

INVITATION FOR BID (IFB)

**FIRE ALARM SYSTEM REPLACEMENT
AT
CENTER ELEMENTARY SCHOOL**



**TOWN OF LONGMEADOW
MASSACHUSETTS**

July 3, 2019



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INVITATION FOR BID
&
INSTRUCTIONS

**ADVERTISEMENT FOR BID/LEGAL NOTICE:
INVITATION FOR BID (IFB)
FIRE ALARM SYSTEM REPLACEMENT**

The Town is soliciting bids for Fire Alarm System Replacement at Center Elementary School. The consulting engineer is RDK Engineers, Hadley, MA. Sealed bids should be labeled with the name and contact information of the bidder and the bid title 'IFB-Fire Alarm System Replacement' on the outer envelope. Deliver sealed bids to the Town of Longmeadow, Purchasing Department, Attn: Chad Thompson, Procurement Manager, 735 Longmeadow Street, Suite 101, Longmeadow, MA 01106. Sealed bids will be received until the bid deadline of **11:00am on Thursday, July 18, 2019**, after which time all bids will be opened and read aloud in the auditorium of the same building. Late bids will be rejected. The project shall be procured in accordance with the provisions of Massachusetts General Laws, Chapter 149, Section 44A through Section 44J, inclusive.

DCAMM contractor certification is required for the General Contractor and there is no filed sub bid. Every General Bid shall be accompanied by a bid bond, cash, certified check, or treasurer's check issued by a responsible bank or trust company, payable to the "Town of Longmeadow", in the amount of five percent (5%) of the bid amount. Bid documents are only available through the Town of Longmeadow, Purchasing Department, Attn: Chad Thompson, Procurement Manager, 735 Longmeadow Street, Suite 101, Longmeadow, MA 01106 (cthompson@longmeadow.org , Phone: 413-565-4185). Bid documents can be accessed through the Town website, www.longmeadow.org , select 'Government' from the header, then 'Purchasing' department, then select 'Bids & RFPs', then 'Bid & RFP Finder' to access bid documents by title. Bidders are encouraged to register with the Longmeadow Purchasing Department in order to receive updates and addenda. Those that do not register with the Longmeadow Purchasing Department will be required to independently monitor the Longmeadow bid listing service for issued updates and addenda. Failure to acknowledge addenda may result in a bid rejection.

A MANDATORY Pre-Bid Conference is scheduled for Wednesday, July 10, 2019 at 10:00am. Gather at the main entry of Center Elementary School, 837 Longmeadow Street, Longmeadow, MA 01106. Those that attend the Mandatory Pre-Bid Conference should register on the Registration Form during the conference before the conference concludes. Once the Procurement Manager declares that the Mandatory Pre-Bid Conference is 'Complete and Closed' then no others will be allowed to register their attendance for the Mandatory Pre-Bid Conference. Additional site inspection requests will not be accommodated. Bids received from those that have not registered during the Mandatory Pre-Bid Conference will have their bid rejected.

The successful General Bidder will be required to furnish a 100% performance bond, and 100% labor and materials payment bond as set forth in the specifications; each bond executed in the full amount of the Contract Price. Prevailing Wage Rates to be paid on the work of the project are established by a Schedule issued by the Division of Occupational Safety under the Executive Office of Labor and Workforce development, a copy of which is contained in the Contract Documents, and will be made a part of the Contract. No bid shall be withdrawn for a period of thirty (30) calendar days following the bid deadline without written consent by the Town of Longmeadow.

The Town of Longmeadow acting through the Town Manager, the Awarding Authority, reserves the right to reject any or all bids, waive minor informalities and to award a contract in the best interest of the Town of Longmeadow. *(End – Legal Notice)*

INVITATION FOR BID AND INSTRUCTIONS

INVITATION FOR BID (IFB) FIRE ALARM SYSTEM REPLACEMENT

1. The Town is soliciting bids for Fire Alarm System Replacement at Center Elementary School. The consulting engineer is RDK Engineers, Hadley, MA. Sealed bids should be labeled with the name and contact information of the bidder and the bid title 'IFB-Fire Alarm System Replacement' on the outer envelope. Deliver sealed bids to the Town of Longmeadow, Purchasing Department, Attn: Chad Thompson, Procurement Manager, 735 Longmeadow Street, Suite 101, Longmeadow, MA 01106. Sealed bids will be received until the bid deadline of **11:00am on Thursday, July 18, 2019**, after which time all bids will be opened and read aloud in the auditorium of the same building. Late bids will be rejected. The project shall be procured in accordance with the provisions of Massachusetts General Laws, Chapter 149, Section 44A through Section 44J, inclusive.
2. DCAMM certification of the bidding contractor is mandatory.
3. **A MANDATORY Pre-Bid Conference is scheduled for Wednesday, July 10, 2019 at 10:00am. Gather at the main entry of Center Elementary School, 837 Longmeadow Street, Longmeadow, MA 01106.** Those that attend the Mandatory Pre-Bid Conference should register on the Registration Form during the conference before the conference concludes. Once the Procurement Manager declares that the Mandatory Pre-Bid Conference is 'Complete and Closed' then no others will be allowed to register their attendance for the Mandatory Pre-Bid Conference. Additional site inspection requests will not be accommodated. Bids received from those that have not registered during the Mandatory Pre-Bid Conference will have their bid rejected.
4. Every General Bid shall be accompanied by a bid bond, cash, certified check, or treasurer's check issued by a responsible bank or trust company, payable to the "Town of Longmeadow", in the amount of five percent (5%) of the bid amount. Bid documents are only available through the Town of Longmeadow, Purchasing Department, Attn: Chad Thompson, Procurement Manager, 735 Longmeadow Street, Suite 101, Longmeadow, MA 01106 (cthompson@longmeadow.org , Phone: 413-565-4185). Bid documents can also be accessed through the Town website, www.longmeadow.org , select 'Government' from the header, then 'Purchasing' department, then select 'Bids & RFPs', then 'Bid & RFP Finder' to access bid documents by title. Bidders are encouraged to register with the Longmeadow Purchasing Department in order to receive updates and addenda. Those that do not register

with the Longmeadow Purchasing Department will be required to independently monitor the Longmeadow bid listing service for issued updates and addenda. Failure to acknowledge addenda may result in a bid rejection.

5. The successful General Bidder will be required to furnish a 100% performance bond, and 100% labor and materials payment bond as set forth in the specifications; each bond executed in the full amount of the Contract Price. Prevailing Wage Rates to be paid on the work of the project are established by a Schedule issued by the Division of Occupational Safety under the Executive Office of Labor and Workforce development, a copy of which is contained in the Contract Documents, and will be made a part of the Contract. No bid shall be withdrawn for a period of thirty (30) calendar days following the bid deadline without written consent by the Town of Longmeadow.
6. Bidding procedures shall be in accordance with the provisions of Massachusetts General Laws, Chapter 149, Section 44A through Section 44J, inclusive, and Chapter 30, Section 39M, as amended.
7. Prevailing Wage Rates to be paid on the work of the project are established by a Schedule issued by the Division of Occupational Safety under the Executive Office of Labor and Workforce development, a copy of which is contained in the Contract Documents, and will be made a part of the Contract.
8. No bid shall be withdrawn for a period of thirty (30) days, Saturdays, Sundays and legal holidays excluded, after receipt of award, without written consent by the Town of Longmeadow.
9. A CORI check of all Contractor employees will be required of the successful contractor. The contractor will be responsible for all expenses associated with CORI checks.
10. The Town of Longmeadow is exempt from sales tax, for which reason, bidders should not include sales tax in figuring or in reference to any bid.
11. The Town of Longmeadow acting through the Town Manager, the Awarding Authority, reserves the right to reject any or all bids, waive minor informalities and to award a contract in the best interest of the Town of Longmeadow.

INSTRUCTIONS TO BIDDERS

ARTICLE 1 - BIDDER'S REPRESENTATION

- 1.1 Each General Bidder (hereinafter called the "Bidder") by making a bid) represents that:
 1. The Bidder has carefully read and understands the Contract Documents and the bid is made in accordance therewith.
 2. The Bidder has visited the site and is familiar with the local conditions under which the Work has to be performed.
- 1.2 Failure to so examine the Contract Documents and site will not relieve any Bidder from any obligation under the bid as submitted.

ARTICLE 2 - GENERAL BIDDER'S QUALIFICATIONS

- 2.1 The General Bidder shall be required to demonstrate that they have experience with the completion of the project Scope of Work with comparable projects of scale completed for other boiler replacement projects.

ARTICLE 3 – N/A

ARTICLE 4 - REQUESTS FOR INTERPRETATION

- 4.1 By submitting a Bid, the Bidder agrees and warrants that he has carefully examined the site and the Contract Documents, that he is familiar with the conditions and requirements of both or reasonably inferable therefrom, and where they require, in any part of the work, a given result to be produced that the Contract Documents are adequate and that he will produce the required result.
- 4.2 Bidders shall promptly notify the Longmeadow Purchasing Department of any ambiguity, inconsistency or error which they may discover upon examination of the bid documents and specifications, site, local conditions or reasonably inferable therefrom. The Longmeadow Purchasing Department will work with the Architect and Facilities Department to issue a response and clarifications to any changes in specifications. No claims for additional costs will be considered for such ambiguity, inconsistency or error if discovered or inferable from the Contract Documents or existing conditions of the Project after the submission of Bid.
- 4.3 Questions? :
Bidders that have questions or require clarification or interpretation of the bid documents shall make a written request to the Longmeadow Purchasing Department only. For the

General Bid all questions and inquiries must be received no later than 96 Hours (for days) prior to the bid deadline. Questions and inquiries received after the deadline for questions may not be provided.

Bidders will have the opportunity to ask questions during the Mandatory Pre-Bid Conference. An Engineer from NV5 who is the project engineer, and the Facilities Director from the Town of Longmeadow will be present to respond to questions and inquires during the conference. All verbal responses to questions and inquiries that are considered binding will be confirmed by way of addendum and will be posted to the bid listing service that can be accessed through the Town of Longmeadow Purchasing Department page of the website www.longmeadow.org . Bidders show have registered with the Purchasing Department requesting to be added to the bid list will be supplied issued addendum by email.

All other inquiries and questions should be submitted in writing to the Longmeadow Purchasing Department by one of the following methods:

Email: cthompson@longmeadow.org

- 4.4 Interpretation, correction, or change in the Contract Documents will be made by Addendum which will become part of the Contract and Bid Documents. Neither the Awarding Authority nor the Engineer will be held accountable for any oral instructions.
- 4.5 Addenda will be posted and accessible online through the Purchasing Department page of the Town website www.longmeadow.org . Addendum will also be issued to those that have requested to be added to the bid list for the named project who have provided their complete contact information (Bidders should supply contact name, mailing address, email, phone and fax number). Those that do not register on the bid list with the Longmeadow Purchasing Department will be responsible for monitoring the bid listing service accessed through the Purchasing Department page of the Town website. Instructions for accessing addendum online is listed on the Legal Notice page of this document.
- 4.6 Failure of a bidder to acknowledge the receipt of issued addendum may result in a bid rejection. Failure of the Awarding Authority to send, or of any Bidder to receive any such interpretation shall not relieve the Bidder from any obligations under his bid as submitted and all Addenda or interpretations shall become part of the Contract as is fully written therein.
- 4.7 Hard copies of addenda will be made available at the Longmeadow Purchasing Department only.

ARTICLE 5 - PREPARATION AND SUBMISSION OF BIDS

- 5.1 Bids shall be submitted on the "Form for General Bid", as appropriate, furnished at no cost by the Awarding Authority. The forms enclosed in the Project Manual shall not be extracted or used. Additional forms are available at the location listed in the Advertisement. All bid prices submitted must remain firm for thirty (30) days following

the opening of Bids.

- 5.2 All entries on the Bid Form shall be made by typewriter or in ink.
- 5.3 Where so indicated on the Bid Form, sums shall be expressed in both words and figures. Where there is a discrepancy between the bid unit pricing expressed in words and the bid unit pricing expressed in figures, the words shall control. Errors based on multiplication, addition, or subtraction shall be correct based on recalculation from bid unit pricing.
- 5.4 Bid Deposit shall be:
- At least five percent (5%) of the greatest possible bid amount, considering all Alternates; made payable to the Town of Longmeadow
 - in the form of:
 - Cash
 - Certified Check, Treasurer's or Cashier's check issued by a responsible bank or trust company
 - A Bid Bond issued by a surety company licensed to do business in the Commonwealth of Massachusetts and listed in U.S. Treasury Circular 570, and shall be conditioned upon faithful performance by the Principal of the agreements contained in the bid.
 - each Bid Bond must be accompanied by a Power of Attorney
- Bid deposits of the three (3) lowest responsible and eligible General Bidders and the Sub-Bidders, in each sub-trade, shall be retained until the execution and delivery of the Owner/Contractor Agreement.
- 5.5 Date and Time for receipt of bids is set forth in the "Advertisement for Bid". All bids must be received in the Town of Longmeadow's Purchasing Department, 735 Longmeadow St., Suite 101, Longmeadow, MA 01106. The clock in the Purchasing Department shall be the sole determining factor of time.
- 5.6 If at the time of the schedule bid opening, Longmeadow Purchasing Department is closed due to uncontrolled events such as fire, snow, ice, or building evacuation, the bid opening will be postponed until 11:00 A.M. on the next regular business day that town administrative offices is open.
- 5.7 In the event of a tied bid among low bidders that are the lowest Responsible and Eligible bidders, the Town will provide the tied low bidders a written notice of a follow-up bid submission deadline to resubmit a second round of sealed bid submission forms. The tied bidders submitting a second round of bid submission will have the opportunity to publicly attend the second round bid opening. Other bidders from the original bid submission that were not the tied low bidders will not be allowed to participate in the second round bid submission, however their original bid submission will be utilized in the overall bid submission evaluation.
- 5.8 Timely delivery of a bid to the location designated shall be the full responsibility of the Bidder.

- 5.9 The submission of a bid will be construed to mean that the bidder is fully informed as to the extent and character of the supplies, materials, or equipment required and a representation that the bidder can furnish the supplies, materials or equipment in complete compliance with the specifications.

ARTICLE 6 – N/A

ARTICLE 7 - WITHDRAWAL OF BIDS

7.1 Before Opening of Bids

- 7.1.1 Any Bid may be withdrawn prior to the time designated for receipt of bids upon written request. Withdrawal of Bids must be confirmed over the Bidder's signature by written notice post-marked or sent by facsimile on or before the date and time set for receipt of Bids.

- 7.1.2 Withdrawn bids may be resubmitted up to time designated for the receipt of bids.

7.2 After Opening of Bids

- 7.2.1 Bidders may withdraw a bid at any time up to the time of Award as defined in Paragraph 9.1, and upon demonstrating, to the satisfaction of the Awarding Authority that a bona fide clerical error was made during the preparation of the bid. Failure to conclusively demonstrate a bona fide clerical error may result in forfeiture of the bid deposit.

ARTICLE 8 - CONTRACT AWARD

- 8.1 Award means both the determination and selection of the lowest, responsible and eligible bidder, evaluated by the Awarding Authority.

- 8.2 The Awarding Authority will award the contract to the lowest responsible and eligible bidder within thirty days, Saturdays, Sunday, and legal holidays excluded after the opening of bids in accordance with M.G.L. c149 §44A.

- 8.3 The award of this Contract is not subject to any other Agency review or approval.

- 8.4 The Awarding Authority reserves the right to waive any informalities in or to reject any or all Bids if it be in the public interest to do so.

- 8.5 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 less than three sub-bids are received for a sub-trade, or if bid prices are not reasonable for acceptance without further competition.

- 8.6 The Contract will be awarded to the lowest responsible and eligible Bidder, except in the event of substitution as provided under M.G.L. c149 §44E and 44F, in which cases the procedure as required by said sections shall govern the award of the Contract.

- 8.7 As used herein, the term "lowest responsible and eligible Bidder" shall mean the General Bidder whose bid is the lowest of those Bidders, demonstrably possessing the skill, ability and integrity necessary for the faithful performance of the work, and who meets the requirements for Bidders set forth in M.G.L. c.149 §44A-J and not debarred from bidding under M.G.L. c.149 §44C; and who shall certify that they are able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work.

ARTICLE 9 - FORMS REQUIRED AT CONTRACT APPROVAL

- 9.1 Upon Award, the General Bidder shall complete the following forms to ensure prompt contract validation. These forms will be provided to the General Contractor by the Awarding Authority.
- 9.2 Owner/Contractor Agreement and Form of Corporate Vote.
- 9.3 Form of Performance Bond and Form of Payment Bond must be submitted by the General Contractor on the supplied form, in accordance with Article 11 of the General Conditions. The dates of the bonds must coincide with the Contract date, and a current Power-of-Authority must be attached to each bond.
- 9.4 Insurance Certificates for the General Contractor and all Filed Subcontractors are required and must be submitted in accordance with Article 11 of the General Conditions.
- 9.5 Statement of Management on Internal Accounting Controls and a Statement prepared by a CPA expressing an opinion in the State of Management Controls, as required by M.G.L. c30 §39R, if not otherwise on file with the Division of Capital Asset Management.
- .1 This applies to all General Contractors; and applies to any contracts of \$100,000. or more.
- 9.6 No bond will be released by the Town of Longmeadow without a fully executed Release of Lien form by the Contractor to Town of Longmeadow Purchasing Department.

ARTICLE 10 - CONTRACT VALIDATION

- 10.1 The Owner-Contractor Agreement shall not be valid until signed by the Town Manager, the Awarding Authority for the Town of Longmeadow.
- 10.2 The Notice-To-Proceed for construction shall not be issued until the Owner/Contractor Agreement has been validated with a completed contract.
- 10.3 Incomplete or unacceptable submission of the forms required by paragraph 10.2 - 10.5 will delay the validation of the Owner/Contractor Agreement.

ARTICLE 11 - TIME OF COMPLETION

- 11.1 The Contractor shall commence work under this contract as soon as possible and must

obtain Substantial Completion of all Scope of Work for boiler replacement by August 23, 2019, The Substantial Completion Date. Work can be performed during weekdays and also on weekends.

