fuse clips and those shall be horsepower rated.
- C. Enclosures shall be NEMA 3R type and shall be phosphate coated or equivalent code gauge galvanized sheet steel with gray baked enamel finish.

## 2.10 INDIVIDUALLY MOUNTED DRY TYPE THREE PHASE TRANSFORMERS

- A. Provide individually mounted dry type, 3 phase transformers in accordance with the following:
  1. They shall be of the exterior/outdoor type with NEMA 3R enclosure.
  2. They shall be for 60 Hertz operation.
  3. They shall have a delta connected high side rated for 480 volts and a wye connected low side rated for 120/208 volts, 3 phase, 4 wire, grounded neutral or as indicated.
  4. They shall have full capacity taps above and below normal as follows:

<u>Transformer Rating</u>	<u>Taps</u>
15 KVA and less	Two-5% - FCBN
30 KVA and above	Two-2-1/2% FCAN and 4-2-1/2% FCBN

- 5. Up to and including 15 KVA they shall be suitable for wall mounting. Larger than 15 KVA, shall be suitable for platform mounting.
- 6. They shall have sheet metal casings which are coated inside and out with a rust inhibiting primer and finished with a factory coat of enamel.
- 7. Floor or wall supported transformers shall be resiliently isolated from the building structure by means of neoprene vibration isolators.

8. They shall be designed so that the full load temperature rise does not exceed 150°C, over a 40°C ambient for 15 KVA and above and 115°C for 3 KVA to 15 KVA sizes. The insulation system shall conform to NEMA ST20 Standards for a 220°C UL component recognized insulation system for 15 KVA and above and 185°C for below 15 KVA.
9. Submit manufacturers certification that 75°C operating temperature wires connecting to their terminals will not be damaged under full load conditions if the ambient temperature is maintained at 40°C.

B. The center tap or neutral of the load side transformer windings shall be bonded to a lug and bolt inside the transformer casing. The bolt shall extend outside to serve as a system grounding stud. The bond to the bolt shall have an ampere capacity of no less than 20% of the capacity of a load side phase winding.

C. Install transformers in accordance with the following:

1. Make any required changes to transformer tap connections in accordance with instructions issued by the Engineer in the field.

D. Dry type transformers shall be manufactured by Square D, Cutler Hammer, or General Electric.

#### 2.11 EQUIPMENT GROUNDING REQUIREMENTS

- A. Equipment ground all systems and equipment in accordance with best industry practice.
- B. All separately derived sources (i.e., transformers) shall be grounded per code.
- C. The main grounding electrode shall be an accessible point on the nearest metallic main water service pipe. Connection shall be made on the street side of the main valve utilizing a ground clamp of a type specifically manufactured for the purpose. Bonding jumpers shall be provided around the water meters and around insulating joints and/or sections.
- D. Establish a ground bonding connection from the effectively grounded structural building steel to each cold water mains entering the building. Each bonding connection shall consist of insulated conductors run in conduit.
- E. The water pipe ground shall be supplemented by an additional "made" electrode consisting of (3) buried 3/4" diameter by 10' 0" long copperweld ground rods spaced 10' 0" apart, and provided in sufficient quantity so as to have measured resistance to ground of not more than 5 ohms. Provide independent certification confirming this. Establish a bonding connection from the "made" electrode consisting of green insulated conductors run in conduit and sized as indicated hereinafter for main and "supply side of service" bonding jumpers.
- F. Provide grounding bonds between all metallic conduits of the light and power system which enter and leave cable chambers or other non metallic cable pulling and splicing boxes. Accomplish this by equipping the conduits with bushings of the grounding type individually cross connected.
- G. Bond metallic conduits containing grounding electrode conductors and main bonding conductors to the ground bus service enclosure and/or grounding electrode at both ends of each run utilizing grounding bushings and jumpers.

- H. Provide grounding bonds for all metallic conduits of the light and power system which terminate in pits below equipment for which a ground bus is specified. Accomplish this by equipping the conduits with bushings of the grounding type connected individually to the ground bus.
- I. 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. Exclude the jumpers where directed. This exclusion will be required where an isolated ground for electronic equipment is to be maintained.
- J. Each grounding type bushing shall have the maximum ground wire accommodation available in standard manufacture for the particular conduit size. Connection to bushing shall be with wire of this maximum size.
- K. Bonding conductors on the load size of the service device and equipment grounding conductors shall be sized in relation to the fuses or trip size of the overcurrent device supplying the circuit.
- L. The central equipment for the fire protective alarm system and telephone system shall have its grounding terminal connected to the grounding electrode by means of a No. 6 green coded insulated conductor, run in 3/4" conduit. Utilize a ground clamp of a type specifically manufactured for the purpose.
- M. Each branch circuit and feeder shall have a dedicated equipment grounding conductor, minimum # 12 AWG. Shared or tapped equipment grounding conductor shall not be acceptable.

### PART 3 - EXECUTION

#### 3.1 BASIC REQUIREMENTS

- A. All exposed conduit shall be rigid galvanized steel and all conduit below grade shall be PVC schedule 40.
- B. Route circuitry runs embedded in concrete to coordinate with structural requirements.
- C. Equip each raceway intended for the future installation of wire or cable with a nylon pulling cord 3/16 inch in diameter and clearly identify both ends of the raceway.
- D. Provide all outlet boxes, junction boxes, and pull boxes for proper wire pulling and device installation. Include those omitted from the drawings due to symbolic methods of notation.
- E. Utilize lugs of the limiter type to make connections at both ends of cables installed on the line side of main service overcurrent and switching devices. Provide cable limiters for each end of each service entrance cable.
- F. Provide all sleeves through fireproof and waterproof slabs, walls, etc. required for electric work.

1. Provide waterproof sealing for the sleeves through waterproof slabs, walls, etc.
2. Provide fireproof sealing for the sleeves through fireproof walls, slabs, etc.
3. Provide fireproof sealing for the openings in fireproof walls, slabs, etc., resulting from removal of existing electrical sleeves, conduits, poke-throughs, etc.

G. Bundle wiring passing through pull boxes and panel boards in a neat and orderly manner with plastic cable ties. Cable ties shall be Ty-Raps as manufactured by Thomas & Betts, Holub Industries Inc., Quick Wrap, Bundy Unirap or equal.

H. Turn branch circuits and auxiliary system wiring out of wiring gutters at 90 degrees to circuit breakers and terminal lugs.

### 3.2 TESTING REQUIREMENTS AND INSTRUCTIONS

A. The Electrical contractor shall provide supervision, labor, materials, tools, test instruments and all other equipment or services and expenses required to test, adjust, set, calibrate, and operationally check work and components of the electrical systems and circuitry throughout the work.

B. The Electrical contractor shall pay for all tests specified in this Section, including expenses incident to retests occasioned by defects and failures of equipment to meet specifications, at no additional cost to DCAMM. Any defects or deficiencies discovered in any of the electrical work shall be corrected.

C. The Electrical contractor shall:

1. Replace wiring and equipment found defective (defined as failing to meet specified requirements) at no additional cost to DCAMM.
2. Submit three copies of test results to the engineer.

D. Do not void equipment warranties or guarantees by testing and checkout work. Checks and tests shall be supplemental to and compatible with the manufacturer's installation instructions. Where deviations are apparent, obtain the manufacturer's approved review of procedure prior to testing. Where any repairs, modifications, adjustments, tests or checks are to be made, the Contractor shall contact the engineer to determine if the work should be performed by or with the manufacturer's representative.

1. All checks and tests specified for proper operating and safety of equipment and personnel are to be performed concurrent with progression of the work, prior to Final Acceptance by DCAMM.

E. Test are to:

1. Provide initial equipment/system acceptance.
2. Provide recorded data for future routine maintenance and trouble shooting.
3. Provide assurance that each system component is installed satisfactorily and can be expected to perform, and continue to perform, its specified function with reasonable reliability throughout the life of the facility.

- F. At any stage of construction and when observed, any electrical equipment or system determined to be damaged, or faulty, is to be reported to the engineer. Corrective action by the Contractor requires prior engineer approval, retesting, and inspection.
- G. Prior to testing and start-up, equipment and wiring shall be properly and permanently identified with nameplates, and other identification as specified in this Section. Check and tighten terminals and connection points, remove shipping blocks and thoroughly clean equipment, repair damaged or scratched finishes, inspect for broken and missing parts and review and collect manufacturer's drawings and instructions for delivery to the engineer. Make routine checks and tests as the job progresses to ensure that wiring and equipment is properly installed.
- H. Testing and checkout work is to be performed with fully qualified personnel skilled in the particular tests being conducted. Personnel are to have at least five years of experience with tests of same type and size as specified.
- I. Inspections and tests shall be in accordance with the following applicable codes and standards as amended to date, unless otherwise specified.
  - 1. National Electrical Manufacturer's Association - NEMA.
  - 2. American Society for Testing and Materials - ASTM.
  - 3. Institute of Electrical and Electronic Engineers -IEEE.
  - 4. National Electrical Testing Association - NETA.
  - 5. American National Standards Institute - ANSI.
    - a. C2: National Electrical Safety Code.
    - b. Z244-1: American National Standard for Personnel Protection.
  - 6. Insulated Cable Engineers Association - ICEA.
  - 7. Association of Edison Illuminating Companies - AEIC.
  - 8. Occupational Safety and health Administration.
    - a. OSHA Part 1910; Subpart S, 1910.308.
    - b. OSHA Part 1926; Subpart V, 1926.950 through 1926.960.
  - 9. National Fire Protection Association - NFPA.
    - a. 70B: Electrical Equipment Maintenance.
    - b. 70E: Electrical Safety Requirements for Employer Workplaces.
    - c. 70: National Electrical Code.
    - d. 78: Lightning Protection Code.
    - e. 101: Life Safety Code.
  - 10. Inspections and tests shall utilize the following references:
    - a. Contract Drawings and Specifications.
    - b. Contractor's Short Circuit and Coordination Study.
    - c. Manufacturer's printed test procedures for respective equipment.
- J. Test Equipment:
  - 1. Test equipment used by the Contractor is to be inspected and calibrated.
  - 2. Perform calibration and setting checks with calibrated test instruments of at least twice that of that of the accuracy of the equipment, device, relay or meter under test. Dated calibration labels shall be visible on test equipment. Calibrations over 6 months old are not acceptable on field test instruments. Inspect test instruments for proper operation prior to proceeding with the tests. Record serial and model numbers of the instruments used on the test forms.

K. Test Procedures:

1. The Electrical Subcontractor is responsible for the preparation of the procedures and schedules for the work specified herein. This work is to be coordinated and compatible with both the work and schedule of the other crafts. Sequence the tests and checks so that the equipment can be energized immediately after the completion of the application tests.
2. Submit proposed testing and check out forms. The procedures shall provide specific instructions for the checking and testing of each electrical component of each system. Schedule tests and inspections as the job progresses. Test procedures submitted shall include job safety rules.

L. After each electrical system installation is complete, perform the tests to determine that the entire system is in proper working order and in accordance with applicable codes, manufacturer's instructions, drawings, and specifications. Tests are in addition to shop tests of individual items at the manufacturer's plant. Perform insulation and ground resistance tests before operating tests.

M. Perform insulation tests on electrical equipment, apparatus, cables, motors, generators, transformers, circuit breakers and switches, switchgear, motor control centers, and similar electrical equipment, at the following times and conditions:

1. Prior to energization and/or placing into service.
2. When damage to the insulation is suspected or known to exist.
3. After repairs or modifications to the equipment affecting the insulation.
4. Where lightning or other surge conditions are known to have existed on the circuit.

N. Make openings in circuits for test instruments and place and connect instruments, equipment, and devices, required for the tests. Upon completion of tests, remove instruments and instrument connections and restore circuits to permanent condition.

O. List each circuit and measured resistance as test data. Maintain record of insulation resistance values. Identify conductor, or equipment, date that value was taken and resistance value. Arrange information in tabular form and submit to Engineer.

P. Report inspections, tests, and calibrations in writing on engineer-approved reports/forms. The recorded data form shall have the signatures of the persons conducting the tests, authorized witnesses, and the engineer. The forms shall serve as the test and inspection checklist.

Q. When the electrical tests and inspections specified or required within this Section are completed and results reported, reviewed, and approved by the engineer, the Contractor may consider that portion of the electrical equipment system or installation electrically complete. The Contractor will then affix appropriate, approved, and dated completion or calibration labels to the tested equipment and notify the engineer of electrical completion. If the engineer finds completed work unacceptable, he will notify the Contractor in writing of the unfinished or deficient work, with the reason for his rejection, to be corrected by the Contractor. The Contractor will notify the engineer in writing when exceptions have been corrected. The Contractor will prepare a "Notification of Substantial Electrical Completion" for approval by the engineer following engineer's acceptance of electrical completion. If later in-service operation or further testing identifies problems attributable to the Contractor, these will be corrected by the Contractor, at no additional cost to the Authority.

R. Specific Tests:

1. Perform the following specific tests. De-energize and isolate equipment and cable prior to performing the tests.
2. Motors:
  - a. Before energizing any machine, visually inspect for serviceability. Check manufacturer's instruction manual for correct lubrication and ventilation. Align motor with driven equipment. Check nameplate for electrical power requirements.
  - b. Test run motors uncoupled or unloaded, before placing into operation. Check the motor for rotation, speed, current and temperature rise under normal load and record the results. Maintain the proper color codes for phase identifications. This may require swaps at the motor for proper rotation. Use motor phase rotation meter prior to lead connection at motor in order to minimize later swaps.
3. Grounding Systems:
  - a. Test main building loops and major equipment grounds to remote earth, directly referenced to an extremely low resistance (approximately 1 ohm) reference ground bench mark. Perform a visual inspection of the systems, raceway and equipment grounds to determine the adequacy and integrity of the grounding. Ground testing results shall be recorded, witnessed, and submitted to the engineer.
  - b. Perform ground tests using a low resistance, Null balance type, ground testing ohmmeter, with test lead resistance compensated for. Use the type of test instrument which compensates for potential and current rod resistances.
  - c. Test each ground rod and measure ground resistance. If resistance is not 25 ohms or less, drive additional rods to obtain a resistance of 25 ohms or less. Submit tabulation of results to engineer. Include identification of electrode, date of reading and ground resistance value in the test reports.
  - d. Test each building and major equipment grounding system for continuity of connections and for resistance. Ground resistance of conduits, equipment cases, and supporting frames, shall not vary from that of system as a whole and shall not exceed 5 ohms to ground. Submit all readings to the engineer.
  - e. Where ground test results identify the need for additional grounding conductors or rods that are not indicated or specified, design changes will be initiated to obtain the acceptable values. The Contractor is responsible for the proper installation of the grounding indicated and specified.

S. Wire and Cable: (All conductors originating from main switchboard and distribution panels).

- a. Before energizing any cable or wire, megger the insulation resistance of every external circuit wire to each other and to ground. Tests shall be conducted at voltages of 500 volts or lower. Continuity test each wire and cable to verify the field applied tag per conductor. Minimum insulation resistance values shall not be less than two megohms.
- b. Take insulation resistance measurements for motor feeders. With motors disconnected, measure insulation resistance from load side of contactors or circuit breakers.
- c. Check cables and wires for the proper identification numbering and/or color coding.
- d. Inspect cables for physical damage and proper connection in accordance with single line diagram.

### 3.3 BRANCH CIRCUITRY

- A. For all lighting and appliance branch circuitry, raceway sizes shall conform to industry standard maximum permissible occupancy requirements except where these are exceeded by other requirements specified elsewhere.
- B. Circuits shall be balanced on phases at their supply as evenly as possible.
- C. Feeder connections shall be in the phase rotation which establishes proper operation for all equipment supplied.
- D. Reduced size conductors indicated for any feeders shall be taken as their grounding conductors.
- E. Feeders consisting of multiple cables and raceways shall be arranged such that each raceway of the feeder contains one cable for each leg and one neutral cable, if any.
- F. For circuitry indicated as being protected at 20 Amps or less, abide by the following:
  - 1. All 20 amp, 120/208 volt, 3 phase, 4 wire combined branch circuit homeruns shall be provided with a #8 AWG neutral conductor.
  - 2. Minimum conductor size shall be No. 12 A.W.G. copper.
  - 3. Conductors operating at 120 volts extending in excess of 100 Ft., or at 277 volts extending in excess of 200 ft., or the last outlet or fixture tap shall be No. 10 A.W.G. copper throughout.
  - 4. Lighting fixtures and receptacles shall not be connected to the same circuit.
  - 5. Circuits shall be balanced on phases at their supply point as evenly as possible.

### 3.4 REQUIREMENTS GOVERNING ELECTRICAL WORK IN DAMP OR WET LOCATIONS

- A. Outlets and outlet size boxes shall be of galvanized cast ferrous metal only.
- B. The finish of threaded steel conduit shall be galvanized only.
- C. Wires for pulling into raceways for lighting and appliance branch circuitry shall be limited to "THWN".
- D. Wires for pulling into raceways for feeders shall be limited to "THWN".
- E. Plates for toggle switches and receptacles shall have gasketed snap shut covers suitable for wet locations while in use.
- F. Final connections of flexible conduit shall be neoprene sheathed.
- G. Apply one layer of half looped plastic electric insulating tape over wire nuts used for joining the conductors of wires.
- H. Enclosures, junction boxes, pull boxes, cabinets, cabinet trims, wiring troughs and the like, shall be fabricated of galvanized sheet metal, shall conform to the following:
  - 1. They shall be constructed with continuously welded joints and seams.

2. Their edges and weld spots shall be factory treated with cold galvanizing compound.
3. Their connection to circuitry shall be by means of watertight hub connectors with sealing rings.

- I. Enclosures for individually mounted switching and overcurrent devices shall be NEMA Class IV weatherproof construction.
- J. The covers, doors and plates and trims used in conjunction with all enclosures, pull boxes, outlet boxes, junction boxes, cabinets and the like shall be equipped with gaskets.
- K. Panels shall be equipped with doors without exception.
- L. The following shall be interpreted as damp or wet locations within building confines:
  1. Spaces where any designations indicating weatherproof (WP) or vaporproof appear on the drawings.
  2. Below waterproofing in slabs applied directly on grade.
  3. Spaces defined as wet or damp locations by article 100 of the National Electric Code.

### 3.5 IDENTIFICATION AND TAGGING

- A. Identify individually:
  1. Each panelboard.
  2. Each switch and circuit breaker.
  3. Each feeder, wire or cable of all systems.
  4. Each end of nylon pullwire in empty conduit.
- B. Each wire or cable in a feeder shall be identified at its terminal points of connection and in each pullbox, junction box and panel gutter through which it passes.
- C. The nomenclature used to identify panelboards or load center shall designate the numbers assigned to them.
- D. The nomenclature used to identify switches or circuit breakers shall:
  1. Where they disconnect mains or services designate this fact.
  2. Where they control feeders, designate the feeder number and the name of the load supplied.
  3. Where they control lighting and appliance branch circuitry, designate the name of the space and the load supplied.
- E. The nomenclature used to identify feeder wires and cables shall designate the feeder number.
- F. Identification for panelboards or load centers shall be by means of engraved lamacoid nameplates showing 1/4" high white lettering on a black background fastened to the outside face of the front.
- G. Identification for switches or circuit breakers shall be by means of the following:

1. Where individually enclosed engraved lamacoid nameplates showing 1/8" high white lettering on a black background fastened on the outside front face of the enclosure.
2. Where in panelboards or load centers without doors same as for individually enclosed.
3. Where in panelboards or load centers with doors typewritten directories mounted behind transparent plastic covers, in metal frames fastened on the inside face of the doors.