- 11.2 Damages for delays in the performance of the Work shall be in accordance with the Longmeadow Contract and will include liquidated damages in the amount of \$500.00 per calendar day for Scope of Work that is not completed after the Substantial Complete Date.

ARTICLE 12 – MANDATORY PRE-BID CONFERENCE

- 12.1 **A MANDATORY Pre-Bid Conference is scheduled for Wednesday, July 10, 2019 at 10:00am. Gather at the main entry of Center Elementary School, 837 Longmeadow Street, Longmeadow, MA 01106.** Those that attend the Mandatory Pre-Bid Conference should register on the Registration Form during the conference before the conference concludes. Once the Procurement Manager declares that the Mandatory Pre-Bid Conference is ‘Complete and Closed’ then no others will be allowed to register their attendance for the Mandatory Pre-Bid Conference. Additional site inspection requests will not be accommodated. Bids received from those that have not registered during the Mandatory Pre-Bid Conference will have their bid rejected.
- 12.2 All Bidders shall review the Contract Documents and visit the site to ascertain the existing conditions of the work prior to submission of their Bid or be responsible for said conditions within their Bid.

ARTICLE 13 - CONDITION OF THE SITE AND PROJECT DOCUMENTS

- 13.1 All bidders shall visit the site and thoroughly examine all Contract Documents, checking the requirements of the Drawings and Specifications with the existing conditions, before submitting a bid. Inspect and be thoroughly familiar with same and conditions under which work will be carried out. Neither the Owner nor the Engineer will be responsible for errors, omissions and/or charges for extra work arising from General or Subcontractor's failure to familiarize themselves with Contract Documents or existing conditions. By submitting a Bid, the bidder agrees and warrants that he has examined the site and the Contract Documents, that he is familiar with the conditions and requirements of both or reasonably inferable therefrom and where they require, in any part of the work, a given result to be produced that the Contract Documents are adequate and that he will produce the required result.

ARTICLE 14 – COMMONWEALTH OF MASSACHUSETTS REQUIREMENTS

- 14.1 Attention is directed to Chapter 149 of the General Laws and Amendments thereto regulating competitive bidding in the award of contracts for public building projects, and the selection of sub-bidders, and applicable sections of which by reference become a part of the information for bidders, and to all other statutory or other pertinent law, applicable thereto.

BID FORM

FORM FOR GENERAL BID

NAME OF BIDDER: _____

TO THE AWARDING AUTHORITY

A. The undersigned proposes to furnish all labor and materials required for IFB – FIRE ALARM SYSTEM REPLACEMENT, in accordance with the Invitation for Bid documents for the Contract Price specified below, subject to additions and deductions according to the terms of the specifications.

B. This Bid includes Addenda number(s) _____.

C. The proposed Contract Price is: _____

_____ **dollars** _____
 (Bid Amount in Words) (Bid.Amount.in.Numbers)

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

ITEM 1. The work of the general contractor, being all work other than that covered by ITEM 2.

TOTAL OF ITEM 1 \$ _____.

ITEM 2. Sub-bids as follows:

Sub-trade	Name of Sub-Bidder	Amount	Bonds Required indicated by YES or NO	
_____	_____	\$ _____	_____	_____
_____	_____	\$ _____	_____	_____
TOTAL OF ITEM 2		\$ _____		

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

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

F. The undersigned agrees that, if selected General Contractor, he will within five days, Saturdays, Sundays and legal holidays excluded, after presentation thereof, by the Awarding Authority, execute a Contract in accordance with the terms of this Bid and furnish a Performance Bond and also a Labor and Materials or Payment Bond, each of a Surety company qualified to do business under the laws of the Commonwealth and satisfactory to the Awarding Authority and each in the sum of the Contract price, the premiums for which are to be paid by the General Contractor and are included in the Contract price; provided that if there is more than one surety, each surety shall be jointly and severally liable.

The Undersigned hereby certifies that he is able to furnish labor that can work in harmony with all other

elements of labor employed or to be employed on the Work and that he will comply with all laws and regulations applicable to awards made subject to Section 44A.

G. The Undersigned hereby certifies, under penalties of perjury, that they have complied with all Laws of the Commonwealth relating to taxes, reporting of employees and Contractors, and withholding and remitting Child Support.

H. The Undersigned hereby certifies, under penalties of perjury, 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 shall furnish documentation of successful completion of said course with the first certified payroll report for each employee.

I. **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 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 of Massachusetts 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.**

Name of General Bidder Date

By: _____
Signature & Title of Person Signing Bid

Business Address

Email Address Phone Number

Corporate Seal, If Applicable City and State Zip Code

Note: If the Bidder is a corporation, indicate State of incorporation under signature, and affix corporate seal; if a partnership, give full names and residential addresses of all partners, and if an individual, give residential address if different from business address.

DCAMM FORMS TO SUBMIT WITH YOUR BID SUBMISSION:

HAVE YOU SUPPLIED YOUR DCAMM CERTIFICATE OF ELIGIBILITY FORM WITH YOUR BID SUBMISSION?
YES _____, NO _____

HAVE YOU SUPPLIED YOUR DCAMM UPDATE STATEMENT WITH YOUR BID SUBMISSION?
YES _____, NO _____

CONTRACT

OWNER-CONTRACTOR AGREEMENT
FOR PUBLIC BUILDING CONSTRUCTION OR RENOVATION

THIS AGREEMENT made this _____ day of July in the year Two Thousand and Nineteen, between VENDOR, with a usual place of business at ADDRESS, hereinafter called the CONTRACTOR, and the Town of Longmeadow, Massachusetts acting by its Town Manager and/or Select Board, with a usual place of business at 20 Williams Street, Longmeadow, MA 01106, hereinafter called the OWNER.

The CONTRACTOR and the OWNER, for the consideration hereinafter named, agree as follows:

1. Scope of Work

The Contractor shall furnish all labor, materials, equipment and insurance to perform all work required for the project known as Fire Alarm System Replacement at Center Elementary School in strict accordance with the Contract Documents and all related Drawings and Specifications per IFB packet, ATTACHMENT A: Town of Longmeadow, Invitation for Bid (IFB): Fire Alarm System Replacement at Center Elementary School, dated July 3, 2019, and Addendum No....(if any). The said Documents, Specifications, Drawings and any general supplementary conditions are incorporated herein by reference and are made a part of this Agreement.

2. Contract Price

The Owner shall pay the Contractor for the performance of this Agreement, subject to additions and deductions provided herein, in current funds, the sum of \$ TBD per bid price proposal specifications, ATTACHMENT B, Bid Submission Forms submitted by TBD, signed and dated by TBD.

3. Commencement and Completion of Work and Liquidated Damages

It is agreed that time is of the essence of this Agreement. The Contractor shall commence with the Scope of Work and obtain **Substantial Completion of August 23, 2019**. Work shall be completed during hours and as specified in the IFB document.

- A. Definition of Term: The Term "Substantial Completion" shall mean the date certified by the Owner when construction is sufficiently complete, in accordance with the Contract Documents, so the Owner may occupy the project, or designated portion(s) thereof, for the use for which it is intended.
- B. Time as Essential Condition: It is understood and agreed that the commencement of and substantial completion of the work are essential conditions of this Agreement. It is

further agreed that time is of the essence for each and every portion of the Contract Documents wherein a definite and certain length of time is fixed for the performance of any act whatsoever; and where under the Contract Documents any additional time is allowed for the completion of any work, the new time fixed by such extension shall be of the essence of this Agreement. It is understood and agreed that the times for the completion of the work are reasonable, taking into consideration the average climatic range and usual industrial conditions prevailing in this locality.

- C. Progress and Completion: Contractor shall commence work promptly upon execution of this Agreement and shall prosecute and complete the work regularly, diligently and uninterruptedly at such a rate of progress as will insure Substantial Completion within the stipulated number of calendar days.
- D. Liquidated Damages: It is expressly agreed between the Contractor and the Owner that the Contractor will be responsible for all damages which may arise due to the Contractor's failure to substantially complete the work within the above specified time. If the Contractor shall neglect, fail or refuse to complete the work within the specified number of days, or any extension thereof authorized by the Owner, Contractor agrees, as a part of the consideration for the execution of this Contract by the Owner, to pay the Owner the amount specified herein, not as a penalty, but as liquidated damages for such breach of contract as hereinafter set forth, for each and every calendar day, excluding Saturdays, Sundays and legal Holidays, that the Contractor shall be in default of Substantial completion after the date specified in the Agreement. Due to the impracticability and extreme difficulty of fixing and ascertaining the actual damages the Owner would in such event sustain, said amount is agreed to be the amount of damages which the Owner would sustain, and said amount shall be retained from time to time by the Owner from current periodic estimates. The amount of liquidated damages shall \$500.00 per calendar day per for Liquidated Damages after the Substantial Completion Date.

4. Performance of the Work

- A. Direction of the Work: The Contractor shall supervise and direct the Work, using his best skills and attention which shall not be less than such state of skill and attention generally rendered by the contracting profession for projects similar to the Project in scope, difficulty and location. The Contractor shall maintain adequate supervisory personnel at the project site during the performance of the Work. He shall be solely responsible for all construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Agreement.
- B. Responsibility for the Work: (1) The Contractor shall be responsible to the Owner for the acts and omissions of his employees, Subcontractors and their agents and employees, and other persons performing any of the Work under a contract with the Contractor. This obligation shall also extend to the presence on the Site of suppliers of materials or equipment, their employees, contractors, and agents engaged in the work.

(2) The Contractor shall not be relieved from his obligations to perform the Work in accordance with the Contract Documents either by the activities or duties of the Owner in its administration of the Agreement, or by inspections, tests or approvals required or performed by persons other than the Contractor.

- C. Permits and Fees: Unless otherwise expressly provided, the Contractor shall secure and pay for all permits and fees, licenses and inspections necessary for the proper execution and completion of the Work which are customarily secured after execution of the Agreement and which are legally required at the time the bids are received, and the same shall at all times be the property of the Owner and shall be delivered to the Owner upon completion of the Project. Permits that would be obtained from the Town of Longmeadow Building Department shall be provided at no charge to the Contractor.
- D. Notices, Compliance With Laws: (1) The Contractor shall give all notices and comply with all federal, state and local laws, ordinances, rules, regulations and lawful orders of any public authority bearing on the performance of the Work. The Contractor shall provide the Owner with reproductions of all permits, licenses and receipts for any fees paid. The Owner represents that it has disclosed to the Contractor all orders and requirements known to the Owner of any public authority particular to this Agreement.
- (2) If the Contractor observes that any of the Contract Documents are at variance with applicable laws, statutes, codes and regulations in any respect, he shall promptly notify the Owner in writing, and any necessary changes shall be accomplished by appropriate modification.
- (3) If the Contractor performs any Work which he knows or should know is contrary to such laws, ordinances, rules and regulations, and without such notice to the Owner, he shall assume full responsibility therefor and shall bear all costs attributable thereto.
- (4) In the performance of the Work, the Contractor shall comply with all applicable federal, state and local laws and regulations including those relating to workplace and employee safety. The Contractor shall notify the Owner immediately of any conditions at the place of the work which violate said laws and regulations and shall take prompt action to correct and eliminate any such violations.
- E. Project Superintendent: The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site at all times during the progress of the Work. The superintendent shall represent the Contractor and all communications given to the superintendent shall be as binding as if given to the Contractor. Important communications shall be confirmed in writing. Other communications shall be so confirmed on written request in each case.
- F. Progress Schedule: The Contractor, immediately after being awarded the Contract, shall prepare and submit for the Owner's information an estimated progress schedule for the Work. The progress schedule shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work.
- G. Drawings, Specifications and Submittals:
- (1) The Contractor shall maintain at the site for the Owner one record copy of all Drawings, Specifications, Addenda, Change Orders and other Modifications, and "As-Built" Drawings and Specifications in good order and marked currently to record all changes made during construction, and approved Shop Drawings,

Product Data and Samples. These shall be delivered to the Owner upon completion of the Work.

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

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

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

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

H. Protection of the Work and Owner's Property: The Contractor shall at all times safely guard the Owner's property from injury or loss in connection with this Agreement. He shall at all times safely guard and protect his own work, and that of adjacent property from damage. The Contractor shall replace or make good any such damage, loss or injury. The Contractor shall clean the work area and restore it to its original condition upon completion of the work.

(6) The Contractor shall comply with applicable OSHA, State and municipal regulations and requirements for services and facilities in the performance of all requirements of this contract. OSHA safety requirements shall be adhered to for all personnel performing construction, reconstruction, alteration, remodeling or repair of any building or public works project.

I. Quality of the Work: The Contractor shall perform the work in a good, workmanlike manner. The Contractor hereby guarantees that the entire work constructed by him under the Agreement will meet fully all requirements thereof as to quality of workmanship and materials. The Contractor hereby agrees to make at his own expense any repairs or replacements made necessary by defects in materials or workmanship supplied to him that become evident within one (1) year after the date of the final payment, and to restore to full compliance with the requirements set forth herein any part of the work constructed hereunder, which during said one (1) year period is found to be deficient with respect to any provisions of the Contract Documents. The Contractor also agrees to hold the Owner harmless from claims of any kind arising from damage due to said defects. The Contractor shall make all repairs and replacements promptly upon receipt of written orders for same from the Owner. If the Contractor fails to make the repairs and

replacements promptly, the Owner may do the work and the Contractor shall be liable to the Owner for the cost thereof.

- J. Warranty: The Contractor guarantees to Owner that all materials incorporated into the work will be new unless otherwise specified or agreed. Prior to final payment, the Contractor shall deliver to the Owner all manufacturers' warranties, together with such endorsements or assignments as are necessary to ensure to the Owner the full rights and benefits of such warranties.

5. Equal Employment Opportunity

The Contractor is directed to comply with all applicable State Laws, Ordinances, Bylaws, and rules and regulations regarding affirmative action/equal employment opportunity requirements. Failure of the Contractor to comply with any such law, rule or regulation shall constitute grounds for the Owner to terminate the Agreement.

6. Site Information Not Guaranteed; Contractor's Investigation

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

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

Contractor has familiarized himself with the nature and extent of the Contract Documents, work, locality, and with all local conditions and federal, state, and local laws, rules, ordinances, and regulations that in any manner may affect costs, progress, or performance of the work. Contractor has made, or has caused to be made, examinations, investigations, and tests and studies of such reports and related data in addition to those referred to in the paragraph above as he deems necessary for the performance of the work at the Contract Price, within the Contract Time, and in accordance with the other Terms and Conditions of the Contract Documents; and no additional examinations, tests, investigations, reports, and similar data are or will be required by the Contractor for such purposes.

Contractor has correlated the results of all such observations, examinations, investigations, tests, reports, and data with the Contract Documents. Contractor has given the Owner written notice of all conflicts, errors, or discrepancies that he has discovered in the Contract Documents, and the resolution thereof by the Owner is acceptable to the Contractor.

It is further agreed and understood that the Contractor shall not use or be entitled to use any of the information made available to him or obtained in any examination made by him in any manner as a basis of or ground for any claim or demand against the Owner, arising from or by reason of any variance which may exist between the information made available and the actual subsurface conditions or other conditions or structures actually encountered during the construction work, except as may otherwise be expressly provided for in the Contract Documents.

7. Project Architect or Engineer

There is not _____, There is X is a project architect-engineer for this project who is NV5. Except as otherwise indicated in the Contract Documents, the Architect/Engineer shall be a representative of the Owner and the Contractor shall direct all communications, questions and comments on the work and the performance thereof to the Architect/Engineer. Except as otherwise provided, the Architect/Engineer shall have all the authority of the Owner set forth in the Contract Documents. In general, the Architect/Engineer shall have the authority to review the performance of the work, reject work which is defective or otherwise does not comply with the Contract Documents and to order the Contractor to remedy defective work and take such actions which are necessary to make the work conform to the Contract Documents.

8. Wage Rates

Prevailing Wage Rates as determined by the Commissioner of the Department of Labor and Workforce Development under the provisions of Massachusetts General Laws, Chapter 149, Section 26 to 27H, as amended, apply to this project. It is the responsibility of the Contractor to provide the Town with certified payrolls and to comply with all requirements of the above-cited statutes.

The schedules of prevailing wage rates are included in the Contract Documents.

9. Payments to the Contractor

Within fifteen (15) days after receipt from the Contractor of a periodic estimate requesting payment of the amount due for the preceding month, the Owner shall have fifteen (15) days to make payment for:

- A. The work performed during the preceding month.
- B. 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 Owner.
- C. Less the following retention items:
 - 1. A retention based on an estimate of the fair value of the Owner's claims against the Contractor.
 - 2. A retention for direct payments to Subcontractors, if any, based on demands for same in accordance with the provisions of Section 39F of Chapter 30 of the General Laws.
 - 3. A retention not exceeding five percent (5%) of the approved amount of the periodic payment.
- D. After the receipt of a periodic estimate requesting final payment and within sixty-five

(65) days after the Contractor fully completes the Work, or substantially completes the Work so that the value of the Work remaining to be done is, on the estimate of the Owner, less than 1% of the original Contract Price, or substantially completes the Work and the Owner takes possession or occupancy, whichever occurs first, the Owner shall pay the Contractor the entire balance due on the Contract less:

1. A retention based on an estimate of the fair value of the Owner's claims against the Contractor and of the cost of completing the incomplete and unsatisfactory items of work.
2. A retention for direct payments to Subcontractors, if any, based on demands of same in accordance with the provisions of Section 39F of Chapter 30 of the General Laws, 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 39F of Chapter 30 of the General Laws.

If the Owner fails to make payment as herein provided, there shall be added to each such payment, daily interest at the rate of 3 percentage points above the rediscount rate than 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 of a periodic estimate for final payment until fifteen (15) days after receipt of such a periodic estimate by the Owner as provided in the first paragraph of this Article. The Contractor agrees to pay to each subcontractor a portion of any such interest paid in accordance with the amount due each subcontractor.

The Owner 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 changes so made, and such changes and any requirements 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 further, that the Owner may, within seven (7) days after receipt, return to the Contractor for correction, any periodic estimate which is not in acceptable 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.