H. Identification for wires and cables shall be by means of wrap around "brady" type labels.

I. Device plates for local toggle switches, toggle switch type motor starters, pilot lights and the like, whose function is not readily apparent shall be engraved with 1/8" high letters suitably describing the equipment controlled or indicated.

J. Phase identification letters shall be stamped into the metal of the bus bars of each phase of the main busses of each switchboard and each panelboard. The letters shall be visible from at least one "normal posture" location without having to demount any current carrying or supporting elements.

K. Equip the front face of all switchboard pull boxes junction boxes and the like containing cables, busing or devices operating in excess of 600 volts with enameled sheet metal "red on white" signs reading "DANGER HIGH VOLTAGE."

L. Equip all electric closets and the like with enameled sheet metal "red on white" signs reading "Electrical Equipment Room No Storage Permitted." Signs shall be mounted at clearly visible locations within the rooms.

M. Provide a sign at the service entrance equipment room indicating the type and location of all on site emergency or standby power sources.

N. Identify each outlet box, junction box, and cabinet used in conjunction with empty raceway for wires of a future system by means of indelible markings on the inside denoting the system.

O. Prior to installing identifying tags and nameplates, submit their nomenclature for approval. Conform to all revisions issued by the Designer.

### 3.6 LIMITING NOISE PRODUCED BY ELECTRICAL INSTALLATION

- A. Perform the following work, in accordance with field instructions issued by the Designer to assure that minimal noise is produced by electrical installations due to equipment furnished as part of the electrical work.
- B. Check and tighten the fastenings of sheet metal plates, covers, doors and trims used in the enclosures of electrical equipment.
- C. Remove and replace any individual device containing one or more magnetic flux path metallic cores (e.g., discharge lamp ballast, transformer, reactor, dimmer, solenoid) which is found to have a noise output exceeding that of other identical devices installed at the project.

### 3.7 SUPPORTS AND FASTENINGS

- A. Support work in accordance with best industry standards, Mass. Electric Code and the following:
- B. Include supporting frames or racks for equipment, intended for vertical surface mounting, which is required in a free standing position.
- C. Supporting frames or racks shall be of standard angle, standard channel or specialty support system steel members. They shall be rigidly bolted or welded together and adequately braced to form a substantial structure. Racks shall be of ample size to assure a workmanlike arrangement of all equipment mounted on them.
- D. No work intended for exposed installation shall be mounted directly on any building surface. In such locations, flat bar members or spacers shall be used to create a minimum of 1/4" air space between the building surfaces and the work. Provide 3/4" thick exterior grade plywood painted with two coats of fire-retardant grey paint for mounting of panelboards.
- E. Nothing (including outlet, pull and junction boxes and fittings) shall depend on electric conduits, raceways or cables for support.
- F. Nothing shall rest on, or depend for support on, suspended ceiling media.
- G. Support less than 2" trade size, vertically run, conduits at intervals no greater than 8 Ft. Support such conduits, 2-1/2" trade size or larger, at intervals no greater than the story height, or 15 Ft, whichever is smaller.
- H. Where they are not embedded in concrete, support less than 1" trade size, horizontally run, conduits at intervals no greater than 7 ft.. Support such conduits, 1" trade size or larger, at intervals no greater than 10 ft.
- I. Support all lighting fixtures directly from structural slab, deck or framing member.
- J. Where fixtures and ceilings are such as to require fixture support from ceiling openings frames, include in the electric work the members necessary to tie back the ceiling opening frames to ceiling suspension members or slabs so as to provide actual support for the fixtures noted above.
- K. As a minimum procedure, in suspended ceilings support small runs of circuitry (e.g., conduit not in excess of 1 inch trade size) from ceiling suspension members as defined above. Support larger runs of circuitry directly from structural slabs, decks or framing members.
- L. Fasten electric work to building structure in accordance with the best industry practice.
- M. Floor mounted equipment shall not be held in place solely by its own dead weight. Include floor anchor fastenings in all cases.
- N. For items which are shown as being ceiling mounted at locations where fastenings to the building construction element above is not possible, provide suitable auxiliary channel or angle iron bridging tying to building structural elements.

- O. As a minimum procedure, where weight applied to the attachment points is 100 lbs. or less, fasten to concrete and solid masonry with bolts and expansion shields.
- P. As a minimum procedure, where weight applied to building attachment points exceeds 100 lbs., but is 300 lbs. or less, conform to the following:
- Q. At field poured concrete slabs, utilize inserts with 20' minimum length slip-through steel rods, set transverse to reinforcing steel.

### 3.8 SPLICING AND TERMINATING WIRES AND CABLES

- A. Maintain all splices and joints in removable cover boxes or cabinets where they may be easily inspected.
- B. Locate each completed conductor splice or joint in the outlet box, junction box, or pull box containing it, so that it is accessible from the removal cover side of the box.
- C. Join solid conductors No. 8 AWG and smaller by securely twisting them together and soldering, or by using insulated coiled steel spring "wire nut" type connectors. Exclude "wire nuts" employing non expandable springs. Terminate conductors No. 8 AWG and smaller by means of a neat and fast holding application of the conductors directly to the binding screws or terminals of the equipment or devices to be connected.
- D. Join, tap and terminate stranded conductors No. 6 AWG and larger by means of solder sleeves, taps; and lugs with applied solder or by means of bolted saddle type or pressure indent type connectors, taps and lugs. Exclude connectors and lugs of the types which apply set screws directly to conductors. Where equipment or devices are equipped with set screw type terminals which are impossible to change, replace the factory supplied set screws with a type having a ball bearing tip. Apply pressure indent type connectors, taps and lugs utilizing tools manufactured specifically for the purpose and having features preventing their release until the full pressure has been exerted on the lug or connector.
- E. Except where wire nuts are used, build up insulation over conductor joints to a value, equal both in thickness and dielectric strength, to that of the factory applied conductor insulation. Insulation of conductor taps and joints shall be by means of half lapped layers of rubber tape, with an outer layer of friction tape; by means of half lapped layers of approved plastic electric insulating tape; or by means of split insulating casings manufactured specifically to insulate the particular connector and conductor, and fastened with stainless steel or non metallic snaps or clips.
- F. Exclude splicing procedures for neutral conductors in lighting and appliance branch circuitry which utilize device terminals as the splicing points.
- G. Exclude joints or terminations utilizing solder in any conductors used for grounding or bonding purposes.
- H. Exclude all but solder or pressure indent type joints in conductors used for signaling or communications purposes.

I. Lugs for conductors used to make phase leg connections on the line side of the main service overcurrent and switching device shall be of the limiter type.

3.9 PULLING WIRES INTO CONDUITS AND RACEWAYS

A. Delay pulling wires or cables in until the project has progressed to a point when general construction procedures are not liable to injure wires and cables, and when moisture is excluded from raceways.

B. Utilize nylon snakes or metallic fish tapes with ball type heads to set up for pulling. In raceways 2" trade size and larger, utilize a pulling assembly ahead of wires consisting of a suitable brush followed by an 3 1/2" diameter ball mandrel.

C. Leave sufficient slack on all runs of wire and cable to permit the secure connection of devices and equipment.

D. Include circular wedge type cable supports for wires and cables at the top of any vertical raceway longer than 20 feet. Also include additional supports spaced at intervals which are no greater than 10'. Supports shall be located in accessible pull boxes. Supports shall be of a nondeteriorating insulating material manufactured specifically for the purpose.

E. Pulling lubricants shall be used. They shall be products manufactured specifically for the purpose.

F. Slack on wires and cables located in cabinets and pull boxes shall be formed and set in place in groupings corresponding to their occupancy of raceways. They shall also be arranged, with insulators and supports provided where necessary, such that cable shims or other such temporary expedients do not have to be left permanently in place to prevent the wires and cables from shifting when covers or trims are removed.

3.10 REQUIREMENTS FOR THE INSTALLATION OF JUNCTION BOXES, OUTLET BOXES AND PULL BOXES

A. Flush wall mounted outlet boxes shall not be set back to back but shall be offset at least 12" horizontally regardless of any indication on the drawings.

B. Locate all boxes so that their removable covers are accessible without necessitating the removal of parts of permanent building structure, including piping, ductwork, and other permanent mechanical elements.

C. In conjunction with concealed circuitry, abide by one of the following instructions (as may be applicable to the conditions) in order to assure the aforementioned accessibility. (Not required for circuitry concealed by removable suspended ceiling tiles.)

1. For a small (outlet size) box on circuitry concealed in a partition or wall, locate box or fitting so that its removable cover side (or the face of any applied raised cover) penetrates through to within 1/8" of the exposed surface of the building materials concealing the circuitry and apply a blank or device plate to suit the functional requirements.

2. For a large box on circuitry concealed in a partition, suspended ceiling, or wall, locate box totally hidden but with its removable cover directly behind an architectural access door or panel (included for the purpose, separate from the electric work) in the building construction which conceals the circuitry.
3. For a small (outlet size) box on circuitry concealed above and intended as an outlet for a surface mounted lighting fixture or other such electrical item, locate box so that its removable cover side penetrates through to the exposed surface of the building materials concealing the circuitry. Arrange the mounting of the lighting fixture or other item so that it completely covers the opening in the building construction caused by the box.
4. For a small (outlet size) box on circuitry concealed in a suspended ceiling, and intended as an outlet for a non demountable type of recessed lighting fixtures or other such electrical items, locate box totally hidden but with its removable cover not more than one foot away from the building construction opening occupied by the demountable items.

D. Apply junction and pull boxes in accordance with the following:

1. Include pull boxes in long straight runs of raceway to assure that cables are not damaged when they are pulled in.
2. Include junction and pull boxes to assure a neat and workmanlike installation of raceways.
3. Include junction and pull boxes to fulfill requirements pertaining to the limitations to the number of bends permitted in raceway between cable access points, the accessibility of cable joints and splices, and the application of cable supports.
4. Include all required junction and pull boxes regardless of indications on the drawings (which, due to symbolic methods of notation, may omit to show some of them).

E. Apply outlet boxes in accordance with the following:

1. Unless noted below or otherwise specifically indicated, include a separate outlet box for each individual wiring device, lighting fixture and signal or communication system outlet component. Outlet boxes supplied attached to lighting fixtures shall not be used as replacements for the boxes specified herein.
2. A continuous row of fixtures of the end to end channel type, designed for "through wiring," and wired in accordance with the specification hereinafter pertaining to circuitry through a series of lighting fixtures, may be supplied through a single outlet box.
3. A series of separate fixtures, designed for "through wiring," spaced not more than 4' apart, and inter connected with conduit or raceway and circuitry which is in accordance with the specifications hereinafter pertaining to circuitry through a series of lighting fixtures, may be supplied through a single outlet box.
4. Connection to recessed ceiling fixtures supplied with pigtails may be arranged so that more than one, but not more than four, such fixtures are connected into a single outlet box. When adopting this procedure:
  - a. Utilize an outlet box no smaller than 5" square by 2 1/2" deep.
  - b. Allow no fixture to be supplied from an outlet box in another room.
5. Multiple local switches indicated at a single location shall be gang mounted in a single outlet box.
6. Include all required outlet boxes regardless of indications on the drawings (which due to symbolic methods of notation, may omit to show some of them).

F. Install junction boxes, pull boxes and outlet boxes in accordance with the following:

1. Exclude surface mounted outlet boxes in conjunction with concealed circuitry.
2. Exclude unused circuitry openings in junction and pull boxes. In larger boxes each such opening shall be closed with a galvanized sheet steel plate fastened with a continuous weld all around. In small outlet type boxes, utilize plugs as specified for such boxes.
3. Close up all unused circuitry openings in outlet boxes. Unused openings in cast boxes shall be closed with approved cast metal threaded plugs. Unused openings in sheet metal boxes shall be closed with sheet metal knock out plugs.
4. Outlet boxes for switches shall be located at the strike side of doors. Indicated door swings are subject to field change. Outlet boxes shall be located on the basis of final door swing arrangements.
5. Boxes and plaster covers for duplex receptacles shall be arranged for vertical mounting of the receptacle.
6. Equip outlet boxes used for devices which are connected to wires of systems supplied by more than one set of voltage characteristics with barriers to separate the different systems.

G. Barriers in junction and pull boxes of outlet size shall be of the same metal as the box.

H. Barriers in junction and pull boxes which are larger than outlet size shall be of the polyester resin fiberglass of adequate thickness for mechanical strength, but in no case less than 1/4" thick. Each barrier shall be mounted, without fastenings, between angle iron guides so that they may be readily removed.

### 3.11 INSTALLING CIRCUITRY

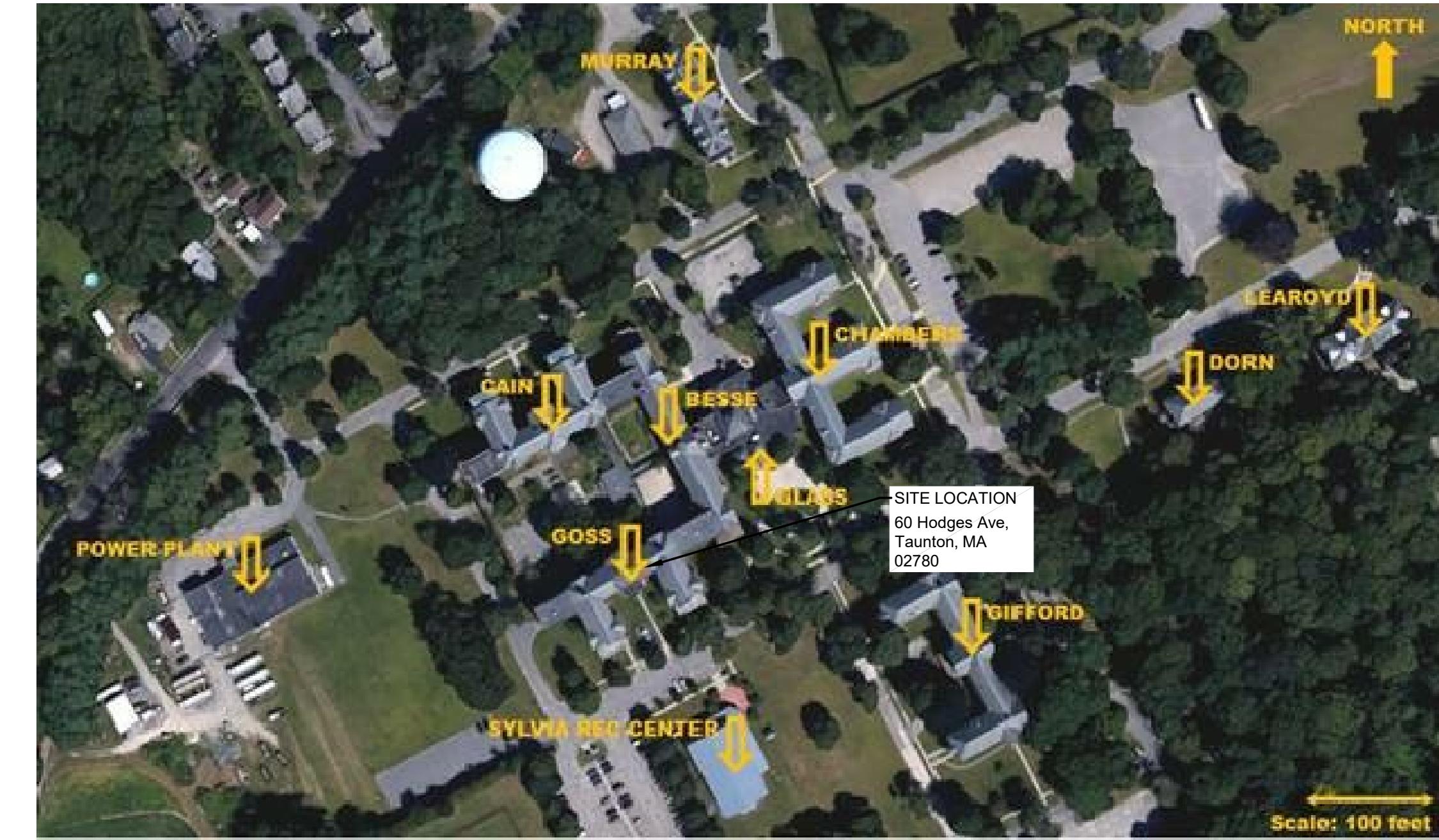
- A. The outside surface of circuitry which is to be embedded in cinder concrete shall be coated with asphaltum paint.
- B. In runs of conduit or raceway including flexible limit the number of bends between cable access points to a total which does not exceed the maximum specified for the particular system. Where no such maximum is specified, limit the number to four right angle bends or the equivalent thereof.
- C. In each conduit or raceway assigned for the future pulling in of wires, include a nylon drag cord. In raceways 2" trade size and larger, the cord shall be pulled in utilizing a suitable brush, followed by an 85% diameter ball mandrel ahead of the cord in the pulling assembly. In the event that obstructions are encountered, which will not permit the drag cord to be installed, the blocked section of raceway shall be replaced and any cutting and patching of the structure involved in such replacement shall be included as part of the electric work.
- D. Circuitry shall be arranged such that conductors of one feeder or circuitry carrying "going" current are not separated from conductors of the same feeder or circuitry carrying "return" current by any ferrous or other metal. Where not within raceways, all "going" and "return" current conductors of one feeder or circuit shall be laces together so as to minimize induction heating of adjacent metal components.
- E. Sleeves used where circuitry is to penetrate waterproof slabs, decks and walls, shall be of a type selected to suite the water condition encountered in the field.

END OF SECTION

# DYS - TAUNTON S.H. GOSS BLDG CONDENSATE PUMPS

THE COMMONWEALTH OF MASSACHUSETTS  
EXECUTIVE OFFICE FOR ADMINISTRATION AND FINANCE  
DIVISION OF CAPITAL ASSET MANAGEMENT AND MAINTENANCE  
OFFICE OF DESIGN AND CONSTRUCTION

AUGUST 17, 2021  
ISSUED FOR BID



## Electrical

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Drawing #	Sheet Title
T-000	Cover Sheet
M-000	Mechanical Legend, Details, & Schedules
M-201	Mechanical Basement Floor Plan
E-000	Electrical Legend and Schedules
E-100	Electrical Basement Floor Plan

EXISTING PANELBOARD SCHEDULE												
PANEL DPL LOCATION:			MAINS 400 MLO ENCLOSURE									
SERVICE: VOLT: 120/208 PHASE: 3 WIRE: 4			SURFACE MOUNTED				TOP SURFACE MOUNTED					
CKT	DESCRIPTION		BREAKER			KVA	CKT	DESCRIPTION		BREAKER		
			TRIP	POLES	VOLTS			TRIP		POLES	VOLTS	KVA
1	EXISTING					2	EXISTING					
3						4		100	3			
5						6						
7	EXISTING					8	EXISTING					
9						10		30	3			
11						12						
13	EXISTING					14	(NEW) PUMP P1			208	1	
15						16		20	3			
17						18						
19	EXISTING					20	CONTROLS	20	1	120	.1	
21						22	SPACE					
23						24	SPACE					
25	EXISTING					26	SPACE					
27						28	SPACE					
29						30	SPACE					