- E. Changes in the Work: No changes in the work covered by the approved Contract Documents shall be made without prior written approval of the Owner. Charges or credits for the work covered by the approved change shall be determined by one or more, or a combination of the following methods:
- (a) Unit bid prices previously approved.
 - (b) An agreed lump sum.
 - (c) The actual cost of:
 - (1) Labor.

- (2) Materials entering permanently into the work.
- (3) The ownership or rental cost of construction equipment during the time of use on the extra work.
- (4) Power and consumable supplies for the operation of power equipment.
- (5) Wages to be paid.

To the cost under (c) there shall be added a fixed fee to be agreed upon but not to exceed fifteen percent (15%) of the actual cost of work. The fee shall be compensation to cover the cost of supervision, overhead, bond, profit and any other general expenses.

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

10. Final Payment, Effect

The acceptance of final payment by the Contractor shall constitute a waiver of all claims by the Contractor arising under the Agreement.

11. Contract Documents

The Contract Documents consist of the following, together with this Agreement:

- Invitation for Bid
- Instructions to Bidders
- This Contract Form
- General Bid, Bid Form
- DCAMM Certificate of Eligibility
- Asbestos Acknowledgement Form
- 100% Payment Bond
- 100% Performance Bond
- Non-Collusion Certificate
- Tax Compliance Certificate
- Clerk's Certificate of Corporate Vote
- Certificate of Insurance
- General Conditions
- Specifications and Addenda
- Contract Drawings
- Schedule of Prevailing Wages 20190702-048

12. Terms Required By Law

This Agreement shall be considered to include all terms required to be included in it by the Massachusetts General Laws, and all other laws, as though such terms were set forth in full

herein.

13. Indemnification

The Contractor shall indemnify and hold harmless the Owner from and against any and all claims, damages, losses, and expenses, including attorney's fees, arising out of the performance of this Agreement when such claims, damages, losses, and expenses are caused, in whole or in part, by the acts, errors, or omissions of the Contractor or his employees, agents, subcontractors or representatives.

14. Insurance

The Contractor shall purchase and maintain such insurance as will protect both the Owner and the Contractor from claims which may arise under the Agreement, including operations performed for the named insured by independent contractors and general inspection thereof by the named insured. In addition, the Contractor shall require its subcontractors to maintain such insurance. Coverage shall be 1,000,000.00 aggregate provided for:

- .1 claims under workers' or workmen's compensation, disability benefit and other applicable employee benefit acts;
- .2 claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;
- .3 claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;
- .4 claims for damages insured by usual personal injury liability coverage which are sustained (1) by any person as a result of an offense directly or indirectly related to the employment of such person by the Contractor, or (2) by any other person;
- .5 claims for damages, including damages to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom; and
- .6 claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.
- .7 claims involving contractual liability applicable to the Contractor's obligations

The limits of liability for coverage required under the preceding paragraph shall be as required by the Owner.

Except for Workmen's Compensation, all liability coverage shall name the Town of Longmeadow as an additional insured and shall provide for 30 days prior written notice to the Town of any modification or termination of coverage provided thereby. The Contractor shall provide the Owner with appropriate certificate(s) of insurance evidencing compliance with this provision prior to the commencement of any work under this Agreement.

In the event that the 'Standard General Conditions of the Construction Contract prepared by Engineers Joint Contract Documents Committee' contained within this IFB requires additional insurances, the additional insurances will be required from the awarded contractor as

part of the requirement for receiving the contract award.

15. Notice

All notices required to be given hereunder shall be in writing and delivered to, or mailed first class to, the parties' respective addresses stated above. In the event that immediate notice is required, it may be given by telephone or facsimile, but shall, to the extent possible, be followed by notice in writing in the manner set forth above.

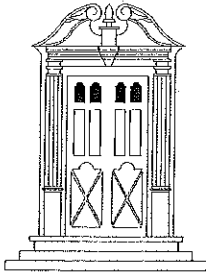
16. Termination

- A. Each party shall have the right to terminate this Agreement in the event of a failure of the other party to comply with the terms of the Agreement. Such termination shall be effective upon seven days' notice to the party in default and the failure within that time of said party to cure its default.
- B. The Owner shall have the right to terminate the Agreement without cause, upon ten (10) days' written notice to the Contractor. In the event that the Agreement is terminated pursuant to this subparagraph, the Contractor shall be reimbursed in accordance with the Contract Documents for all Work performed up to the termination date, and for all materials or equipment not incorporated in the Work, but delivered and suitably stored at the site. Payment for material or equipment stored at the site shall be conditioned upon submission by the Contractor of bills of sale or such other evidence as is satisfactory to Owner to establish the Owner's title to such material or equipment or otherwise protect the Owner's interests.

17. Miscellaneous

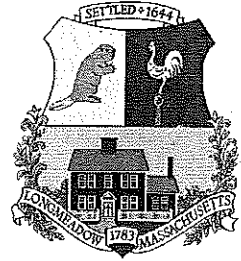
- A. **Royalties and Patents:** The Contractor shall pay all royalties and license fees. He shall defend all suits or claims for infringement of any patent rights and shall save the Owner harmless from loss on account thereof, except that the Owner shall be responsible for all such loss when a particular design, process or the product of a particular manufacturer or manufacturers is specified; but if the Contractor believes or has reason to believe that the design, process or product specified is an infringement of a patent, he shall be responsible for such loss unless he promptly gives such information to the Owner, and thereafter the Owner insists on the use of the design, process or products specified.
- B. **Assignment:** The Contractor shall not assign or transfer any of its rights, duties or obligations under this Agreement without the written approval of the Owner.
- C. **Governing Law:** This Agreement shall be governed by and construed in accordance with the law of the Commonwealth of Massachusetts.
- D. By its signature hereon, the Contractor certifies, under the pains and penalties of perjury, that it has complied with all laws of the Commonwealth of Massachusetts relating to taxes, reporting of employees and contractors, and withholding and remitting child support.

ASBESTOS PROCEDURE ACKNOWLEDGEMENT FORM



incorporated 1783

Town of
LONGMEADOW, MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS



This notice should be distributed annually to all contractors and vendors conducting work in schools where asbestos has been identified, or is assumed to be present. Each contract should complete a copy of this notice and sign into the school's Visitor Log. The original copy will be maintained in the management plan.

Your work may disturb Asbestos Containing Materials ("ACM").

Location of Asbestos Containing Materials

A list of the known and presumed ACM is located in the "asbestos maintenance plan" binder of each school. You must review the list before conducting any work in this school building.

Disturbing Asbestos Containing Materials and Presumed Asbestos Containing Materials

- If you suspect a material may contain asbestos, contact the district Designated Person, TODD CARNEY at 413-565-4232 before disturbing it.
- Personnel who disturb ACM must be properly trained, and use proper equipment and personal protective gear.
- Personnel who disturb ACM must follow the specific Operations and Maintenance Procedures in the school's management plan to ensure that school occupants are not exposed to asbestos dust, and ensure that asbestos dust does not contaminate building areas.
- A licensed Asbestos Contractor is required when more than three linear or square feet are disturbed.

Warning Signs are located in non-public maintenance areas. The lack of a warning sign does not indicate that no asbestos containing materials are present.

Please sign below and return this document to the school office as agreement that you have been notified of the presence of asbestos, and your acceptance that you will not disturb suspect asbestos containing materials.

Print Name: _____

Sig _____

Company _____

TO BE COMPLETED UPON CONTRACT AWARD

IN WITNESS WHEREOF, the parties hereto have set their hands and seals, the Owner by its authorized representatives who, however, incur no personal liability by reason of the execution hereof or of anything herein contained, as of the day and year first above written.

BID BOND

KNOW ALL PERSONS BY THESE PRESENTS, that we, the undersigned

_____ as Principal, and

_____ as Surety, are hereby held and firmly bound unto

The Town of Longmeadow, Massachusetts as Owner, in the penal sum of \$ _____
(_____ dollars and _____ cents) for the
payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, heirs,
executors, administrators, successors and assigns.

Signed this _____ day of _____ 20____.

The Condition of the above obligation is such that whereas the Principal has submitted to **The Town of Longmeadow, Massachusetts** A certain BID, attached hereto and hereby made a part hereof, to enter into a contract in writing, for _____.

NOW, THEREFORE,

(a) If the said BID shall be rejected, or in the alternate,

(b) If said BID shall be accepted and the Principal shall execute and deliver a contract in the Form of Contract contained in the Contract Document properly completed in accordance with said BID) and shall furnish a BOND for his/her faithful performance of said contract, and for a payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said BID. then this obligation shall be void, otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its BOND shall be in no way impaired or affected by an extension of the time within which the OWNER may accept such BID; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

Principal

(SEAL)

Surety

By

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State of Massachusetts.

PAYMENT BOND

Know all persons by these presents, that _____ as principal,
and _____ as surety are held and firmly bound
unto **The Town of Longmeadow, Massachusetts** the sum of _____ lawful
money of the United States of America, for a **100% Payment Bond** to be paid to **The Town of
Longmeadow, 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 Town of Longmeadow,
Massachusetts** bearing the date of _____, 20 ____ for the construction of the
Project entitled:

PROJECT TITLE: BOILER REPLACEMENTS

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 additional being hereby waived,
the foregoing to include any other purposes or items set out in, and to be subject to, provisions of
Massachusetts General Laws Chapter 149, Section 29, as amended, then this obligation shall become null
and void; otherwise, it shall remain in full force and effect.

In witness whereof we hereunto set outs hands and seals this _____ day of _____, 20 ____.

By _____

(Seal) Principal

By _____

(Seal) Surety

Surety Agent _____

Address _____

Telephone _____

PERFORMANCE BOND

Know all persons by these presents, that _____ as principal, and _____ as surety, are held and firmly bound unto **The Town of Longmeadow, Massachusetts** in the sum of _____ lawful money of the United States of America, for a **100% Performance Bond** to be paid to **The Town of Longmeadow, Massachusetts** for which payments, well and truly to be made, we find ourselves, or respective heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents. Whereas, the said principal has made a contract with **The Town of Longmeadow, Massachusetts** bearing the date of _____ 20__ for the construction of the Project entitled:

PROJECT TITLE: BOILER REPLACEMENTS

Now the condition of this obligation is such that if the principal shall well and truly keep and perform all the undertakings, covenants, agreements, terms, and conditions of said contract and any extensions thereof that may be granted by **The Town of Longmeadow, Massachusetts** and during the life of any guaranty required under the Contract, with or without notice to the surety, and shall also well and truly keep and perform all the undertakings, covenants, agreements, terms, and conditions of any and all duly authorized modifications, alterations, changes or additions to said contract that may hereafter be made, notice to the surety of such modifications, alterations, changes or additions being hereby waived, then this obligation shall become null and void; otherwise it shall remain in full force and effect.

In the event that the contract is abandoned by the Contractor, or is terminated by **The Town of Longmeadow, Massachusetts** said surety agrees that it shall, if requested in writing by **The Town of Longmeadow, Massachusetts** take such action as is necessary to complete the contract.

In witness whereof we hereunto set our hands and seals this _____ day of _____ 20__.

By _____

(Seal) Principal

By _____

(Seal) Surety

Countersigned Mass. Resident Agent

Surety Agent _____

Address _____

Telephone _____

PREVAILING WAGE

WEEKLY PAYROLL RECORDS REPORT
& STATEMENT OF COMPLIANCE

In accordance with Massachusetts General Law c149, Section 27B, a true and accurate record must be kept of all persons employed on the public works project for which the enclosed rates have been provided. A Payroll Form has been printed on the next page and includes all the information required to be kept by law. Every contractor or subcontractor is required to keep these records and preserve them for a period of three years from the date of completion of the contract.

In addition, every contractor and subcontractor is required to submit a copy of their weekly payroll records to the awarding authority. This is required to be done on a weekly basis. Once collected, the awarding authority is also required to preserve those records for three years.

In addition, each such contractor, subcontractor or public body shall furnish to the Department of Labor & Industries within fifteen days after completion of its portion of the work a statement, executed by the contractor, subcontractor or public body who supervises the payment of wages, in the following form:

<p style="margin: 0;">STATEMENT OF COMPLIANCE</p> <p style="text-align: right; margin: 0;">_____, 20____</p>	
I, _____ <small>(Name of signatory party)</small>	_____ <small>(Title)</small>
do hereby state: That I pay or supervise the payment of the persons employed by	
_____ on the _____ <small>(Contractor, subcontractor or public body)</small>	_____ <small>(Building or project)</small>
and that all mechanics and apprentices, teamsters, chauffeurs and laborers employed on said project have been paid in accordance with wages determined under the provisions of sections twenty-six and twenty-seven of chapter one hundred and forty nine of the General Laws.	
Signature _____	
Title _____	

WEEKLY PAY ROLL REPORT FORM

Company Name: _____
 Project Name: _____
 Awarding Auth.: _____
 Work Week Ending: _____

Prime Contractor
 Subcontractor
 List Prime Contractor: _____
 Employer Signature: _____
 Print Name & Title: _____

Final Report

Employee Name & Address	Work Classification	Hours Worked							(A) Tot. Hrs.	(B) Hourly Base Wage	Employer Contributions			(F) [B+C+D+E] Hourly Total Wage (prev. wage)	(G) [A*F] Weekly Total Amount	
		S	M	T	W	T	F	S			(C) Health & Welfare	(D) Pension	(E) Supp. Unemp.			

NOTE: Every contractor and subcontractor is required to submit a copy of their weekly payroll records to the awarding authority.



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

Prevailing Wage Rates

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

CHARLES D. BAKER
Governor

ROSALIN ACOSTA
Secretary

KARYN E. POLITO
Lt. Governor

WILLIAM D MCKINNEY
Director

Awarding Authority: Town of Longmeadow
Contract Number: **City/Town:** LONGMEADOW
Description of Work: Center School - Removal of old fire alarm system and installation of new fire alarm system, electrical, security system.
Job Location: Center School, 837 Longmeadow St, Longmeadow, MA

Information about Prevailing Wage Schedules for Awarding Authorities and Contractors

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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Construction						
(2 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	06/01/2019	\$34.25	\$11.91	\$12.70	\$0.00	\$58.86
	08/01/2019	\$34.25	\$12.41	\$12.70	\$0.00	\$59.36
	12/01/2019	\$34.25	\$12.41	\$13.72	\$0.00	\$60.38
	06/01/2020	\$35.15	\$12.41	\$13.72	\$0.00	\$61.28
	08/01/2020	\$35.15	\$12.91	\$13.72	\$0.00	\$61.78
	12/01/2020	\$35.15	\$12.91	\$14.82	\$0.00	\$62.88
	06/01/2021	\$35.95	\$12.91	\$14.82	\$0.00	\$63.68
	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>	06/01/2019	\$34.32	\$11.91	\$12.70	\$0.00	\$58.93
	08/01/2019	\$34.32	\$12.41	\$12.70	\$0.00	\$59.43
	12/01/2019	\$34.32	\$12.41	\$13.72	\$0.00	\$60.45
	06/01/2020	\$35.22	\$12.41	\$13.72	\$0.00	\$61.35
	08/01/2020	\$35.22	\$12.91	\$13.72	\$0.00	\$61.85
	12/01/2020	\$35.22	\$12.91	\$14.82	\$0.00	\$62.95
	06/01/2021	\$36.02	\$12.91	\$14.82	\$0.00	\$63.75
	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>	06/01/2019	\$34.44	\$11.91	\$12.70	\$0.00	\$59.05
	08/01/2019	\$34.44	\$12.41	\$12.70	\$0.00	\$59.55
	12/01/2019	\$34.44	\$12.41	\$13.72	\$0.00	\$60.57
	06/01/2020	\$35.34	\$12.41	\$13.72	\$0.00	\$61.47
	08/01/2020	\$35.34	\$12.91	\$13.72	\$0.00	\$61.97
	12/01/2020	\$35.34	\$12.91	\$14.82	\$0.00	\$63.07
	06/01/2021	\$36.14	\$12.91	\$14.82	\$0.00	\$63.87
	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 3)</i>	08/01/2018	\$97.80	\$9.90	\$21.15	\$0.00	\$128.85
	08/01/2019	\$102.78	\$9.90	\$21.15	\$0.00	\$133.83
For apprentice rates see "Apprentice- PILE DRIVER"						
AIR TRACK OPERATOR <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2019	\$32.56	\$7.85	\$13.91	\$0.00	\$54.32
	12/02/2019	\$33.37	\$7.85	\$13.91	\$0.00	\$55.13
For apprentice rates see "Apprentice- LABORER"						
AIR TRACK OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY & HIGHWAY)</i>	06/01/2019	\$32.54	\$7.85	\$11.89	\$0.00	\$52.28
	12/01/2019	\$33.33	\$7.85	\$11.89	\$0.00	\$53.07
	06/01/2020	\$34.14	\$7.85	\$11.89	\$0.00	\$53.88
	12/01/2020	\$34.95	\$7.85	\$11.89	\$0.00	\$54.69
	06/01/2021	\$35.79	\$7.85	\$11.89	\$0.00	\$55.53
	12/01/2021	\$36.62	\$7.85	\$11.89	\$0.00	\$56.36
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
ASBESTOS WORKER (PIPES & TANKS) <i>HEAT & FROST INSULATORS LOCAL 6 (SPRINGFIELD)</i>	06/01/2019	\$32.76	\$12.50	\$8.00	\$0.00	\$53.26
	12/01/2019	\$33.66	\$12.50	\$8.00	\$0.00	\$54.16
	06/01/2020	\$34.56	\$12.50	\$8.00	\$0.00	\$55.06
	12/01/2020	\$35.46	\$12.50	\$8.00	\$0.00	\$55.96

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
ASPHALT RAKER <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2019	\$32.06	\$7.85	\$13.91	\$0.00	\$53.82
	12/02/2019	\$32.87	\$7.85	\$13.91	\$0.00	\$54.63
For apprentice rates see "Apprentice- LABORER"						
ASPHALT RAKER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY & HIGHWAY)</i>	06/01/2019	\$32.04	\$7.85	\$11.89	\$0.00	\$51.78
	12/01/2019	\$32.83	\$7.85	\$11.89	\$0.00	\$52.57
	06/01/2020	\$33.64	\$7.85	\$11.89	\$0.00	\$53.38
	12/01/2020	\$34.45	\$7.85	\$11.89	\$0.00	\$54.19
	06/01/2021	\$35.29	\$7.85	\$11.89	\$0.00	\$55.03
	12/01/2021	\$36.12	\$7.85	\$11.89	\$0.00	\$55.86
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
AUTOMATIC GRADER-EXCAVATOR (RECLAIMER) <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$35.05	\$11.69	\$14.08	\$0.00	\$60.82
	12/01/2019	\$35.65	\$11.69	\$14.35	\$0.00	\$61.69
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BACKHOE/FRONT-END LOADER OPERATOR <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$35.05	\$11.69	\$14.08	\$0.00	\$60.82
	12/01/2019	\$35.65	\$11.69	\$14.35	\$0.00	\$61.69
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BARCO-TYPE JUMPING TAMPER <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2019	\$32.06	\$7.85	\$13.91	\$0.00	\$53.82
	12/02/2019	\$32.87	\$7.85	\$13.91	\$0.00	\$54.63
For apprentice rates see "Apprentice- LABORER"						
BATCH/CEMENT PLANT - ON SITE <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$34.52	\$11.69	\$14.08	\$0.00	\$60.29
	12/01/2019	\$35.12	\$11.69	\$14.35	\$0.00	\$61.16
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BLOCK PAVER, RAMMER / CURB SETTER <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2019	\$32.56	\$7.85	\$13.91	\$0.00	\$54.32
	12/02/2019	\$33.37	\$7.85	\$13.91	\$0.00	\$55.13
For apprentice rates see "Apprentice- LABORER"						
BLOCK PAVER, RAMMER / CURB SETTER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY & HIGHWAY)</i>	06/01/2019	\$32.54	\$7.85	\$11.89	\$0.00	\$52.28
	12/01/2019	\$33.33	\$7.85	\$11.89	\$0.00	\$53.07
	06/01/2020	\$34.14	\$7.85	\$11.89	\$0.00	\$53.88
	12/01/2020	\$34.95	\$7.85	\$11.89	\$0.00	\$54.69
	06/01/2021	\$35.79	\$7.85	\$11.89	\$0.00	\$55.53
	12/01/2021	\$36.62	\$7.85	\$11.89	\$0.00	\$56.36
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
BOILER MAKER <i>BOILERMAKERS LOCAL 29</i>	01/01/2019	\$44.71	\$7.07	\$17.72	\$0.00	\$69.50
	01/01/2020	\$46.10	\$7.07	\$17.98	\$0.00	\$71.15

Apprentice - BOILERMAKER - Local 29

Effective Date - 01/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	65	\$29.06	\$7.07	\$11.52	\$0.00	\$47.65
2	65	\$29.06	\$7.07	\$11.52	\$0.00	\$47.65
3	70	\$31.30	\$7.07	\$12.40	\$0.00	\$50.77
4	75	\$33.53	\$7.07	\$13.30	\$0.00	\$53.90
5	80	\$35.77	\$7.07	\$14.18	\$0.00	\$57.02
6	85	\$38.00	\$7.07	\$15.07	\$0.00	\$60.14
7	90	\$40.24	\$7.07	\$15.95	\$0.00	\$63.26
8	95	\$42.47	\$7.07	\$16.84	\$0.00	\$66.38

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)	02/01/2019	\$41.96	\$10.75	\$18.77	\$0.00	\$71.48
BRICKLAYERS LOCAL 3 (SPRINGFIELD/PITTSFIELD)	08/01/2019	\$43.31	\$10.75	\$18.91	\$0.00	\$72.97
	02/01/2020	\$43.86	\$10.75	\$18.91	\$0.00	\$73.52
	08/01/2020	\$45.21	\$10.75	\$19.06	\$0.00	\$75.02
	02/01/2021	\$45.76	\$10.75	\$19.06	\$0.00	\$75.57
	08/01/2021	\$47.16	\$10.75	\$19.22	\$0.00	\$77.13
	02/01/2022	\$47.69	\$10.75	\$19.22	\$0.00	\$77.66

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - BRICK/PLASTER/CEMENT MASON - Local 3 Springfield/Pittsfield

Effective Date - 02/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.98	\$10.75	\$18.77	\$0.00	\$50.50
2	60	\$25.18	\$10.75	\$18.77	\$0.00	\$54.70
3	70	\$29.37	\$10.75	\$18.77	\$0.00	\$58.89
4	80	\$33.57	\$10.75	\$18.77	\$0.00	\$63.09
5	90	\$37.76	\$10.75	\$18.77	\$0.00	\$67.28

Effective Date - 08/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.66	\$10.75	\$18.91	\$0.00	\$51.32
2	60	\$25.99	\$10.75	\$18.91	\$0.00	\$55.65
3	70	\$30.32	\$10.75	\$18.91	\$0.00	\$59.98
4	80	\$34.65	\$10.75	\$18.91	\$0.00	\$64.31
5	90	\$38.98	\$10.75	\$18.91	\$0.00	\$68.64

Notes:

Apprentice to Journeyworker Ratio:1:5

BULLDOZER/POWER SHOVEL/TREE SHREDDER	06/01/2019	\$35.05	\$11.69	\$14.08	\$0.00	\$60.82
/CLAM SHELL OPERATING	12/01/2019	\$35.65	\$11.69	\$14.35	\$0.00	\$61.69

ENGINEERS LOCAL 98
For apprentice rates see "Apprentice- OPERATING ENGINEERS"

CAISSON & UNDERPINNING BOTTOM MAN	06/01/2019	\$40.75	\$7.85	\$15.55	\$0.00	\$64.15
LABORERS - FOUNDATION AND MARINE	12/01/2019	\$41.75	\$7.85	\$15.55	\$0.00	\$65.15
	06/01/2020	\$42.74	\$7.85	\$15.55	\$0.00	\$66.14
	12/01/2020	\$43.72	\$7.85	\$15.55	\$0.00	\$67.12
	06/01/2021	\$44.74	\$7.85	\$15.55	\$0.00	\$68.14
	12/01/2021	\$45.75	\$7.85	\$15.55	\$0.00	\$69.15

For apprentice rates see "Apprentice- LABORER"

CAISSON & UNDERPINNING LABORER	06/01/2019	\$39.60	\$7.85	\$15.55	\$0.00	\$63.00
LABORERS - FOUNDATION AND MARINE	12/01/2019	\$40.60	\$7.85	\$15.55	\$0.00	\$64.00
	06/01/2020	\$41.59	\$7.85	\$15.55	\$0.00	\$64.99
	12/01/2020	\$42.57	\$7.85	\$15.55	\$0.00	\$65.97
	06/01/2021	\$43.59	\$7.85	\$15.55	\$0.00	\$66.99
	12/01/2021	\$44.60	\$7.85	\$15.55	\$0.00	\$68.00

For apprentice rates see "Apprentice- LABORER"

CAISSON & UNDERPINNING TOP MAN	06/01/2019	\$39.60	\$7.85	\$15.55	\$0.00	\$63.00
LABORERS - FOUNDATION AND MARINE	12/01/2019	\$40.60	\$7.85	\$15.55	\$0.00	\$64.00
	06/01/2020	\$41.59	\$7.85	\$15.55	\$0.00	\$64.99
	12/01/2020	\$42.57	\$7.85	\$15.55	\$0.00	\$65.97
	06/01/2021	\$43.59	\$7.85	\$15.55	\$0.00	\$66.99
	12/01/2021	\$44.60	\$7.85	\$15.55	\$0.00	\$68.00

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CARBIDE CORE DRILL OPERATOR <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2019	\$32.06	\$7.85	\$13.91	\$0.00	\$53.82
	12/02/2019	\$32.87	\$7.85	\$13.91	\$0.00	\$54.63
For apprentice rates see "Apprentice- LABORER"						
CARPENTER <i>CARPENTERS LOCAL 108 - HAMPDEN HAMPSHIRE FRANKLIN</i>	03/04/2019	\$38.64	\$8.26	\$15.00	\$0.00	\$61.90

Apprentice - CARPENTER - Local 108 Hampden Hampshire Franklin

Effective Date - 03/04/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.32	\$8.26	\$1.22	\$0.00	\$28.80
2	60	\$23.18	\$8.26	\$1.22	\$0.00	\$32.66
3	70	\$27.05	\$8.26	\$11.34	\$0.00	\$46.65
4	75	\$28.98	\$8.26	\$11.34	\$0.00	\$48.58
5	80	\$30.91	\$8.26	\$12.56	\$0.00	\$51.73
6	80	\$30.91	\$8.26	\$12.56	\$0.00	\$51.73
7	90	\$34.78	\$8.26	\$13.78	\$0.00	\$56.82
8	90	\$34.78	\$8.26	\$13.78	\$0.00	\$56.82

Notes:

% Indentured After 10/1/17; 45/45/55/55/70/70/80/80
Step 1&2 \$25.93/ 3&4 \$30.77/ 5&6 \$46.41/ 7&8 \$51.29

Apprentice to Journeyworker Ratio:1:5

CARPENTER WOOD FRAME <i>CARPENTERS LOCAL 108 - HAMPDEN HAMPSHIRE FRANKLIN</i>	04/01/2019	\$23.10	\$7.07	\$7.86	\$0.00	\$38.03
	10/01/2019	\$23.49	\$7.07	\$7.86	\$0.00	\$38.42
All Aspects of New Wood Frame Work						

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - CARPENTER (Wood Frame) - 108 Hampden Hampshire

Effective Date - 04/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$13.86	\$7.07	\$0.00	\$0.00	\$20.93
2	60	\$13.86	\$7.07	\$0.00	\$0.00	\$20.93
3	65	\$15.02	\$7.07	\$7.86	\$0.00	\$29.95
4	70	\$16.17	\$7.07	\$7.86	\$0.00	\$31.10
5	75	\$17.33	\$7.07	\$7.86	\$0.00	\$32.26
6	80	\$18.48	\$7.07	\$7.86	\$0.00	\$33.41
7	85	\$19.64	\$7.07	\$7.86	\$0.00	\$34.57
8	90	\$20.79	\$7.07	\$7.86	\$0.00	\$35.72

Effective Date - 10/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$14.09	\$7.07	\$0.00	\$0.00	\$21.16
2	60	\$14.09	\$7.07	\$0.00	\$0.00	\$21.16
3	65	\$15.27	\$7.07	\$7.86	\$0.00	\$30.20
4	70	\$16.44	\$7.07	\$7.86	\$0.00	\$31.37
5	75	\$17.62	\$7.07	\$7.86	\$0.00	\$32.55
6	80	\$18.79	\$7.07	\$7.86	\$0.00	\$33.72
7	85	\$19.97	\$7.07	\$7.86	\$0.00	\$34.90
8	90	\$21.14	\$7.07	\$7.86	\$0.00	\$36.07

Notes:

% Indentured After 10/1/17; 45/45/55/55/70/70/80/80
 Step 1&2 \$17.47/ 3&4 \$24.53/ 5&6 \$31.10/ 7&8 \$33.41

Apprentice to Journeyworker Ratio:1:5

CEMENT MASONRY/PLASTERING	07/01/2019	\$40.46	\$12.70	\$17.64	\$0.62	\$71.42
BRICKLAYERS LOCAL 3 (SPRINGFIELD/PITTSFIELD)	01/01/2020	\$41.94	\$12.70	\$17.64	\$0.62	\$72.90

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - CEMENT MASONRY/PLASTERING - Springfield/Pittsfield

Effective Date - 07/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.23	\$12.70	\$15.41	\$0.00	\$48.34
2	60	\$24.28	\$12.70	\$17.64	\$0.62	\$55.24
3	65	\$26.30	\$12.70	\$17.64	\$0.62	\$57.26
4	70	\$28.32	\$12.70	\$17.64	\$0.62	\$59.28
5	75	\$30.35	\$12.70	\$17.64	\$0.62	\$61.31
6	80	\$32.37	\$12.70	\$17.64	\$0.62	\$63.33
7	90	\$36.41	\$12.70	\$17.64	\$0.62	\$67.37

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.97	\$12.70	\$15.41	\$0.00	\$49.08
2	60	\$25.16	\$12.70	\$17.64	\$0.62	\$56.12
3	65	\$27.26	\$12.70	\$17.64	\$0.62	\$58.22
4	70	\$29.36	\$12.70	\$17.64	\$0.62	\$60.32
5	75	\$31.46	\$12.70	\$17.64	\$0.62	\$62.42
6	80	\$33.55	\$12.70	\$17.64	\$0.62	\$64.51
7	90	\$37.75	\$12.70	\$17.64	\$0.62	\$68.71

Notes:

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

Apprentice to Journeyworker Ratio:1:3

CHAIN SAW OPERATOR <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2019	\$32.06	\$7.85	\$13.91	\$0.00	\$53.82
For apprentice rates see "Apprentice- LABORER"	12/02/2019	\$32.87	\$7.85	\$13.91	\$0.00	\$54.63
COMPRESSOR OPERATOR <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$34.52	\$11.69	\$14.08	\$0.00	\$60.29
For apprentice rates see "Apprentice- OPERATING ENGINEERS"	12/01/2019	\$35.12	\$11.69	\$14.35	\$0.00	\$61.16
CRANE OPERATOR <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$38.55	\$11.69	\$14.08	\$0.00	\$64.32
For apprentice rates see "Apprentice- OPERATING ENGINEERS"	12/01/2019	\$39.15	\$11.69	\$14.35	\$0.00	\$65.19
DELEADER (BRIDGE) <i>PAINTERS LOCAL 35 - ZONE 3</i>	07/01/2019	\$50.66	\$8.20	\$21.45	\$0.00	\$80.31
	01/01/2020	\$50.96	\$8.20	\$22.10	\$0.00	\$81.26
	07/01/2020	\$52.06	\$8.20	\$22.10	\$0.00	\$82.36
	01/01/2021	\$53.16	\$8.20	\$22.10	\$0.00	\$83.46

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER Local 35 - BRIDGES/TANKS

Effective Date - 07/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.33	\$8.20	\$0.00	\$0.00	\$33.53
2	55	\$27.86	\$8.20	\$5.78	\$0.00	\$41.84
3	60	\$30.40	\$8.20	\$6.30	\$0.00	\$44.90
4	65	\$32.93	\$8.20	\$6.83	\$0.00	\$47.96
5	70	\$35.46	\$8.20	\$18.30	\$0.00	\$61.96
6	75	\$38.00	\$8.20	\$18.83	\$0.00	\$65.03
7	80	\$40.53	\$8.20	\$19.35	\$0.00	\$68.08
8	90	\$45.59	\$8.20	\$20.40	\$0.00	\$74.19

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.48	\$8.20	\$0.00	\$0.00	\$33.68
2	55	\$28.03	\$8.20	\$5.94	\$0.00	\$42.17
3	60	\$30.58	\$8.20	\$6.48	\$0.00	\$45.26
4	65	\$33.12	\$8.20	\$7.02	\$0.00	\$48.34
5	70	\$35.67	\$8.20	\$18.51	\$0.00	\$62.38
6	75	\$38.22	\$8.20	\$19.05	\$0.00	\$65.47
7	80	\$40.77	\$8.20	\$19.59	\$0.00	\$68.56
8	90	\$45.86	\$8.20	\$20.67	\$0.00	\$74.73

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

DEMO: ADZEMAN LABORERS - ZONE 3 (BUILDING & SITE)	06/01/2019	\$39.80	\$7.85	\$15.35	\$0.00	\$63.00
	12/01/2019	\$40.80	\$7.85	\$15.35	\$0.00	\$64.00

For apprentice rates see "Apprentice- LABORER"

DEMO: BACKHOE/LOADER/HAMMER OPERATOR LABORERS - ZONE 3 (BUILDING & SITE)	06/01/2019	\$40.80	\$7.85	\$15.35	\$0.00	\$64.00
	12/01/2019	\$41.80	\$7.85	\$15.35	\$0.00	\$65.00

For apprentice rates see "Apprentice- LABORER"

DEMO: BURNERS LABORERS - ZONE 3 (BUILDING & SITE)	06/01/2019	\$40.55	\$7.85	\$15.35	\$0.00	\$63.75
	12/01/2019	\$41.55	\$7.85	\$15.35	\$0.00	\$64.75

For apprentice rates see "Apprentice- LABORER"

DEMO: CONCRETE CUTTER/SAWYER LABORERS - ZONE 3 (BUILDING & SITE)	06/01/2019	\$40.80	\$7.85	\$15.35	\$0.00	\$64.00
	12/01/2019	\$41.80	\$7.85	\$15.35	\$0.00	\$65.00

For apprentice rates see "Apprentice- LABORER"

DEMO: JACKHAMMER OPERATOR LABORERS - ZONE 3 (BUILDING & SITE)	06/01/2019	\$40.55	\$7.85	\$15.35	\$0.00	\$63.75
	12/01/2019	\$41.55	\$7.85	\$15.35	\$0.00	\$64.75

For apprentice rates see "Apprentice- LABORER"

DEMO: WRECKING LABORER LABORERS - ZONE 3 (BUILDING & SITE)	06/01/2019	\$39.80	\$7.85	\$15.35	\$0.00	\$63.00
	12/01/2019	\$40.80	\$7.85	\$15.35	\$0.00	\$64.00

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DIVER <i>PILE DRIVER LOCAL 56 (ZONE 3)</i>	08/01/2018	\$65.20	\$9.90	\$21.15	\$0.00	\$96.25
	08/01/2019	\$68.52	\$9.90	\$21.15	\$0.00	\$99.57
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER <i>PILE DRIVER LOCAL 56 (ZONE 3)</i>	08/01/2018	\$46.57	\$9.90	\$21.15	\$0.00	\$77.62
	08/01/2019	\$48.94	\$9.90	\$21.15	\$0.00	\$79.99
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 3)</i>	08/01/2018	\$69.86	\$9.90	\$21.15	\$0.00	\$100.91
	08/01/2019	\$73.41	\$9.90	\$21.15	\$0.00	\$104.46
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER/SLURRY (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 3)</i>	08/01/2018	\$97.80	\$9.90	\$21.15	\$0.00	\$128.85
	08/01/2019	\$102.78	\$9.90	\$21.15	\$0.00	\$133.83
For apprentice rates see "Apprentice- PILE DRIVER"						
ELECTRICIAN (Including Core Drilling) <i>ELECTRICIANS LOCAL 7</i>	06/30/2019	\$42.66	\$10.75	\$12.33	\$0.00	\$65.74
	12/29/2019	\$43.41	\$11.00	\$12.60	\$0.00	\$67.01