EXISTING PANEL BOARD SCHEDULE												
PANEL# SPL1 LOCATION:			MAINS 100A ENCLOSURE									
SERVICE: VOLT: 120/208 PHASE: 3 WIRE: 4			SURFACE MOUNTED				TOP SURFACE MOUNTED					
CKT	DESCRIPTION		BREAKER			KVA	CKT	DESCRIPTION		BREAKER		
			TRIP	POLES	VOLTS			TRIP		POLES	VOLTS	KVA
1	EXISTING WATER BOOSTER PUMP					2	EXISTING COMPRESSOR			30	2	208
3						4						
5						6	SPACE					
7	EXISTING FIRE BELL		20	1		0.10	(NEW) PUMP P2			20	3	1
9	SPACE					10						
11	SPACE					12						
13	SPACE					14						
15	SPACE					16	CONTROLS			20	1	.1
17	SPACE					18	SPACE					
19	SPACE					20	SPACE					
21	SPACE					22	SPACE					
23	SPACE					24	SPACE					
25	SPACE					26	SPACE					
27	SPACE					28	SPACE					
29	SPACE					30	SPACE					
31	SPACE					32	SPACE					
33	SPACE					34	SPACE					
35	SPACE					36	SPACE					
37	SPACE					38	SPACE					
39	SPACE					40	SPACE					
41	SPACE					42	SPACE					

**ELECTRICAL LEGEND**

- COMBINATION MAGNETIC MOTOR STARTER/DISCONNECT. # OF POLES AND SIZE AS REQUIRED.
- DISCONNECT SWITCH, FUSED, UNLESS NOTED OTHERWISE. # OF POLES AND RATING AS REQUIRED.
- DISCONNECT SWITCH, UNFUSED, UNLESS OTHERWISE NOTED. # OF POLES AND RATING AS REQUIRED.
- POWER AND/OR LIGHTING PANELBOARD
- JUNCTION BOX
- MECHANICAL EQUIPMENT - SEE MECH. EQUIP. SCHEDULE
- SWITCHBOARD
- \*ETR - \*ETR INDICATES EQUIPMENT THAT IS EXISTING TO REMAIN
- \*ER - \*ER INDICATES EQUIPMENT THAT IS EXISTING TO BE REMOVED
- CONVENIENCE OUTLETS - UP 18" EXCEPT AS NOTED:
- OUTLET SUBSCRIPTS:
- WP - WEATHERPROOF TYPE
- GFI - GROUND FAULT INTERRUPTER TYPE
- QF - QUAD - 20A, 125V, GROUNDING TYPE.
- CONDUIT RUNS:
- TURNING UP
- TURNING DOWN
- HOMERUN TO PANELBOARD: 2#12 & #12G IN 3/4" C. TO 20A, 1P CIRCUIT BREAKER (TYPICAL UNLESS NOTED OTHERWISE)

Project Name:  
DYS - TAUNTON S.H.  
GOSS BLDG  
CONDENSATE PUMPS

DCAMM Project Number  
DMHXXX XXX

Project Location  
60 HODGES AVENUE  
TAUNTON, MA

Project Prime  
ARCHITECTURAL  
ENGINEERS  
Mechanical | Electrical | Plumbing | Fire Protection | Lighting  
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Project Consultant

SCALE AS NOTED

Site Number: DYS15 (GOSS)  
CAMIS Number: N/A  
Building Number: 658 DMH00900 (GOSS)  
Office of Design and Construction

Original Issue Date  
AUGUST 17, 2021

Revisions  
No. Description Date

Plan Name:  
ELECTRICAL  
LEGEND AND SCHEDULES

Drawing Number:  
E-000



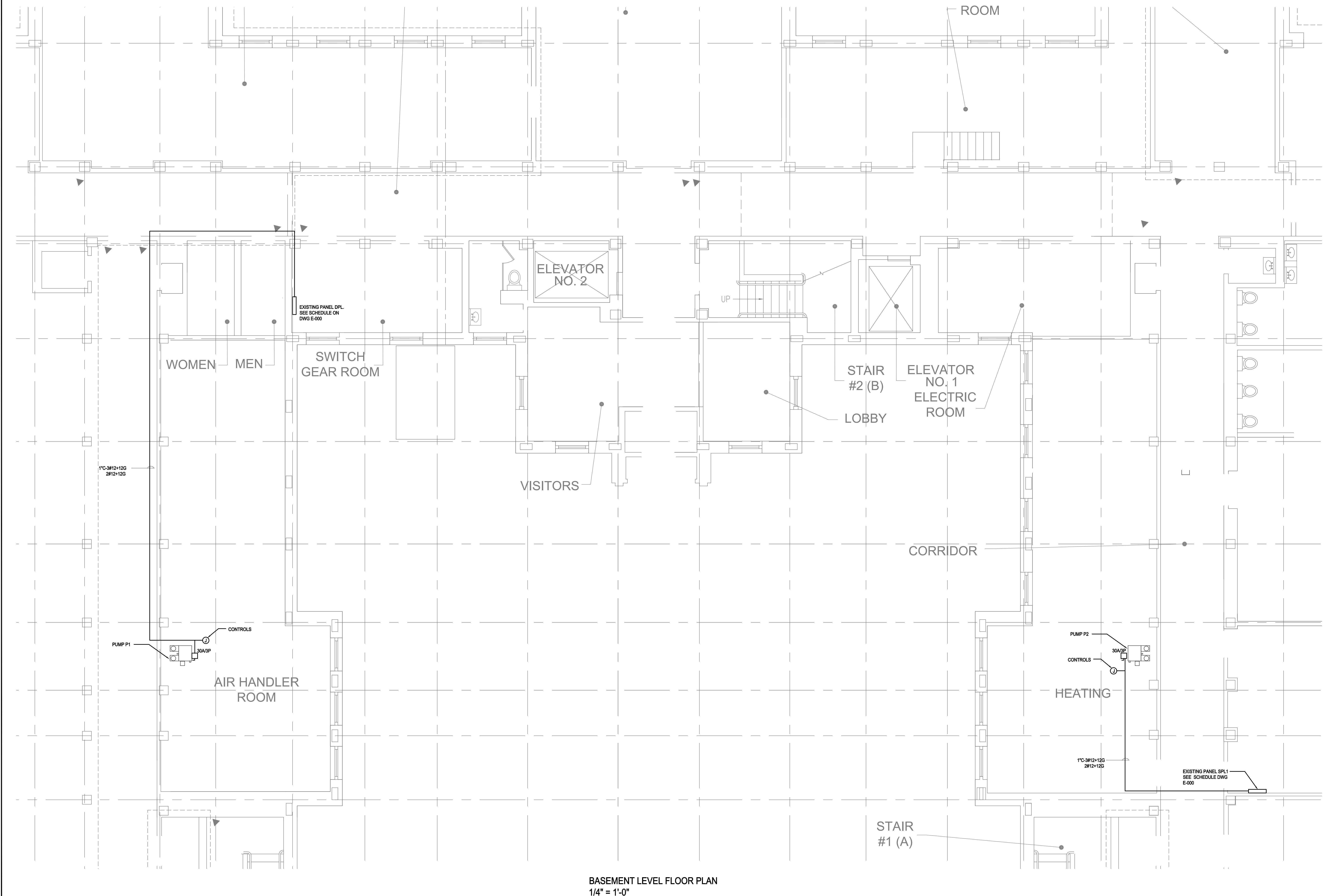
DCAMM

DIVISION OF CAPITAL ASSET  
MANAGEMENT & MAINTENANCE

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Project Name:  
DYS - TAUNTON S.H.  
GOSS BLDG  
CONDENSATE PUMPS