Apprentice - ELECTRICIAN - Local 7

Effective Date - 06/30/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$17.06	\$5.85	\$0.51	\$0.00	\$23.42
2	45	\$19.20	\$5.85	\$0.58	\$0.00	\$25.63
3	50	\$21.33	\$10.75	\$6.94	\$0.00	\$39.02
4	55	\$23.46	\$10.75	\$7.00	\$0.00	\$41.21
5	65	\$27.73	\$10.75	\$8.13	\$0.00	\$46.61
6	70	\$29.86	\$10.75	\$9.20	\$0.00	\$49.81

Notes:

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

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

ELEVATOR CONSTRUCTOR <i>ELEVATOR CONSTRUCTORS LOCAL 41</i>	01/01/2019	\$53.11	\$15.58	\$17.51	\$0.00	\$86.20
	01/01/2020	\$54.85	\$15.73	\$18.41	\$0.00	\$88.99
	01/01/2021	\$56.69	\$15.88	\$19.31	\$0.00	\$91.88
	01/01/2022	\$58.62	\$16.03	\$20.21	\$0.00	\$94.86

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - ELEVATOR CONSTRUCTOR - Local 41

Effective Date - 01/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.56	\$15.58	\$0.00	\$0.00	\$42.14
2	55	\$29.21	\$15.58	\$17.51	\$0.00	\$62.30
3	65	\$34.52	\$15.58	\$17.51	\$0.00	\$67.61
4	70	\$37.18	\$15.58	\$17.51	\$0.00	\$70.27
5	80	\$42.49	\$15.58	\$17.51	\$0.00	\$75.58

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$27.43	\$15.73	\$0.00	\$0.00	\$43.16
2	55	\$30.17	\$15.73	\$18.41	\$0.00	\$64.31
3	65	\$35.65	\$15.73	\$18.41	\$0.00	\$69.79
4	70	\$38.40	\$15.73	\$18.41	\$0.00	\$72.54
5	80	\$43.88	\$15.73	\$18.41	\$0.00	\$78.02

Notes:

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

Apprentice to Journeyworker Ratio:1:1

ELEVATOR CONSTRUCTOR HELPER <i>ELEVATOR CONSTRUCTORS LOCAL 41</i>	01/01/2019	\$37.18	\$15.58	\$17.51	\$0.00	\$70.27
	01/01/2020	\$38.40	\$15.73	\$18.41	\$0.00	\$72.54
	01/01/2021	\$39.68	\$15.88	\$19.31	\$0.00	\$74.87
	01/01/2022	\$41.03	\$16.03	\$20.21	\$0.00	\$77.27

For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"

FENCE & GUARD RAIL ERECTOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY & HIGHWAY)</i>	06/01/2019	\$32.04	\$7.85	\$11.89	\$0.00	\$51.78
	12/01/2019	\$32.83	\$7.85	\$11.89	\$0.00	\$52.57
	06/01/2020	\$33.64	\$7.85	\$11.89	\$0.00	\$53.38
	12/01/2020	\$34.45	\$7.85	\$11.89	\$0.00	\$54.19
	06/01/2021	\$35.29	\$7.85	\$11.89	\$0.00	\$55.03
	12/01/2021	\$36.12	\$7.85	\$11.89	\$0.00	\$55.86

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

FIELD ENG.INST/ROD-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/1999	\$18.84	\$4.80	\$4.10	\$0.00	\$27.74
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FIELD ENG.PARTY CHIEF:BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/1999	\$21.33	\$4.80	\$4.10	\$0.00	\$30.23
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FIELD ENG.SURVEY CHIEF-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/1999	\$22.33	\$4.80	\$4.10	\$0.00	\$31.23
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FIRE ALARM INSTALLER <i>ELECTRICIANS LOCAL 7</i>	06/30/2019	\$42.66	\$10.75	\$12.33	\$0.00	\$65.74
	12/29/2019	\$43.41	\$11.00	\$12.60	\$0.00	\$67.01

For apprentice rates see "Apprentice- ELECTRICIAN"

FIRE ALARM REPAIR / MAINTENANCE / COMMISSIONING <i>ELECTRICIANS LOCAL 7</i>	06/30/2019	\$42.66	\$10.75	\$12.33	\$0.00	\$65.74
	12/29/2019	\$43.41	\$11.00	\$12.60	\$0.00	\$67.01

For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FIREMAN	06/01/2019	\$34.52	\$11.69	\$14.08	\$0.00	\$60.29
<i>OPERATING ENGINEERS LOCAL 98</i>	12/01/2019	\$35.12	\$11.69	\$14.35	\$0.00	\$61.16

Apprentice - OPERATING ENGINEERS - Local 98 Class 3

Effective Date - 06/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$20.71	\$11.69	\$14.08	\$0.00	\$46.48
2	70	\$24.16	\$11.69	\$14.08	\$0.00	\$49.93
3	80	\$27.62	\$11.69	\$14.08	\$0.00	\$53.39
4	90	\$31.07	\$11.69	\$14.08	\$0.00	\$56.84

Effective Date - 12/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$21.07	\$11.69	\$14.35	\$0.00	\$47.11
2	70	\$24.58	\$11.69	\$14.35	\$0.00	\$50.62
3	80	\$28.10	\$11.69	\$14.35	\$0.00	\$54.14
4	90	\$31.61	\$11.69	\$14.35	\$0.00	\$57.65

Notes:

Steps 1-2 are 1000 hrs.; Steps 3-4 are 2000 hrs.

Apprentice to Journeyworker Ratio:1:6

FLAGGER & SIGNALER (HEAVY & HIGHWAY)	06/01/2019	\$22.50	\$7.85	\$11.89	\$0.00	\$42.24
<i>LABORERS - ZONE 3 (HEAVY & HIGHWAY)</i>	12/01/2019	\$23.50	\$7.85	\$11.89	\$0.00	\$43.24
	06/01/2020	\$23.50	\$7.85	\$11.89	\$0.00	\$43.24
	12/01/2020	\$24.50	\$7.85	\$11.89	\$0.00	\$44.24
	06/01/2021	\$24.50	\$7.85	\$11.89	\$0.00	\$44.24
	12/01/2021	\$24.50	\$7.85	\$11.89	\$0.00	\$44.24

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

FLOORCOVERER	03/01/2016	\$32.60	\$8.55	\$14.42	\$0.00	\$55.57
<i>FLOORCOVERERS LOCAL 2168 ZONE III</i>						

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - FLOORCOVERER - Local 2168 Zone III

Effective Date - 03/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$16.30	\$8.55	\$1.20	\$0.00	\$26.05
2	55	\$17.93	\$8.55	\$1.20	\$0.00	\$27.68
3	60	\$19.56	\$8.55	\$10.82	\$0.00	\$38.93
4	65	\$21.19	\$8.55	\$10.82	\$0.00	\$40.56
5	70	\$22.82	\$8.55	\$12.02	\$0.00	\$43.39
6	75	\$24.45	\$8.55	\$12.02	\$0.00	\$45.02
7	80	\$26.08	\$8.55	\$13.22	\$0.00	\$47.85
8	85	\$27.71	\$8.55	\$13.22	\$0.00	\$49.48

Notes: Steps are 750 hrs.
 % After 09/1/17; 45/45/55/55/70/70/80/80 (1500hr Steps)
 Step 1&2 \$24.42/ 3&4 \$28.84/ 5&6 \$43.39/ 7&8 \$47.85

Apprentice to Journeyworker Ratio:1:1

FORK LIFT <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$34.74	\$11.69	\$14.08	\$0.00	\$60.51
	12/01/2019	\$35.34	\$11.69	\$14.35	\$0.00	\$61.38
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GENERATORS/LIGHTING PLANTS <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$31.29	\$11.69	\$14.08	\$0.00	\$57.06
	12/01/2019	\$31.89	\$11.69	\$14.35	\$0.00	\$57.93
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS) <i>GLAZIERS LOCAL 1333</i>	06/01/2019	\$38.18	\$10.60	\$9.90	\$0.00	\$58.68
	06/01/2020	\$39.18	\$10.80	\$10.45	\$0.00	\$60.43

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - GLAZIER - Local 1333

Effective Date - 06/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.09	\$10.60	\$1.80	\$0.00	\$31.49
2	56	\$21.48	\$10.60	\$1.80	\$0.00	\$33.88
3	63	\$23.86	\$10.60	\$2.40	\$0.00	\$36.86
4	69	\$26.25	\$10.60	\$2.40	\$0.00	\$39.25
5	75	\$28.64	\$10.60	\$2.90	\$0.00	\$42.14
6	81	\$31.02	\$10.60	\$2.90	\$0.00	\$44.52
7	88	\$33.41	\$10.60	\$9.90	\$0.00	\$53.91
8	94	\$35.79	\$10.60	\$9.90	\$0.00	\$56.29

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

GRADER/TRENCHING MACHINE/DERRICK <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$35.05	\$11.69	\$14.08	\$0.00	\$60.82
	12/01/2019	\$35.65	\$11.69	\$14.35	\$0.00	\$61.69
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
HVAC (DUCTWORK) <i>SHEETMETAL WORKERS LOCAL 63</i>	07/01/2019	\$35.74	\$10.64	\$16.22	\$1.77	\$64.37
	01/01/2020	\$36.99	\$10.64	\$16.22	\$1.77	\$65.62
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (ELECTRICAL CONTROLS) <i>ELECTRICIANS LOCAL 7</i>	06/30/2019	\$42.66	\$10.75	\$12.33	\$0.00	\$65.74
	12/29/2019	\$43.41	\$11.00	\$12.60	\$0.00	\$67.01
For apprentice rates see "Apprentice- ELECTRICIAN"						
HVAC (TESTING AND BALANCING - AIR) <i>SHEETMETAL WORKERS LOCAL 63</i>	07/01/2019	\$35.74	\$10.64	\$16.22	\$1.77	\$64.37
	01/01/2020	\$36.99	\$10.64	\$16.22	\$1.77	\$65.62
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (TESTING AND BALANCING -WATER) <i>PLUMBERS & PIPEFITTERS LOCAL 104</i>	03/17/2019	\$40.21	\$8.75	\$16.35	\$0.00	\$65.31
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HVAC MECHANIC <i>PLUMBERS & PIPEFITTERS LOCAL 104</i>	03/17/2019	\$40.21	\$8.75	\$16.35	\$0.00	\$65.31
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
HYDRAULIC DRILLS (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY & HIGHWAY)</i>	06/01/2019	\$32.54	\$7.85	\$11.89	\$0.00	\$52.28
	12/01/2019	\$33.33	\$7.85	\$11.89	\$0.00	\$53.07
	06/01/2020	\$34.14	\$7.85	\$11.89	\$0.00	\$53.88
	12/01/2020	\$34.95	\$7.85	\$11.89	\$0.00	\$54.69
	06/01/2021	\$35.79	\$7.85	\$11.89	\$0.00	\$55.53
	12/01/2021	\$36.62	\$7.85	\$11.89	\$0.00	\$56.36
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
INSULATOR (PIPES & TANKS) <i>HEAT & FROST INSULATORS LOCAL 6 (SPRINGFIELD)</i>	09/01/2018	\$37.67	\$12.50	\$15.60	\$0.00	\$65.77
	09/01/2019	\$39.67	\$12.50	\$15.60	\$0.00	\$67.77

Apprentice - ASBESTOS INSULATOR (Pipes & Tanks) - Local 6 Springfield

Effective Date - 09/01/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$18.84	\$12.50	\$11.40	\$0.00	\$42.74
2	60	\$22.60	\$12.50	\$12.24	\$0.00	\$47.34
3	70	\$26.37	\$12.50	\$13.08	\$0.00	\$51.95
4	80	\$30.14	\$12.50	\$13.92	\$0.00	\$56.56

Effective Date - 09/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.84	\$12.50	\$11.40	\$0.00	\$43.74
2	60	\$23.80	\$12.50	\$12.24	\$0.00	\$48.54
3	70	\$27.77	\$12.50	\$13.08	\$0.00	\$53.35
4	80	\$31.74	\$12.50	\$13.92	\$0.00	\$58.16

Notes:

Steps are 1 year

Apprentice to Journeyworker Ratio:1:4

IRONWORKER/WELDER <i>IRONWORKERS LOCAL 7 (SPRINGFIELD AREA)</i>	03/16/2019	\$34.20	\$8.00	\$20.75	\$0.00	\$62.95
	09/16/2019	\$35.10	\$8.00	\$20.75	\$0.00	\$63.85
	03/16/2020	\$35.95	\$8.00	\$20.75	\$0.00	\$64.70
	09/16/2020	\$36.85	\$8.00	\$20.75	\$0.00	\$65.60
	03/16/2021	\$37.70	\$8.00	\$20.75	\$0.00	\$66.45

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - IRONWORKER - Local 7 Springfield

Effective Date - 03/16/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$20.52	\$8.00	\$20.75	\$0.00	\$49.27
2	70	\$23.94	\$8.00	\$20.75	\$0.00	\$52.69
3	75	\$25.65	\$8.00	\$20.75	\$0.00	\$54.40
4	80	\$27.36	\$8.00	\$20.75	\$0.00	\$56.11
5	85	\$29.07	\$8.00	\$20.75	\$0.00	\$57.82
6	90	\$30.78	\$8.00	\$20.75	\$0.00	\$59.53

Effective Date - 09/16/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$21.06	\$8.00	\$20.75	\$0.00	\$49.81
2	70	\$24.57	\$8.00	\$20.75	\$0.00	\$53.32
3	75	\$26.33	\$8.00	\$20.75	\$0.00	\$55.08
4	80	\$28.08	\$8.00	\$20.75	\$0.00	\$56.83
5	85	\$29.84	\$8.00	\$20.75	\$0.00	\$58.59
6	90	\$31.59	\$8.00	\$20.75	\$0.00	\$60.34

Notes:

Structural 1:6; Ornamental 1:4

Apprentice to Journeyworker Ratio:

JACKHAMMER & PAVING BREAKER OPERATOR LABORERS - ZONE 3 (BUILDING & SITE)	06/03/2019	\$32.06	\$7.85	\$13.91	\$0.00	\$53.82
	12/02/2019	\$32.87	\$7.85	\$13.91	\$0.00	\$54.63
For apprentice rates see "Apprentice- LABORER"						
LABORER LABORERS - ZONE 3 (BUILDING & SITE)	06/03/2019	\$31.81	\$7.85	\$13.91	\$0.00	\$53.57
	12/02/2019	\$32.62	\$7.85	\$13.91	\$0.00	\$54.38

Apprentice - LABORER - Zone 3 Building & Site

Effective Date - 06/03/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$19.09	\$7.85	\$13.91	\$0.00	\$40.85
2	70	\$22.27	\$7.85	\$13.91	\$0.00	\$44.03
3	80	\$25.45	\$7.85	\$13.91	\$0.00	\$47.21
4	90	\$28.63	\$7.85	\$13.91	\$0.00	\$50.39

Effective Date - 12/02/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$19.57	\$7.85	\$13.91	\$0.00	\$41.33
2	70	\$22.83	\$7.85	\$13.91	\$0.00	\$44.59
3	80	\$26.10	\$7.85	\$13.91	\$0.00	\$47.86
4	90	\$29.36	\$7.85	\$13.91	\$0.00	\$51.12

Notes:

Apprentice to Journeyworker Ratio:1:5

LABORER (HEAVY & HIGHWAY)	06/01/2019	\$31.79	\$7.85	\$11.89	\$0.00	\$51.53
LABORERS - ZONE 3 (HEAVY & HIGHWAY)	12/01/2019	\$32.58	\$7.85	\$11.89	\$0.00	\$52.32
	06/01/2020	\$33.39	\$7.85	\$11.89	\$0.00	\$53.13
	12/01/2020	\$34.20	\$7.85	\$11.89	\$0.00	\$53.94
	06/01/2021	\$35.04	\$7.85	\$11.89	\$0.00	\$54.78
	12/01/2021	\$35.87	\$7.85	\$11.89	\$0.00	\$55.61

Apprentice - LABORER (Heavy & Highway) - Zone 3

Effective Date - 06/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$19.07	\$7.85	\$11.89	\$0.00	\$38.81
2	70	\$22.25	\$7.85	\$11.89	\$0.00	\$41.99
3	80	\$25.43	\$7.85	\$11.89	\$0.00	\$45.17
4	90	\$28.61	\$7.85	\$11.89	\$0.00	\$48.35

Effective Date - 12/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$19.55	\$7.85	\$11.89	\$0.00	\$39.29
2	70	\$22.81	\$7.85	\$11.89	\$0.00	\$42.55
3	80	\$26.06	\$7.85	\$11.89	\$0.00	\$45.80
4	90	\$29.32	\$7.85	\$11.89	\$0.00	\$49.06

Notes:

Apprentice to Journeyworker Ratio:1:5

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LABORER: CARPENTER TENDER <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2019	\$31.81	\$7.85	\$13.91	\$0.00	\$53.57
	12/02/2019	\$32.62	\$7.85	\$13.91	\$0.00	\$54.38
For apprentice rates see "Apprentice- LABORER"						
LABORER: CEMENT FINISHER TENDER <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2019	\$32.06	\$7.85	\$13.91	\$0.00	\$53.82
	12/02/2019	\$32.87	\$7.85	\$13.91	\$0.00	\$54.63
For apprentice rates see "Apprentice- LABORER"						
LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/01/2019	\$31.91	\$7.85	\$13.91	\$0.00	\$53.67
	12/01/2019	\$32.72	\$7.85	\$13.91	\$0.00	\$54.48
For apprentice rates see "Apprentice- LABORER"						
LABORER: MASON TENDER <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2019	\$32.81	\$7.85	\$13.91	\$0.00	\$54.57
	12/02/2019	\$33.62	\$7.85	\$13.91	\$0.00	\$55.38
For apprentice rates see "Apprentice- LABORER"						
LABORER: MASON TENDER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY & HIGHWAY)</i>	06/01/2019	\$32.04	\$7.85	\$11.89	\$0.00	\$51.78
	12/01/2019	\$32.83	\$7.85	\$11.89	\$0.00	\$52.57
	06/01/2020	\$33.64	\$7.85	\$11.89	\$0.00	\$53.38
	12/01/2020	\$34.45	\$7.85	\$11.89	\$0.00	\$54.19
	06/01/2021	\$35.29	\$7.85	\$11.89	\$0.00	\$55.03
	12/01/2021	\$36.12	\$7.85	\$11.89	\$0.00	\$55.86
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
LABORER: MULTI-TRADE TENDER <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2019	\$31.81	\$7.85	\$13.91	\$0.00	\$53.57
	12/02/2019	\$32.62	\$7.85	\$13.91	\$0.00	\$54.38
For apprentice rates see "Apprentice- LABORER"						
LABORER: TREE REMOVER <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2019	\$31.81	\$7.85	\$13.91	\$0.00	\$53.57
	12/02/2019	\$32.62	\$7.85	\$13.91	\$0.00	\$54.38
This classification applies to all tree work associated with the removal of standing trees, and trimming and removal of branches and limbs when the work is not done for a utility company for the purpose of operation, maintenance or repair of utility company equipment. For apprentice rates see "Apprentice- LABORER"						
LASER BEAM OPERATOR <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2019	\$32.06	\$7.85	\$13.91	\$0.00	\$53.82
	12/02/2019	\$32.87	\$7.85	\$13.91	\$0.00	\$54.63
For apprentice rates see "Apprentice- LABORER"						
LASER BEAM OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY & HIGHWAY)</i>	06/01/2019	\$32.04	\$7.85	\$11.89	\$0.00	\$51.78
	12/01/2019	\$32.83	\$7.85	\$11.89	\$0.00	\$52.57
	06/01/2020	\$33.64	\$7.85	\$11.89	\$0.00	\$53.38
	12/01/2020	\$34.45	\$7.85	\$11.89	\$0.00	\$54.19
	06/01/2021	\$35.29	\$7.85	\$11.89	\$0.00	\$55.03
	12/01/2021	\$36.12	\$7.85	\$11.89	\$0.00	\$55.86
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
MARBLE & TILE FINISHERS <i>BRICKLAYERS LOCAL 3 (SPR/PITT) - MARBLE & TILE</i>	02/01/2019	\$34.67	\$10.75	\$18.26	\$0.00	\$63.68
	08/01/2019	\$35.67	\$10.75	\$18.37	\$0.00	\$64.79
	02/01/2020	\$36.17	\$10.75	\$18.37	\$0.00	\$65.29
	08/01/2020	\$37.17	\$10.75	\$18.49	\$0.00	\$66.41
	02/01/2021	\$37.67	\$10.75	\$18.49	\$0.00	\$66.91
	08/01/2021	\$38.67	\$10.75	\$18.62	\$0.00	\$68.04
	02/01/2022	\$39.12	\$10.75	\$18.62	\$0.00	\$68.49

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - MARBLE-TILE FINISHER-Local 3 Marble/Tile (Spr/Pitt)

Effective Date - 02/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$17.34	\$10.75	\$18.26	\$0.00	\$46.35
2	60	\$20.80	\$10.75	\$18.26	\$0.00	\$49.81
3	70	\$24.27	\$10.75	\$18.26	\$0.00	\$53.28
4	80	\$27.74	\$10.75	\$18.26	\$0.00	\$56.75
5	90	\$31.20	\$10.75	\$18.26	\$0.00	\$60.21

Effective Date - 08/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$17.84	\$10.75	\$18.37	\$0.00	\$46.96
2	60	\$21.40	\$10.75	\$18.37	\$0.00	\$50.52
3	70	\$24.97	\$10.75	\$18.37	\$0.00	\$54.09
4	80	\$28.54	\$10.75	\$18.37	\$0.00	\$57.66
5	90	\$32.10	\$10.75	\$18.37	\$0.00	\$61.22

Notes:

Apprentice to Journeyworker Ratio:1:5

MARBLE MASON/TILE LAYER(SP/PT)SeeBrick
BRICKLAYERS LOCAL 3 (SPR/PITT) - MARBLE & TILE

See "BRICK/STONE/ARTIFICIAL MASONRY(INCL.MASONRY WATERPROOFING)

MECH. SWEEPER OPERATOR (ON CONST. SITES) OPERATING ENGINEERS LOCAL 98	06/01/2019	\$35.05	\$11.69	\$14.08	\$0.00	\$60.82
	12/01/2019	\$35.65	\$11.69	\$14.35	\$0.00	\$61.69

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

MECHANIC/WELDER/BOOM TRUCK OPERATING ENGINEERS LOCAL 98	06/01/2019	\$34.52	\$11.69	\$14.08	\$0.00	\$60.29
	12/01/2019	\$35.12	\$11.69	\$14.35	\$0.00	\$61.16

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

MILLWRIGHT (Zone 3) MILLWRIGHTS LOCAL 1121 - Zone 3	04/01/2019	\$37.11	\$9.90	\$18.50	\$0.00	\$65.51
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Apprentice - MILLWRIGHT - Local 1121 Zone 3

Effective Date - 04/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$20.41	\$9.90	\$5.31	\$0.00	\$35.62
2	65	\$24.12	\$9.90	\$15.13	\$0.00	\$49.15
3	75	\$27.83	\$9.90	\$16.10	\$0.00	\$53.83
4	85	\$31.54	\$9.90	\$17.06	\$0.00	\$58.50

Notes:

Steps are 2,000 hours

Apprentice to Journeyworker Ratio:1:5

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
MORTAR MIXER <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2019	\$32.06	\$7.85	\$13.91	\$0.00	\$53.82
	12/02/2019	\$32.87	\$7.85	\$13.91	\$0.00	\$54.63
For apprentice rates see "Apprentice- LABORER"						
OILER <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$30.21	\$11.69	\$14.08	\$0.00	\$55.98
	12/01/2019	\$30.81	\$11.69	\$14.35	\$0.00	\$56.85
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OTHER POWER DRIVEN EQUIPMENT - CLASS VI <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$28.23	\$11.69	\$14.08	\$0.00	\$54.00
	12/01/2019	\$28.83	\$11.69	\$14.35	\$0.00	\$54.87
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PAINTER (BRIDGES/TANKS) <i>PAINTERS LOCAL 35 - ZONE 3</i>	07/01/2019	\$50.66	\$8.20	\$21.45	\$0.00	\$80.31
	01/01/2020	\$50.96	\$8.20	\$22.10	\$0.00	\$81.26
	07/01/2020	\$52.06	\$8.20	\$22.10	\$0.00	\$82.36
	01/01/2021	\$53.16	\$8.20	\$22.10	\$0.00	\$83.46

Apprentice - PAINTER Local 35 - BRIDGES/TANKS

Effective Date - 07/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.33	\$8.20	\$0.00	\$0.00	\$33.53
2	55	\$27.86	\$8.20	\$5.78	\$0.00	\$41.84
3	60	\$30.40	\$8.20	\$6.30	\$0.00	\$44.90
4	65	\$32.93	\$8.20	\$6.83	\$0.00	\$47.96
5	70	\$35.46	\$8.20	\$18.30	\$0.00	\$61.96
6	75	\$38.00	\$8.20	\$18.83	\$0.00	\$65.03
7	80	\$40.53	\$8.20	\$19.35	\$0.00	\$68.08
8	90	\$45.59	\$8.20	\$20.40	\$0.00	\$74.19

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.48	\$8.20	\$0.00	\$0.00	\$33.68
2	55	\$28.03	\$8.20	\$5.94	\$0.00	\$42.17
3	60	\$30.58	\$8.20	\$6.48	\$0.00	\$45.26
4	65	\$33.12	\$8.20	\$7.02	\$0.00	\$48.34
5	70	\$35.67	\$8.20	\$18.51	\$0.00	\$62.38
6	75	\$38.22	\$8.20	\$19.05	\$0.00	\$65.47
7	80	\$40.77	\$8.20	\$19.59	\$0.00	\$68.56
8	90	\$45.86	\$8.20	\$20.67	\$0.00	\$74.73

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SIGN, PICTORIAL & DISPLAY) <i>PAINTERS LOCAL 35 - ZONE 3</i>	06/01/2013	\$25.81	\$7.07	\$7.05	\$0.00	\$39.93
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Apprentice - PAINTER SIGN - Local 35 Zone 3

Effective Date - 06/01/2013

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

Notes:
Steps are 4 mos.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, NEW) *	07/01/2019	\$34.03	\$8.20	\$17.55	\$0.00	\$59.78
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. PAINTERS LOCAL 35 - ZONE 3	01/01/2020	\$34.33	\$8.20	\$18.20	\$0.00	\$60.73
	07/01/2020	\$35.43	\$8.20	\$18.20	\$0.00	\$61.83
	01/01/2021	\$36.53	\$8.20	\$18.20	\$0.00	\$62.93

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER Local 35 Zone 3 - Spray/Sandblast - New

Effective Date - 07/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$17.02	\$8.20	\$0.00	\$0.00	\$25.22
2	55	\$18.72	\$8.20	\$3.63	\$0.00	\$30.55
3	60	\$20.42	\$8.20	\$3.96	\$0.00	\$32.58
4	65	\$22.12	\$8.20	\$4.29	\$0.00	\$34.61
5	70	\$23.82	\$8.20	\$15.57	\$0.00	\$47.59
6	75	\$25.52	\$8.20	\$15.90	\$0.00	\$49.62
7	80	\$27.22	\$8.20	\$16.23	\$0.00	\$51.65
8	90	\$30.63	\$8.20	\$16.89	\$0.00	\$55.72

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$17.17	\$8.20	\$0.00	\$0.00	\$25.37
2	55	\$18.88	\$8.20	\$3.80	\$0.00	\$30.88
3	60	\$20.60	\$8.20	\$4.14	\$0.00	\$32.94
4	65	\$22.31	\$8.20	\$4.49	\$0.00	\$35.00
5	70	\$24.03	\$8.20	\$15.78	\$0.00	\$48.01
6	75	\$25.75	\$8.20	\$16.13	\$0.00	\$50.08
7	80	\$27.46	\$8.20	\$16.47	\$0.00	\$52.13
8	90	\$30.90	\$8.20	\$17.16	\$0.00	\$56.26

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, REPAINT)	07/01/2019	\$31.35	\$8.20	\$17.55	\$0.00	\$57.10
PAINTERS LOCAL 35 - ZONE 3	01/01/2020	\$31.65	\$8.20	\$18.20	\$0.00	\$58.05
	07/01/2020	\$32.75	\$8.20	\$18.20	\$0.00	\$59.15
	01/01/2021	\$33.85	\$8.20	\$18.20	\$0.00	\$60.25

Apprentice - PAINTER Local 35 Zone 3 - Spray/Sandblast - Repaint

Effective Date - 07/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$15.68	\$8.20	\$0.00	\$0.00	\$23.88
2	55	\$17.24	\$8.20	\$3.63	\$0.00	\$29.07
3	60	\$18.81	\$8.20	\$3.96	\$0.00	\$30.97
4	65	\$20.38	\$8.20	\$4.29	\$0.00	\$32.87
5	70	\$21.95	\$8.20	\$15.57	\$0.00	\$45.72
6	75	\$23.51	\$8.20	\$15.90	\$0.00	\$47.61
7	80	\$25.08	\$8.20	\$16.23	\$0.00	\$49.51
8	90	\$28.22	\$8.20	\$16.89	\$0.00	\$53.31

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$15.83	\$8.20	\$0.00	\$0.00	\$24.03
2	55	\$17.41	\$8.20	\$3.80	\$0.00	\$29.41
3	60	\$18.99	\$8.20	\$4.14	\$0.00	\$31.33
4	65	\$20.57	\$8.20	\$4.49	\$0.00	\$33.26
5	70	\$22.16	\$8.20	\$15.78	\$0.00	\$46.14
6	75	\$23.74	\$8.20	\$16.13	\$0.00	\$48.07
7	80	\$25.32	\$8.20	\$16.47	\$0.00	\$49.99
8	90	\$28.49	\$8.20	\$17.16	\$0.00	\$53.85

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER / TAPER (BRUSH, NEW) *	07/01/2019	\$32.63	\$8.20	\$17.55	\$0.00	\$58.38
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. PAINTERS LOCAL 35 - ZONE 3	01/01/2020	\$32.93	\$8.20	\$18.20	\$0.00	\$59.33
	07/01/2020	\$34.03	\$8.20	\$18.20	\$0.00	\$60.43
	01/01/2021	\$35.13	\$8.20	\$18.20	\$0.00	\$61.53

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER - Local 35 Zone 3 - BRUSH NEW

Effective Date - 07/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$16.32	\$8.20	\$0.00	\$0.00	\$24.52
2	55	\$17.95	\$8.20	\$3.63	\$0.00	\$29.78
3	60	\$19.58	\$8.20	\$3.96	\$0.00	\$31.74
4	65	\$21.21	\$8.20	\$4.29	\$0.00	\$33.70
5	70	\$22.84	\$8.20	\$15.57	\$0.00	\$46.61
6	75	\$24.47	\$8.20	\$15.90	\$0.00	\$48.57
7	80	\$26.10	\$8.20	\$16.23	\$0.00	\$50.53
8	90	\$29.37	\$8.20	\$16.89	\$0.00	\$54.46

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$16.47	\$8.20	\$0.00	\$0.00	\$24.67
2	55	\$18.11	\$8.20	\$3.80	\$0.00	\$30.11
3	60	\$19.76	\$8.20	\$4.14	\$0.00	\$32.10
4	65	\$21.40	\$8.20	\$4.49	\$0.00	\$34.09
5	70	\$23.05	\$8.20	\$15.78	\$0.00	\$47.03
6	75	\$24.70	\$8.20	\$16.13	\$0.00	\$49.03
7	80	\$26.34	\$8.20	\$16.47	\$0.00	\$51.01
8	90	\$29.64	\$8.20	\$17.16	\$0.00	\$55.00

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER / TAPER (BRUSH, REPAINT)	07/01/2019	\$29.95	\$8.20	\$17.55	\$0.00	\$55.70
PAINTERS LOCAL 35 - ZONE 3	01/01/2020	\$30.25	\$8.20	\$18.20	\$0.00	\$56.65
	07/01/2020	\$31.35	\$8.20	\$18.20	\$0.00	\$57.75
	01/01/2021	\$32.45	\$8.20	\$18.20	\$0.00	\$58.85

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER Local 35 Zone 3 - BRUSH REPAINT

Effective Date - 07/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$14.98	\$8.20	\$0.00	\$0.00	\$23.18
2	55	\$16.47	\$8.20	\$3.63	\$0.00	\$28.30
3	60	\$17.97	\$8.20	\$3.96	\$0.00	\$30.13
4	65	\$19.47	\$8.20	\$4.29	\$0.00	\$31.96
5	70	\$20.97	\$8.20	\$15.57	\$0.00	\$44.74
6	75	\$22.46	\$8.20	\$15.90	\$0.00	\$46.56
7	80	\$23.96	\$8.20	\$16.23	\$0.00	\$48.39
8	90	\$26.96	\$8.20	\$16.89	\$0.00	\$52.05

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$15.13	\$8.20	\$0.00	\$0.00	\$23.33
2	55	\$16.64	\$8.20	\$3.80	\$0.00	\$28.64
3	60	\$18.15	\$8.20	\$4.14	\$0.00	\$30.49
4	65	\$19.66	\$8.20	\$4.49	\$0.00	\$32.35
5	70	\$21.18	\$8.20	\$15.78	\$0.00	\$45.16
6	75	\$22.69	\$8.20	\$16.13	\$0.00	\$47.02
7	80	\$24.20	\$8.20	\$16.47	\$0.00	\$48.87
8	90	\$27.23	\$8.20	\$17.16	\$0.00	\$52.59

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER TRAFFIC MARKINGS (HEAVY/HIGHWAY)	06/01/2019	\$31.79	\$7.85	\$11.89	\$0.00	\$51.53
LABORERS - ZONE 3 (HEAVY & HIGHWAY)	12/01/2019	\$32.58	\$7.85	\$11.89	\$0.00	\$52.32
	06/01/2020	\$33.39	\$7.85	\$11.89	\$0.00	\$53.13
	12/01/2020	\$34.20	\$7.85	\$11.89	\$0.00	\$53.94
	06/01/2021	\$35.04	\$7.85	\$11.89	\$0.00	\$54.78
	12/01/2021	\$35.87	\$7.85	\$11.89	\$0.00	\$55.61

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

PANEL & PICKUP TRUCKS DRIVER	06/01/2019	\$34.08	\$11.91	\$12.70	\$0.00	\$58.69
TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	08/01/2019	\$34.08	\$12.41	\$12.70	\$0.00	\$59.19
	12/01/2019	\$34.08	\$12.41	\$13.72	\$0.00	\$60.21
	06/01/2020	\$34.98	\$12.41	\$13.72	\$0.00	\$61.11
	08/01/2020	\$34.98	\$12.91	\$13.72	\$0.00	\$61.61
	12/01/2020	\$34.98	\$12.91	\$14.82	\$0.00	\$62.71
	06/01/2021	\$35.78	\$12.91	\$14.82	\$0.00	\$63.51
	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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK)	08/01/2018	\$41.57	\$9.90	\$21.15	\$0.00	\$72.62
<i>PILE DRIVER LOCAL 56 (ZONE 3)</i>	08/01/2019	\$43.79	\$9.90	\$21.15	\$0.00	\$74.84
For apprentice rates see "Apprentice- PILE DRIVER"						
PILE DRIVER	08/01/2018	\$41.57	\$9.90	\$21.15	\$0.00	\$72.62
<i>PILE DRIVER LOCAL 56 (ZONE 3)</i>	08/01/2019	\$43.79	\$9.90	\$21.15	\$0.00	\$74.84