DCAMM Project Number  
DMHXXX XXX

Project Location  
60 HODGES AVENUE  
TAUNTON, MA

Project Prime  
ARCHITECTURAL  
ENGINEERS

Mechanical | Electrical | Plumbing | Fire Protection | Lighting

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Project Consultant

SCALE AS NOTED

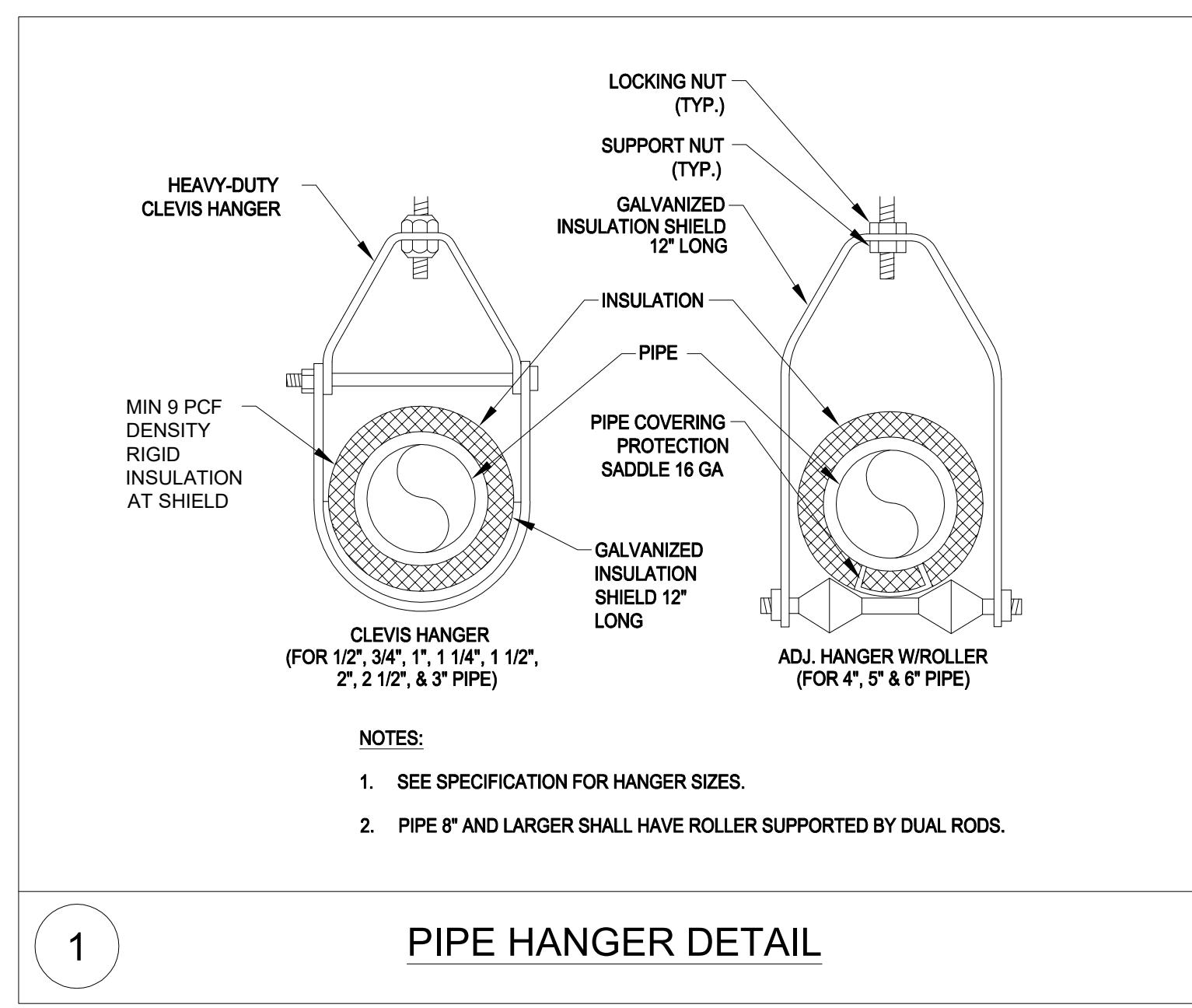
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CAMIS Number: N/A  
Building Number: 658 DMH00900 (GOSS)  
Office of Design and Construction

Original Issue Date  
AUGUST 17, 2021

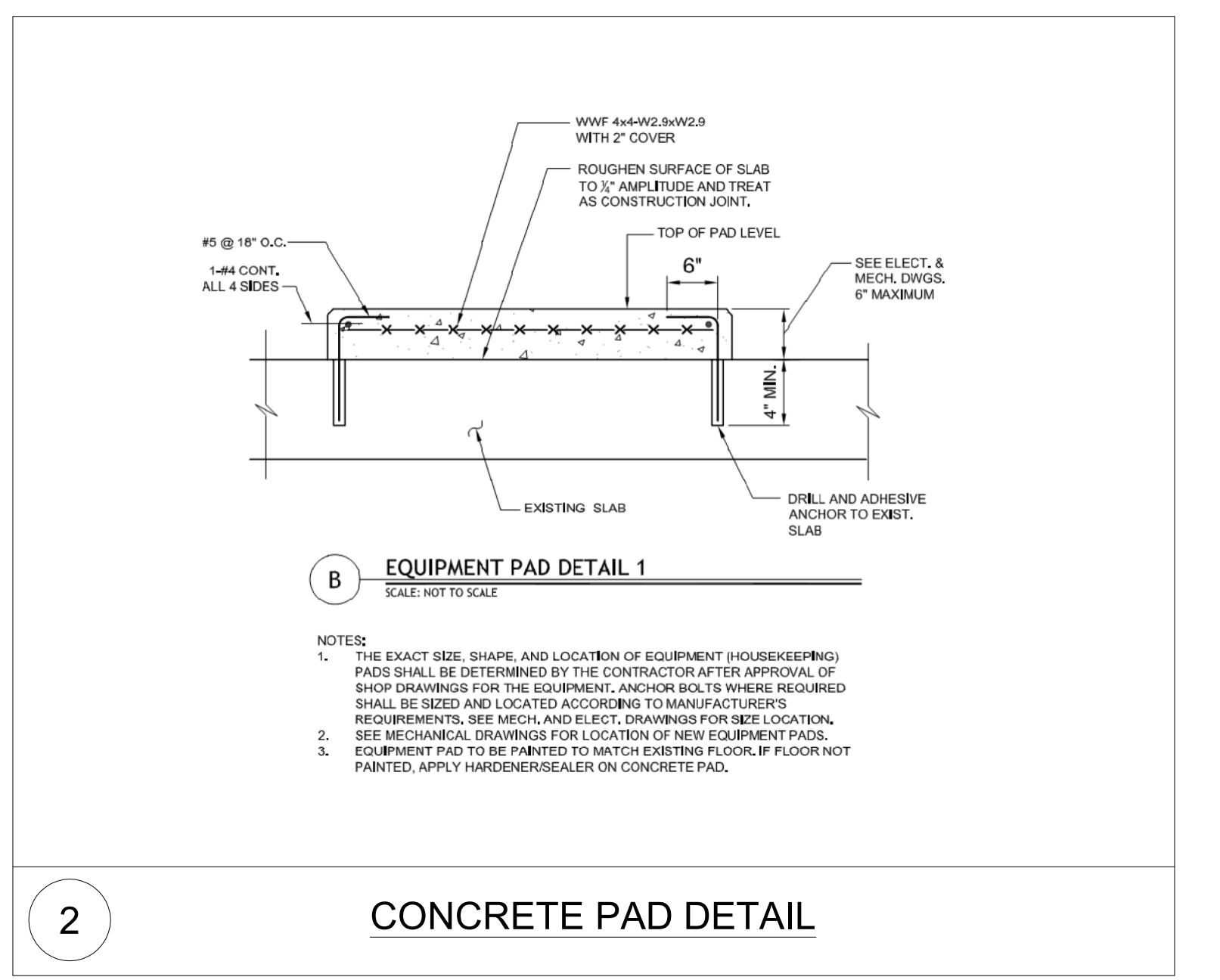
Revisions  
No. Description Date

Plan Name:  
ELECTRICAL  
BASEMENT FLOOR PLAN

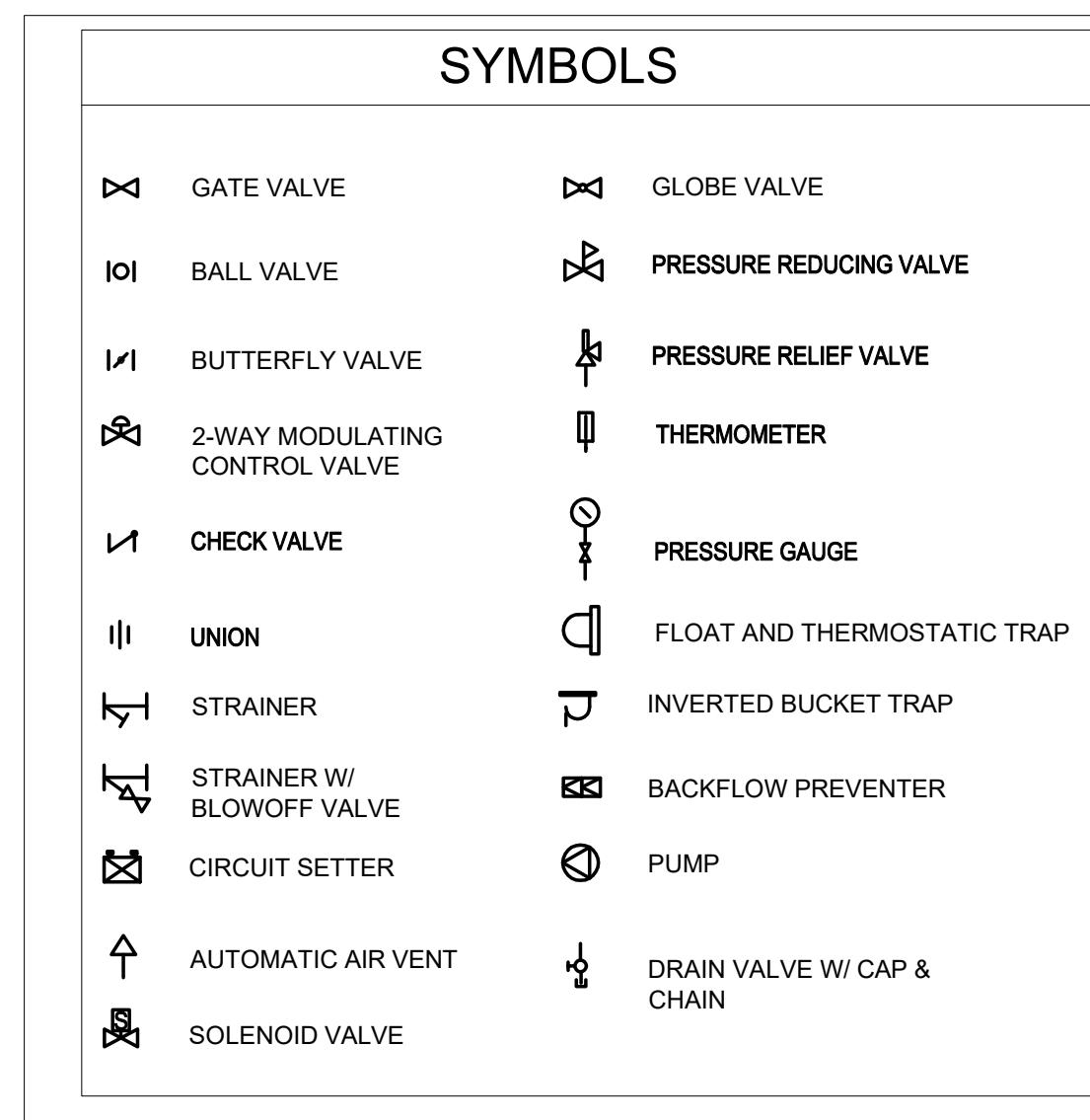
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E-100