Apprentice - PILE DRIVER - Local 56 Zone 3

Effective Date - 08/01/2018

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

Notes: Apprentice wages shall be no less than the following Steps;
 (Same as set in Zone 1)
 1\$54.34/2\$58.99/3\$63.65/4\$65.98/5\$68.31/6\$68.31/7\$72.96/8\$72.96

Apprentice to Journeyworker Ratio:1:5

PIPELAYER	06/03/2019	\$32.06	\$7.85	\$13.91	\$0.00	\$53.82
<i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	12/02/2019	\$32.87	\$7.85	\$13.91	\$0.00	\$54.63
For apprentice rates see "Apprentice- LABORER"						
PIPELAYER (HEAVY & HIGHWAY)	06/01/2019	\$32.04	\$7.85	\$11.89	\$0.00	\$51.78
<i>LABORERS - ZONE 3 (HEAVY & HIGHWAY)</i>	12/01/2019	\$32.83	\$7.85	\$11.89	\$0.00	\$52.57
	06/01/2020	\$33.64	\$7.85	\$11.89	\$0.00	\$53.38
	12/01/2020	\$34.45	\$7.85	\$11.89	\$0.00	\$54.19
	06/01/2021	\$35.29	\$7.85	\$11.89	\$0.00	\$55.03
	12/01/2021	\$36.12	\$7.85	\$11.89	\$0.00	\$55.86
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
PLUMBER & PIPEFITTER	03/17/2019	\$40.21	\$8.75	\$16.35	\$0.00	\$65.31
<i>PLUMBERS & PIPEFITTERS LOCAL 104</i>						

Apprentice - PLUMBER/PIPEFITTER - Local 104

Effective Date - 03/17/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$18.09	\$8.75	\$9.60	\$0.00	\$36.44
2	50	\$20.11	\$8.75	\$9.60	\$0.00	\$38.46
3	55	\$22.12	\$8.75	\$9.60	\$0.00	\$40.47
4	60	\$24.13	\$8.75	\$9.60	\$0.00	\$42.48
5	65	\$26.14	\$8.75	\$9.60	\$0.00	\$44.49
6	70	\$28.15	\$8.75	\$9.60	\$0.00	\$46.50
7	75	\$30.16	\$8.75	\$9.60	\$0.00	\$48.51
8	80	\$32.17	\$8.75	\$9.60	\$0.00	\$50.52
9	80	\$32.17	\$8.75	\$16.35	\$0.00	\$57.27
10	80	\$32.17	\$8.75	\$16.35	\$0.00	\$57.27

Notes: **1:1,2:5,3:9,4:12

Apprentice to Journeyworker Ratio:**

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PNEUMATIC CONTROLS (TEMP.) <i>PLUMBERS & PIPEFITTERS LOCAL 104</i>	03/17/2019	\$40.21	\$8.75	\$16.35	\$0.00	\$65.31
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
PNEUMATIC DRILL/TOOL OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY & HIGHWAY)</i>	06/01/2019	\$32.04	\$7.85	\$11.89	\$0.00	\$51.78
	12/01/2019	\$32.83	\$7.85	\$11.89	\$0.00	\$52.57
	06/01/2020	\$33.64	\$7.85	\$11.89	\$0.00	\$53.38
	12/01/2020	\$34.45	\$7.85	\$11.89	\$0.00	\$54.19
	06/01/2021	\$35.29	\$7.85	\$11.89	\$0.00	\$55.03
	12/01/2021	\$36.12	\$7.85	\$11.89	\$0.00	\$55.86
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
POWDERMAN & BLASTER <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2019	\$32.81	\$7.85	\$13.91	\$0.00	\$54.57
	12/02/2019	\$33.62	\$7.85	\$13.91	\$0.00	\$55.38
For apprentice rates see "Apprentice- LABORER"						
POWDERMAN & BLASTER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY & HIGHWAY)</i>	06/01/2019	\$32.79	\$7.85	\$11.89	\$0.00	\$52.53
	12/01/2019	\$33.58	\$7.85	\$11.89	\$0.00	\$53.32
	06/01/2020	\$34.39	\$7.85	\$11.89	\$0.00	\$54.13
	12/01/2020	\$35.20	\$7.85	\$11.89	\$0.00	\$54.94
	06/01/2021	\$36.04	\$7.85	\$11.89	\$0.00	\$55.78
	12/01/2021	\$36.87	\$7.85	\$11.89	\$0.00	\$56.61
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
PUMP OPERATOR (CONCRETE) <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$35.05	\$11.69	\$14.08	\$0.00	\$60.82
	12/01/2019	\$35.65	\$11.69	\$14.35	\$0.00	\$61.69
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (DEWATERING, OTHER) <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$34.52	\$11.69	\$14.08	\$0.00	\$60.29
	12/01/2019	\$35.12	\$11.69	\$14.35	\$0.00	\$61.16
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
READY-MIX CONCRETE DRIVER <i>TEAMSTERS LOCAL 404</i>	05/01/2016	\$21.01	\$10.23	\$9.40	\$0.00	\$40.64
RIDE-ON MOTORIZED BUGGY OPERATOR <i>LABORERS - ZONE 3 (BUILDING & SITE)</i>	06/03/2019	\$32.06	\$7.85	\$13.91	\$0.00	\$53.82
	12/02/2019	\$32.87	\$7.85	\$13.91	\$0.00	\$54.63
For apprentice rates see "Apprentice- LABORER"						
ROLLER OPERATOR <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$33.91	\$11.69	\$14.08	\$0.00	\$59.68
	12/01/2019	\$34.51	\$11.69	\$14.35	\$0.00	\$60.55
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
ROOFER (Coal tar pitch) <i>ROOFERS LOCAL 248</i>	07/16/2018	\$32.31	\$10.00	\$15.10	\$0.00	\$57.41
	07/16/2019	\$32.66	\$10.05	\$16.20	\$0.00	\$58.91
For apprentice rates see "Apprentice- ROOFER"						
ROOFER (Inc.Roofing Waterproofing &Roofing Damproofg) <i>ROOFERS LOCAL 248</i>	07/16/2018	\$31.81	\$10.00	\$14.60	\$0.00	\$56.41
	07/16/2019	\$32.16	\$10.05	\$15.70	\$0.00	\$57.91

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - ROOFER - Local 248

Effective Date - 07/16/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$19.09	\$10.05	\$0.00	\$0.00	\$29.14
2	65	\$20.68	\$10.05	\$15.70	\$0.00	\$46.43
3	70	\$22.27	\$10.05	\$15.70	\$0.00	\$48.02
4	75	\$23.86	\$10.05	\$15.70	\$0.00	\$49.61
5	80	\$25.45	\$10.05	\$15.70	\$0.00	\$51.20
6	85	\$27.04	\$10.05	\$15.70	\$0.00	\$52.79
7	90	\$28.63	\$10.05	\$15.70	\$0.00	\$54.38
8	95	\$30.22	\$10.05	\$15.70	\$0.00	\$55.97

Notes:

Steps are 750 hrs.Roofer(Tear Off)1:1; Same as above

Apprentice to Journeyworker Ratio:1:3

ROOFER SLATE / TILE / PRECAST CONCRETE <i>ROOFERS LOCAL 248</i>	07/16/2018	\$32.31	\$10.00	\$15.10	\$0.00	\$57.41
	07/16/2019	\$32.66	\$10.05	\$16.20	\$0.00	\$58.91
For apprentice rates see "Apprentice- ROOFER"						
SCRAPER <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$34.52	\$11.69	\$14.08	\$0.00	\$60.29
	12/01/2019	\$35.12	\$11.69	\$14.35	\$0.00	\$61.16
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
SELF-POWERED ROLLERS AND COMPACTORS (TAMPERS) <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$33.91	\$11.69	\$14.08	\$0.00	\$59.68
	12/01/2019	\$34.51	\$11.69	\$14.35	\$0.00	\$60.55
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
SELF-PROPELLED POWER BROOM <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$31.29	\$11.69	\$14.08	\$0.00	\$57.06
	12/01/2019	\$31.89	\$11.69	\$14.35	\$0.00	\$57.93
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
SHEETMETAL WORKER <i>SHEETMETAL WORKERS LOCAL 63</i>	07/01/2019	\$35.74	\$10.64	\$16.22	\$1.77	\$64.37
	01/01/2020	\$36.99	\$10.64	\$16.22	\$1.77	\$65.62

Apprentice - SHEET METAL WORKER - Local 63

Effective Date - 07/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$16.08	\$6.21	\$4.67	\$0.00	\$26.96
2	50	\$17.87	\$6.55	\$5.19	\$0.00	\$29.61
3	55	\$19.66	\$6.88	\$9.33	\$1.08	\$36.95
4	60	\$21.44	\$7.22	\$9.33	\$1.14	\$39.13
5	65	\$23.23	\$7.55	\$9.33	\$1.20	\$41.31
6	70	\$25.02	\$7.88	\$9.33	\$1.27	\$43.50
7	75	\$26.81	\$8.22	\$9.33	\$1.33	\$45.69
8	80	\$28.59	\$9.30	\$15.18	\$1.59	\$54.66
9	85	\$30.38	\$9.64	\$15.18	\$1.66	\$56.86
10	90	\$32.17	\$9.98	\$15.18	\$1.72	\$59.05

Effective Date - 01/01/2020

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$16.65	\$6.21	\$4.67	\$0.00	\$27.53
2	50	\$18.50	\$6.55	\$5.19	\$0.00	\$30.24
3	55	\$20.34	\$6.88	\$9.33	\$1.08	\$37.63
4	60	\$22.19	\$7.22	\$9.33	\$1.14	\$39.88
5	65	\$24.04	\$7.55	\$9.33	\$1.20	\$42.12
6	70	\$25.89	\$7.88	\$9.33	\$1.27	\$44.37
7	75	\$27.74	\$8.22	\$9.33	\$1.33	\$46.62
8	80	\$29.59	\$9.30	\$15.18	\$1.59	\$55.66
9	85	\$31.44	\$9.64	\$15.18	\$1.66	\$57.92
10	90	\$33.29	\$9.98	\$15.18	\$1.72	\$60.17

Notes:

Apprentice to Journeyworker Ratio:1:3

SPECIALIZED EARTH MOVING EQUIP < 35 TONS	06/01/2019	\$34.54	\$11.91	\$12.70	\$0.00	\$59.15
TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	08/01/2019	\$34.54	\$12.41	\$12.70	\$0.00	\$59.65
	12/01/2019	\$34.54	\$12.41	\$13.72	\$0.00	\$60.67
	06/01/2020	\$35.44	\$12.41	\$13.72	\$0.00	\$61.57
	08/01/2020	\$35.44	\$12.91	\$13.72	\$0.00	\$62.07
	12/01/2020	\$35.44	\$12.91	\$14.82	\$0.00	\$63.17
	06/01/2021	\$36.24	\$12.91	\$14.82	\$0.00	\$63.97
	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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
SPECIALIZED EARTH MOVING EQUIP > 35 TONS <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	06/01/2019	\$34.83	\$11.91	\$12.70	\$0.00	\$59.44
	08/01/2019	\$34.83	\$12.41	\$12.70	\$0.00	\$59.94
	12/01/2019	\$34.83	\$12.41	\$13.72	\$0.00	\$60.96
	06/01/2020	\$35.73	\$12.41	\$13.72	\$0.00	\$61.86
	08/01/2020	\$35.73	\$12.91	\$13.72	\$0.00	\$62.36
	12/01/2020	\$35.73	\$12.91	\$14.82	\$0.00	\$63.46
	06/01/2021	\$36.53	\$12.91	\$14.82	\$0.00	\$64.26
	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 <i>SPRINKLER FITTERS LOCAL 669</i>	01/01/2019	\$41.51	\$10.02	\$13.08	\$0.00	\$64.61

Apprentice - SPRINKLER FITTER - Local 669

Effective Date - 01/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$18.68	\$7.75	\$0.00	\$0.00	\$26.43
2	50	\$20.76	\$7.75	\$0.00	\$0.00	\$28.51
3	55	\$22.83	\$10.02	\$7.25	\$0.00	\$40.10
4	60	\$24.91	\$10.02	\$7.25	\$0.00	\$42.18
5	65	\$26.98	\$10.02	\$7.50	\$0.00	\$44.50
6	70	\$29.06	\$10.02	\$7.50	\$0.00	\$46.58
7	75	\$31.13	\$10.02	\$7.50	\$0.00	\$48.65
8	80	\$33.21	\$10.02	\$7.50	\$0.00	\$50.73
9	85	\$35.28	\$10.02	\$7.50	\$0.00	\$52.80
10	90	\$37.36	\$10.02	\$7.50	\$0.00	\$54.88

Notes:

Apprentice to Journeyworker Ratio:1:1

TELECOMMUNICATION TECHNICIAN <i>ELECTRICIANS LOCAL 7</i>	06/30/2019	\$42.66	\$10.75	\$12.33	\$0.00	\$65.74
	12/29/2019	\$43.41	\$11.00	\$12.60	\$0.00	\$67.01

Apprentice - TELECOMMUNICATION TECHNICIAN - Local 7

Effective Date - 06/30/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$17.06	\$5.85	\$0.51	\$0.00	\$23.42
2	45	\$19.20	\$5.85	\$0.58	\$0.00	\$25.63
3	50	\$21.33	\$10.75	\$6.94	\$0.00	\$39.02
4	55	\$23.46	\$10.75	\$7.00	\$0.00	\$41.21
5	65	\$27.73	\$10.75	\$8.13	\$0.00	\$46.61
6	70	\$29.86	\$10.75	\$9.20	\$0.00	\$49.81

Notes:

Steps are 800 hours

Apprentice to Journeyworker Ratio:1:1

TERRAZZO FINISHERS	02/01/2019	\$52.49	\$10.75	\$20.66	\$0.00	\$83.90
BRICKLAYERS LOCAL 3 (SPR/PITT) - MARBLE & TILE	08/01/2019	\$53.84	\$10.75	\$20.80	\$0.00	\$85.39
	02/01/2020	\$54.48	\$10.75	\$20.80	\$0.00	\$86.03
	08/01/2020	\$55.83	\$10.75	\$20.95	\$0.00	\$87.53
	02/01/2021	\$56.47	\$10.75	\$20.95	\$0.00	\$88.17
	08/01/2021	\$57.87	\$10.75	\$21.11	\$0.00	\$89.73
	02/01/2022	\$58.46	\$10.75	\$21.11	\$0.00	\$90.32

Apprentice - TERRAZZO FINISHER-Local 3 Marble/Tile (Spr/Ptt)

Effective Date - 02/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.25	\$10.75	\$20.66	\$0.00	\$57.66
2	60	\$31.49	\$10.75	\$20.66	\$0.00	\$62.90
3	70	\$36.74	\$10.75	\$20.66	\$0.00	\$68.15
4	80	\$41.99	\$10.75	\$20.66	\$0.00	\$73.40
5	90	\$47.24	\$10.75	\$20.66	\$0.00	\$78.65

Effective Date - 08/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.92	\$10.75	\$20.80	\$0.00	\$58.47
2	60	\$32.30	\$10.75	\$20.80	\$0.00	\$63.85
3	70	\$37.69	\$10.75	\$20.80	\$0.00	\$69.24
4	80	\$43.07	\$10.75	\$20.80	\$0.00	\$74.62
5	90	\$48.46	\$10.75	\$20.80	\$0.00	\$80.01

Notes:

Apprentice to Journeyworker Ratio:1:5

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TERRAZZO MECHANIC <i>BRICKLAYERS LOCAL 3 (SPR/PITT) - MARBLE & TILE</i>	02/01/2019	\$53.57	\$10.75	\$20.66	\$0.00	\$84.98
	08/01/2019	\$54.92	\$10.75	\$20.80	\$0.00	\$86.47
	02/01/2020	\$55.55	\$10.75	\$20.80	\$0.00	\$87.10
	08/01/2020	\$56.90	\$10.75	\$20.95	\$0.00	\$88.60
	02/01/2021	\$57.54	\$10.75	\$20.95	\$0.00	\$89.24
	08/01/2021	\$58.94	\$10.75	\$21.11	\$0.00	\$90.80
	02/01/2022	\$59.51	\$10.75	\$21.11	\$0.00	\$91.37

Apprentice - TERRAZZO MECH - Local 3 Marble/Tile (Spr/Pitt)

Effective Date - 02/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.79	\$10.75	\$20.66	\$0.00	\$58.20
2	60	\$32.14	\$10.75	\$20.66	\$0.00	\$63.55
3	70	\$37.50	\$10.75	\$20.66	\$0.00	\$68.91
4	80	\$42.86	\$10.75	\$20.66	\$0.00	\$74.27
5	90	\$48.21	\$10.75	\$20.66	\$0.00	\$79.62

Effective Date - 08/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$27.46	\$10.75	\$20.80	\$0.00	\$59.01
2	60	\$32.95	\$10.75	\$20.80	\$0.00	\$64.50
3	70	\$38.44	\$10.75	\$20.80	\$0.00	\$69.99
4	80	\$43.94	\$10.75	\$20.80	\$0.00	\$75.49
5	90	\$49.43	\$10.75	\$20.80	\$0.00	\$80.98

Notes:

Apprentice to Journeyworker Ratio:1:5

TEST BORING DRILLER <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2019	\$41.00	\$7.85	\$15.55	\$0.00	\$64.40
	12/01/2019	\$42.00	\$7.85	\$15.55	\$0.00	\$65.40
	06/01/2020	\$42.99	\$7.85	\$15.55	\$0.00	\$66.39
	12/01/2020	\$43.97	\$7.85	\$15.55	\$0.00	\$67.37
	06/01/2021	\$44.99	\$7.85	\$15.55	\$0.00	\$68.39
	12/01/2021	\$46.00	\$7.85	\$15.55	\$0.00	\$69.40

For apprentice rates see "Apprentice- LABORER"