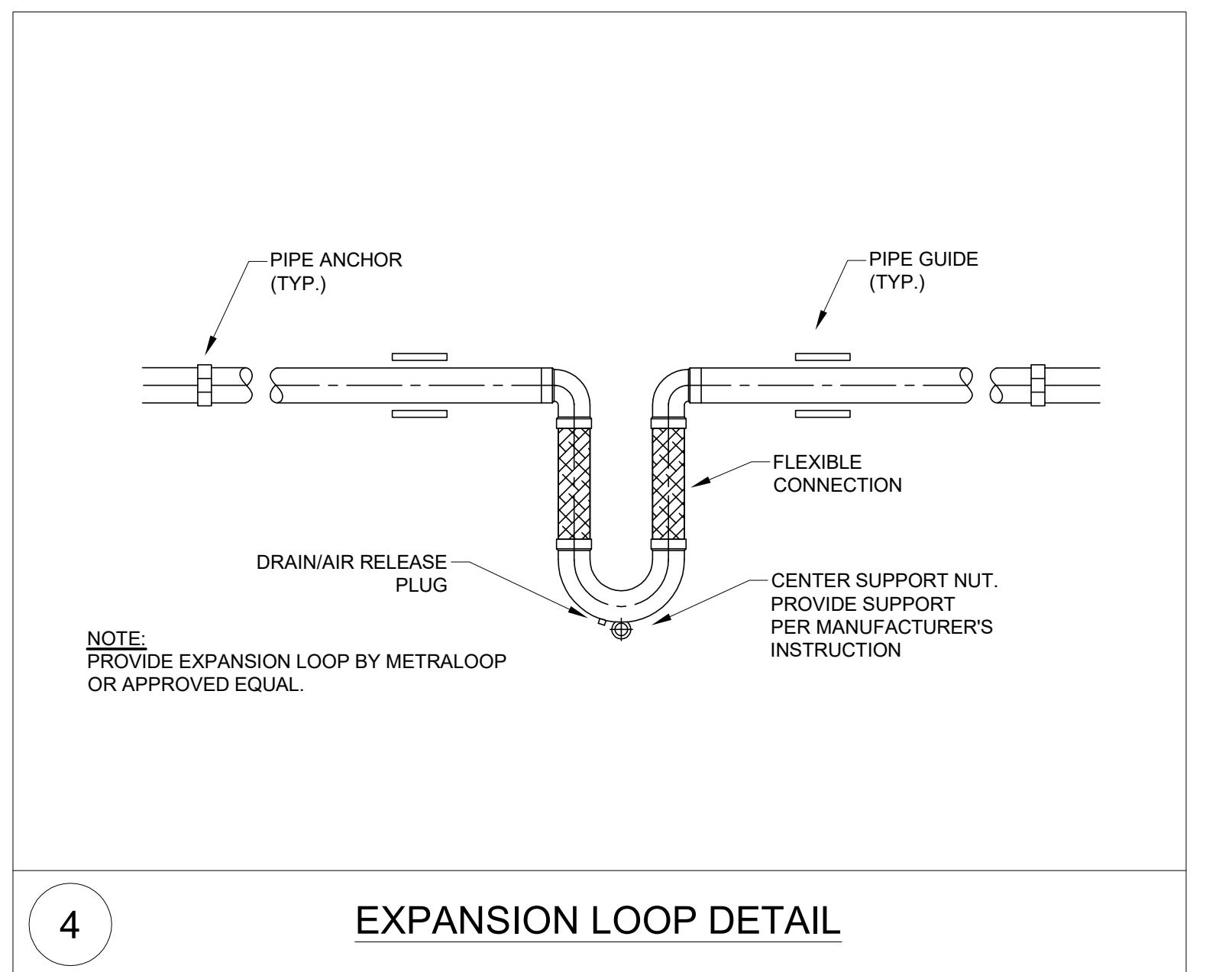
PIPE HANGER DETAIL



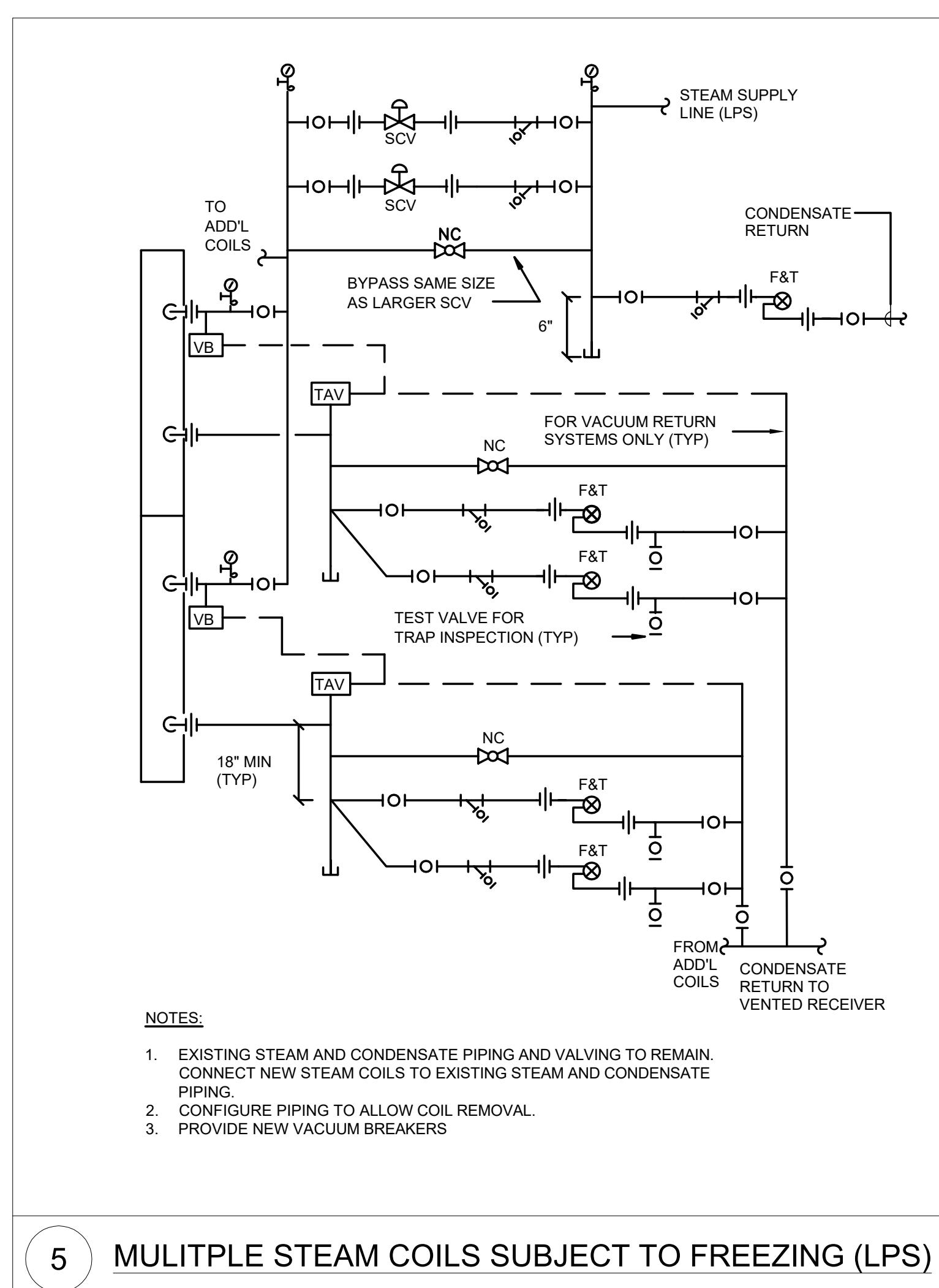
CONCRETE PAD DETAIL



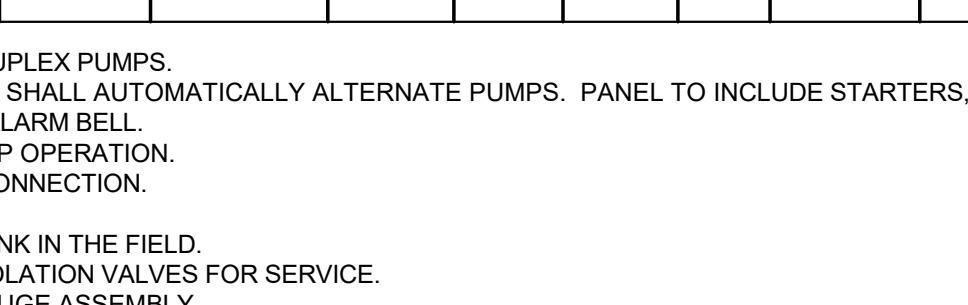
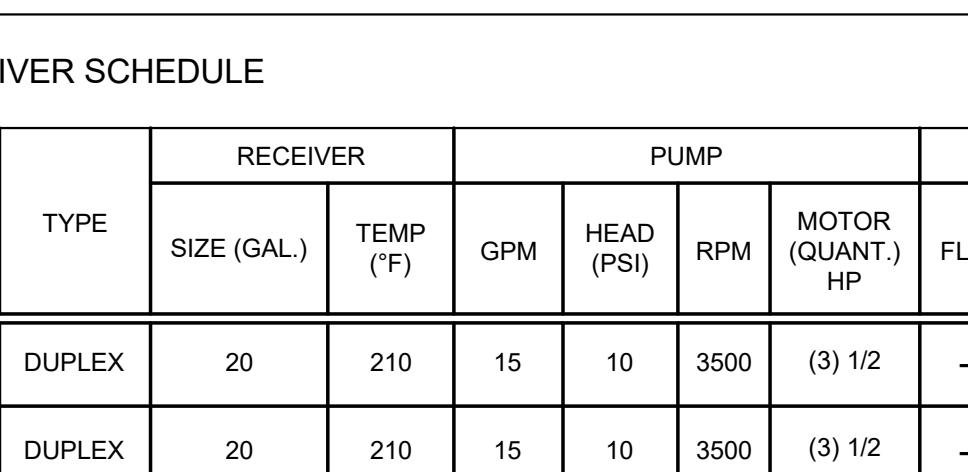
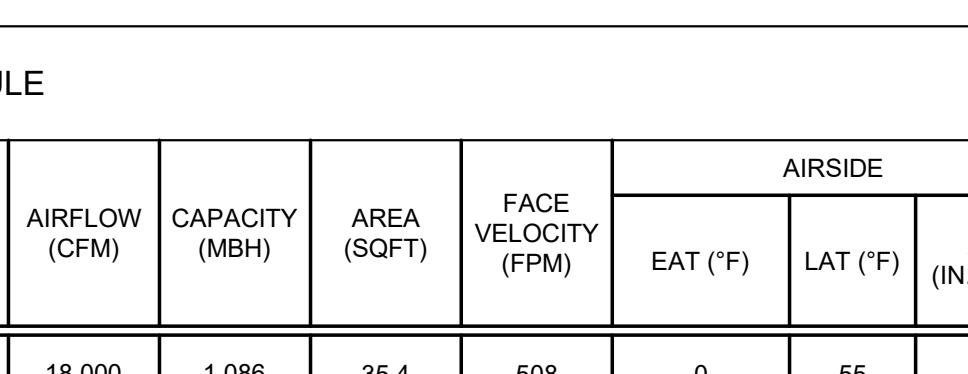
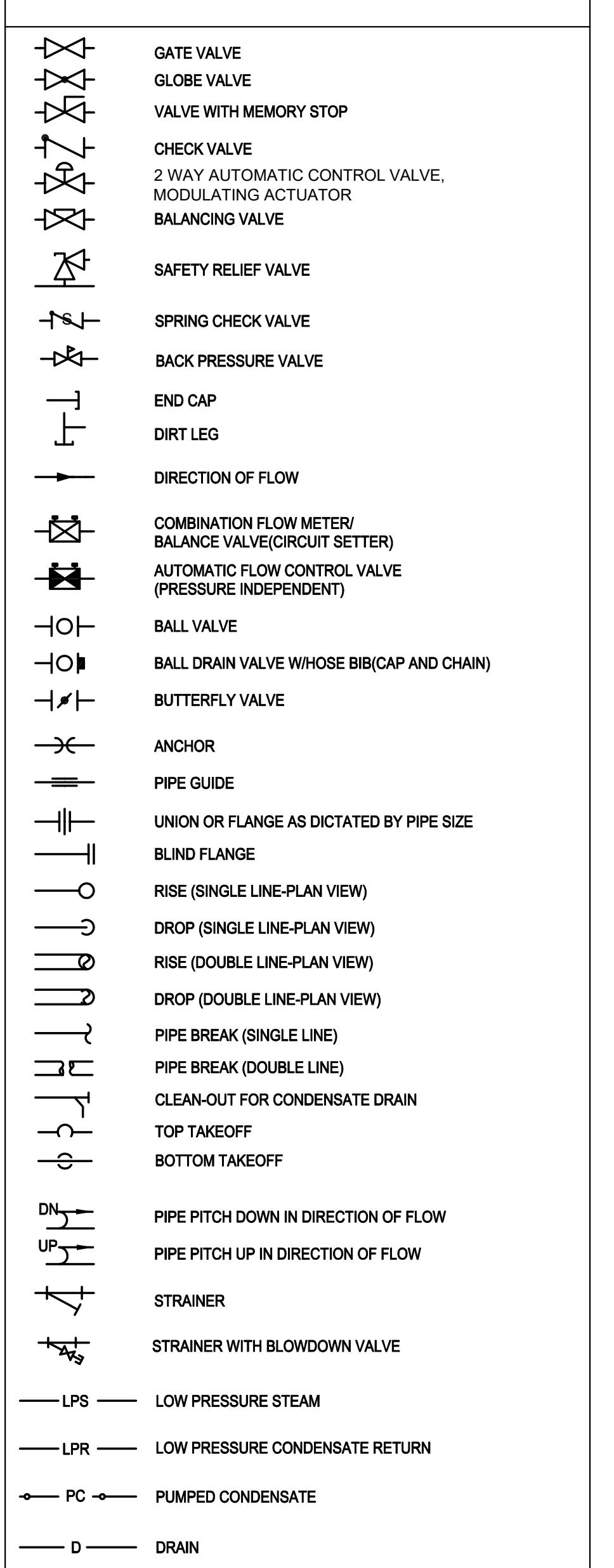
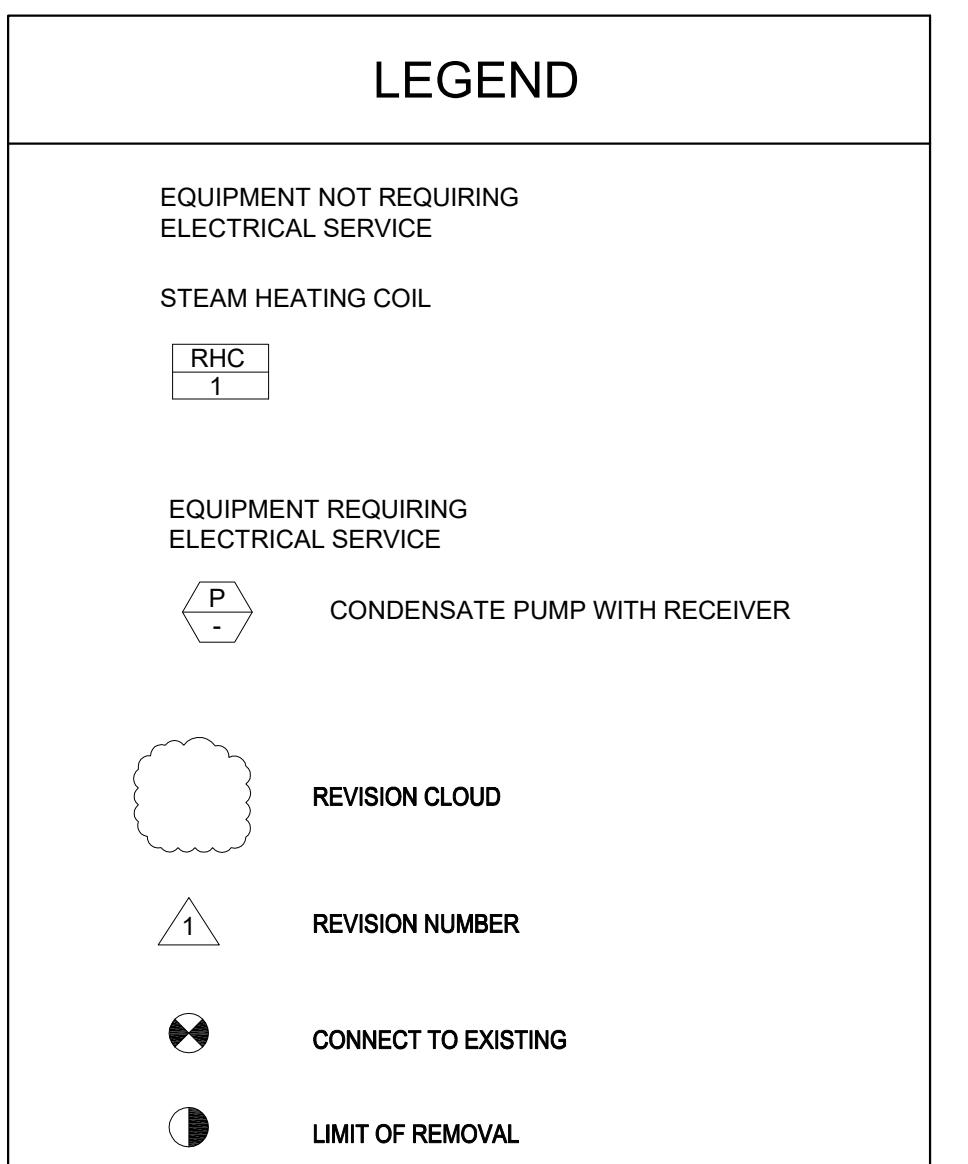
EXPANSION LOOP DETAIL



EXPANSION LOOP DETAIL



MULTIPLE STEAM COILS SUBJECT TO FREEZING (LPS)



Project Name:  
DYS - TAUNTON S.H.  
GOSS BLDG  
CONDENSATE PUMPS

DCAMM Project Number  
DMHXXX XXX

Project Location  
60 HODGES AVENUE  
TAUNTON, MA

Project Prime  
ARCHITECTURAL  
ENGINEERS  
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Project Consultant

SCALE AS NOTED  
Site Number: DYS15 (GOSS)  
CAMIS Number: N/A  
Building Number: 658 DMH0090 (GOSS)  
Office of Design and Construction

Original Issue Date  
AUGUST 17, 2021

Revisions  
No. Description Date

Plan Name:  
MECHANICAL  
LEGEND, DETAILS,  
& SCHEDULES

Drawing Number:  
M-000



DCAMM

DIVISION OF CAPITAL ASSET MANAGEMENT &amp; MAINTENANCE

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