TEST BORING DRILLER HELPER <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2019	\$39.72	\$7.85	\$15.55	\$0.00	\$63.12
	12/01/2019	\$40.72	\$7.85	\$15.55	\$0.00	\$64.12
	06/01/2020	\$41.71	\$7.85	\$15.55	\$0.00	\$65.11
	12/01/2020	\$42.69	\$7.85	\$15.55	\$0.00	\$66.09
	06/01/2021	\$43.71	\$7.85	\$15.55	\$0.00	\$67.11
	12/01/2021	\$44.72	\$7.85	\$15.55	\$0.00	\$68.12

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TEST BORING LABORER <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2019	\$39.60	\$7.85	\$15.55	\$0.00	\$63.00
	12/01/2019	\$40.60	\$7.85	\$15.55	\$0.00	\$64.00
	06/01/2020	\$41.59	\$7.85	\$15.55	\$0.00	\$64.99
	12/01/2020	\$42.57	\$7.85	\$15.55	\$0.00	\$65.97
	06/01/2021	\$43.59	\$7.85	\$15.55	\$0.00	\$66.99
	12/01/2021	\$44.60	\$7.85	\$15.55	\$0.00	\$68.00
For apprentice rates see "Apprentice- LABORER"						
TRACTORS <i>OPERATING ENGINEERS LOCAL 98</i>	06/01/2019	\$33.91	\$11.69	\$14.08	\$0.00	\$59.68
	12/01/2019	\$34.51	\$11.69	\$14.35	\$0.00	\$60.55
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TRAILERS FOR EARTH MOVING EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	06/01/2019	\$35.12	\$11.91	\$12.70	\$0.00	\$59.73
	08/01/2019	\$35.12	\$12.41	\$12.70	\$0.00	\$60.23
	12/01/2019	\$35.12	\$12.41	\$13.72	\$0.00	\$61.25
	06/01/2020	\$36.02	\$12.41	\$13.72	\$0.00	\$62.15
	08/01/2020	\$36.02	\$12.91	\$13.72	\$0.00	\$62.65
	12/01/2020	\$36.02	\$12.91	\$14.82	\$0.00	\$63.75
	06/01/2021	\$36.82	\$12.91	\$14.82	\$0.00	\$64.55
	08/01/2021	\$36.82	\$13.41	\$14.82	\$0.00	\$65.05
	12/01/2021	\$36.82	\$13.41	\$16.01	\$0.00	\$66.24
TUNNEL WORK - COMPRESSED AIR <i>LABORERS (COMPRESSED AIR)</i>	06/01/2019	\$51.88	\$7.85	\$15.95	\$0.00	\$75.68
	12/01/2019	\$52.88	\$7.85	\$15.95	\$0.00	\$76.68
	06/01/2020	\$53.87	\$7.85	\$15.95	\$0.00	\$77.67
	12/01/2020	\$54.85	\$7.85	\$15.95	\$0.00	\$78.65
	06/01/2021	\$55.87	\$7.85	\$15.95	\$0.00	\$79.67
	12/01/2021	\$56.88	\$7.85	\$15.95	\$0.00	\$80.68
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE) <i>LABORERS (COMPRESSED AIR)</i>	06/01/2019	\$53.88	\$7.85	\$15.95	\$0.00	\$77.68
	12/01/2019	\$54.88	\$7.85	\$15.95	\$0.00	\$78.68
	06/01/2020	\$55.87	\$7.85	\$15.95	\$0.00	\$79.67
	12/01/2020	\$56.85	\$7.85	\$15.95	\$0.00	\$80.65
	06/01/2021	\$57.87	\$7.85	\$15.95	\$0.00	\$81.67
	12/01/2021	\$58.88	\$7.85	\$15.95	\$0.00	\$82.68
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR <i>LABORERS (FREE AIR TUNNEL)</i>	06/01/2019	\$43.95	\$7.85	\$15.95	\$0.00	\$67.75
	12/01/2019	\$44.95	\$7.85	\$15.95	\$0.00	\$68.75
	06/01/2020	\$45.94	\$7.85	\$15.95	\$0.00	\$69.74
	12/01/2020	\$46.92	\$7.85	\$15.95	\$0.00	\$70.72
	06/01/2021	\$47.94	\$7.85	\$15.95	\$0.00	\$71.74
	12/01/2021	\$48.95	\$7.85	\$15.95	\$0.00	\$72.75
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR (HAZ. WASTE) <i>LABORERS (FREE AIR TUNNEL)</i>	06/01/2019	\$45.95	\$7.85	\$15.95	\$0.00	\$69.75
	12/01/2019	\$46.95	\$7.85	\$15.95	\$0.00	\$70.75
	06/01/2020	\$47.94	\$7.85	\$15.95	\$0.00	\$71.74
	12/01/2020	\$48.92	\$7.85	\$15.95	\$0.00	\$72.72
	06/01/2021	\$49.94	\$7.85	\$15.95	\$0.00	\$73.74
	12/01/2021	\$50.95	\$7.85	\$15.95	\$0.00	\$74.75
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
VAC-HAUL <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	06/01/2019	\$34.54	\$11.91	\$12.70	\$0.00	\$59.15
	08/01/2019	\$34.54	\$12.41	\$12.70	\$0.00	\$59.65
	12/01/2019	\$34.54	\$12.41	\$13.72	\$0.00	\$60.67
	06/01/2020	\$35.44	\$12.41	\$13.72	\$0.00	\$61.57
	08/01/2020	\$35.44	\$12.91	\$13.72	\$0.00	\$62.07
	12/01/2020	\$35.44	\$12.91	\$14.82	\$0.00	\$63.17
	06/01/2021	\$36.24	\$12.91	\$14.82	\$0.00	\$63.97
	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 3 (BUILDING & SITE)</i>	06/03/2019	\$32.06	\$7.85	\$13.91	\$0.00	\$53.82
	12/02/2019	\$32.87	\$7.85	\$13.91	\$0.00	\$54.63
For apprentice rates see "Apprentice- LABORER"						
WAGON DRILL OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 3 (HEAVY & HIGHWAY)</i>	06/01/2019	\$32.04	\$7.85	\$11.89	\$0.00	\$51.78
	12/01/2019	\$32.83	\$7.85	\$11.89	\$0.00	\$52.57
	06/01/2020	\$33.64	\$7.85	\$11.89	\$0.00	\$53.38
	12/01/2020	\$34.45	\$7.85	\$11.89	\$0.00	\$54.19
	06/01/2021	\$35.29	\$7.85	\$11.89	\$0.00	\$55.03
	12/01/2021	\$36.12	\$7.85	\$11.89	\$0.00	\$55.86
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
WATER METER INSTALLER <i>PLUMBERS & PIPEFITTERS LOCAL 104</i>	03/17/2019	\$40.21	\$8.75	\$16.35	\$0.00	\$65.31
For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"						
Outside Electrical - West						
EQUIPMENT OPERATOR <i>OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42</i>	09/02/2018	\$42.26	\$8.00	\$12.50	\$0.00	\$62.76
	09/01/2019	\$44.67	\$8.00	\$12.55	\$0.00	\$65.22
For apprentice rates see "Apprentice- LINEMAN"						
GROUNDMAN <i>OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42</i>	09/02/2018	\$28.17	\$8.00	\$5.41	\$0.00	\$41.58
	09/01/2019	\$30.58	\$8.00	\$5.48	\$0.00	\$44.06
For apprentice rates see "Apprentice- LINEMAN"						
GROUNDMAN / TRUCK DRIVER <i>OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42</i>	09/02/2018	\$37.56	\$8.00	\$10.89	\$0.00	\$56.45
	09/01/2019	\$39.97	\$8.00	\$10.96	\$0.00	\$58.93
For apprentice rates see "Apprentice- LINEMAN"						
HEAVY EQUIPMENT OPERATOR <i>OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42</i>	09/02/2018	\$44.60	\$8.00	\$13.15	\$0.00	\$65.75
	09/01/2019	\$47.01	\$8.00	\$13.22	\$0.00	\$68.23
For apprentice rates see "Apprentice- LINEMAN"						
JOURNEYMAN LINEMAN <i>OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42</i>	09/02/2018	\$49.30	\$8.00	\$15.48	\$0.00	\$72.78
	09/01/2019	\$51.71	\$8.00	\$15.55	\$0.00	\$75.26

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - LINEMAN (Outside Electrical) - West Local 42

Effective Date - 09/02/2018

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$29.58	\$8.00	\$3.39	\$0.00	\$40.97
2	65	\$32.05	\$8.00	\$3.46	\$0.00	\$43.51
3	70	\$34.51	\$8.00	\$3.54	\$0.00	\$46.05
4	75	\$36.98	\$8.00	\$5.11	\$0.00	\$50.09
5	80	\$39.44	\$8.00	\$5.18	\$0.00	\$52.62
6	85	\$41.91	\$8.00	\$5.26	\$0.00	\$55.17
7	90	\$44.37	\$8.00	\$7.33	\$0.00	\$59.70

Effective Date - 09/01/2019

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$31.03	\$8.00	\$3.43	\$0.00	\$42.46
2	65	\$33.61	\$8.00	\$3.51	\$0.00	\$45.12
3	70	\$36.20	\$8.00	\$3.59	\$0.00	\$47.79
4	75	\$38.78	\$8.00	\$5.16	\$0.00	\$51.94
5	80	\$41.37	\$8.00	\$5.24	\$0.00	\$54.61
6	85	\$43.95	\$8.00	\$5.32	\$0.00	\$57.27
7	90	\$46.54	\$8.00	\$7.40	\$0.00	\$61.94

Notes:

Apprentice to Journeyworker Ratio:1:2

TELEDATA CABLE SPLICER <i>OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42</i>	02/04/2019	\$30.73	\$4.70	\$3.17	\$0.00	\$38.60
TELEDATA LINEMAN/EQUIPMENT OPERATOR <i>OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42</i>	02/04/2019	\$28.93	\$4.70	\$3.14	\$0.00	\$36.77
TELEDATA WIREMAN/INSTALLER/TECHNICIAN <i>OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42</i>	02/04/2019	\$28.93	\$4.70	\$3.14	\$0.00	\$36.77
TRACTOR-TRAILER DRIVER <i>OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42</i>	09/02/2018	\$42.26	\$8.00	\$12.50	\$0.00	\$62.76
TREE TRIMMER <i>OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42</i>	09/01/2019	\$44.67	\$8.00	\$12.55	\$0.00	\$65.22
TREE TRIMMER <i>OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42</i>	01/31/2016	\$18.51	\$3.55	\$0.00	\$0.00	\$22.06
TREE TRIMMER GROUNDMAN <i>OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42</i>	01/31/2016	\$16.32	\$3.55	\$0.00	\$0.00	\$19.87

This classification applies only to tree work done: (a) for a utility company, R.E.A. cooperative, or railroad or coal mining company, and (b) for the purpose of operating, maintaining, or repairing the utility company's equipment, and (c) by a person who is using hand or mechanical cutting methods and is not on the ground. This classification does not apply to wholesale tree removal.

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Additional Apprentices Information:

Minimum wage rates for apprentices employed on public works projects are listed above as a percentage of the pre-determined hourly wage rate established by the Commissioner under the provisions of the M.G.L. c. 149, ss. 26-27D. Apprentices 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.

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 011000

SUMMARY

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. Equality of material, article, assembly or system other than those named or described in this Section shall be determined in accordance with the provisions of Article V of the CONTRACT AND GENERAL CONDITIONS.

1.2 REQUIREMENTS INCLUDED

- A. 1.3 Work under this Contract.
- B. 1.4 Examination of Site and Documents.
- C. 1.5 General Contractor's Qualifications.
- D. 1.6 Contract Method.
- E. 1.7 Work Sequence.
- F. 1.8 Supervision of Work.
- G. 1.9 General Contractor's Use of Premises.
- H. 1.10 Work Performed Under Separate Contracts
- I. 1.11 Coordination of work with school occupancy.
- J. 1.12 Field Engineering.
- K. 1.13 Reference Standards.
- L. 1.14 Preconstruction Conference.
- M. 1.15 Project Meetings.
- N. 1.16 Permits, Inspection, and Testing Required by Governing Authorities.
- O. 1.17 Cutting, Coring, Patching, Unless Otherwise Indicated.
- P. 1.18 Debris Removal.
- Q. 1.19 Field Measurements.

- R. 1.20 Emergency Procedures.
- S. 1.21 Safety Regulations.
- T. 1.22 OSHA Safety and Health Course Documentation.
- U. 1.23 Damage Responsibility.
- V. 1.24 Owner Furnished Products.
- W. 1.25 Owner Occupancy.
- X. 1.26 Asbestos and Hazardous Materials Discovery.
- Y. 1.27 Special Requirements.
- Z. 1.28 List of Drawings.

1.3 SUMMARY OF WORK UNDER THIS CONTRACT

- A. The work to be done under this contract consists of executing and completing all work required for LONGMEADOW CENTER SCHOOL FIRE ALARM REPLACEMENT, TOWN OF LONGMEADOW
 - 1. General Information - This project includes the complete replacement of the fire alarm system for the center school building, limited elements of the existing system shall be reused, as described in construction documentation
 - 2. The Electrical Contractor is the prime contractor for the project. All references in the Specifications and Plans to the General Contractor, shall be interpreted as a reference to the Electrical Contractor.
- B. The work will include all operations necessary to deliver a new fire alarm systems in a fully installed and operable condition and obtaining all necessary licenses, permits, and certificates.
- C. The scope of work, without limiting the generality thereof, includes all labor, materials, equipment and services required to perform the work described fully in the Drawings and Specifications and includes, but is not limited to the following major work:
 - 1. Coordination of fire alarm system installation with school schedule.
 - 2. Identification and Isolation of Door Holder 24V system components and wiring, & other identified system components, for relocation to new system
 - 3. Installation of new fire alarm control panel, fire alarm transponder panels, and class A conduit and wire system routing.
 - 4. Installation of new fire alarm system devices, appliances, and circuiting.
 - 5. Demolition of existing fire alarm system including all devices, wiring and raceways.
 - 6. Acceptance testing
 - 7. Installation of ceiling tiles.
 - 8. Patching and Painting at all obsolete device locations on walls and ceilings.
- D. Reference to Drawings: The work to be done under this Contract is shown on the Drawings listed at the end of this Section.

- E. Work will include all site removal and new construction for the Longmeadow Center School Fire Alarm Replacement Project and all electrical/ fire alarm work as required. The General Contractor will provide a schedule for completion of the project to the Owner within the required construction period. Schedule shall sequence installation & preliminary testing of new fire alarm system, prior to the decommissioning of the existing fire alarm system.
- F. The Massachusetts Standard Labor Wage rates, as outlined in the exhibits, will be used in the construction of this project.
- G. The designers and consultants for this project include
Prime Consultant / Designer / Electrical:
NV5 Engineers: Joel Patruno: 413-387-4645: Joel.Patruno@NV5.com

1.4 EXAMINATION OF SITE AND DOCUMENTS

- A. A pre-bid conference will be held at the job site on the date and at the time indicated in the Invitation to Bid.
- B. Bidders shall visit the site during the pre bid conference, at the time specified in the advertisement and the bid documents. Late arrivals will not be given access. No other visits will be allowed. Each contractor shall send no more than (3) people to attend the site visit.
- C. The bidders are expected to examine and to be thoroughly familiar with all contract documents and with the conditions under which the work is to be carried out. The town of Longmeadow will not be responsible for errors, omissions, and/or charges for extra work arising from the General Contractors or Subcontractors failure to familiarize themselves with the contract documents. The General Contractor and Subcontractor acknowledge that they are familiar with the conditions and requirements of the contract documents where they require, in any part of the work a given result to be produced, and that the contract documents are adequate and will produce the required results.
- D. Contacts: The designer will be present at the pre-bid conference. This will be the only time available for viewing the site: any further questions preceding the submission of the bid shall be directed to
Longmeadow project manager: Chad Thompson: cthompson@longmeadow.org
- E. No questions from Bidders will be accepted within 5 days of the Bid opening. Questions will be answered in the form of an addendum or itemized response form, which will be distributed to all plan recipients via email. Any information provided by other than the designated contact person identified above should be disregarded in the preparation of Bids.

1.5 CONTRACTOR'S QUALIFICATION

- A. The Electrical Contractor must be currently certified by the Division of Capital Asset Management & Maintenance for Electrical Work.
- B. It is the Bidder's responsibility to obtain the necessary forms from DCAMM and make application to DCAMM not less than three weeks prior to advertised bid opening for DCAMM to evaluate the application and issue a Certificate of Eligibility.

- A. The Electrical Contractor shall act as the General Contractor on this project. General Contractor's Updated Statement is not a public record as defined in M.G.L., Chapter 4, Section 7, and will not be open to public inspection.

1.6 CONTRACT METHOD

- A. Work under this contract shall be lump sum price, for the scopes of work as described in these specifications and shown on the Drawings.

1.7 WORK SEQUENCE

- A. General: The buildings will be sparsely occupied during the summer recess, running from the beginning of the construction, until the start of the academic school year. All system interruptions, and proposed deviations from regular work hours, shall be scheduled and approved at least two weeks in advance by the Town of Longmeadow project manager.
- B. During the Summer Recess Period, work shall be performed Weekdays between the regular work hours of 7:00 a.m. and 5:00 p.m. By request; weekday work hours may be extended to run from 6:00 a.m. though 12:00 p.m. Also by request the contractor may work Saturdays.
- C. When the building is regularly occupied starting at the beginning of the academic school year, regular work hours shall be 3:30 p.m. through 12:00 p.m. on Weekdays. By request Weekend work is allowable between the hours of 7:00 a.m. though 5:00 p.m.
- D. Inspections & Testing required to take place during the weekday daytime hours, in the academic school year, shall be done in coordination with the Academic Calendar, as to not disrupt the regular school day. Final coordination shall be with the Town of Longmeadow project manager.
- E. During Regular Occupation, any work that is performed must be concluded by the end of the working day. All tools and materials utilized must be returned to the appropriate designated storage area. All floors, ceilings and surfaces must be cleaned and restored to pristine condition.
- F. The contractor shall submit a sequence of construction for approval,
- G. Project Milestones
 - 1. The following milestones apply for 2018:

a. Project start date:	July 24, 2019
b. Beginning of Academic School Year:	August 26, 2019
c. Preliminary acceptance testing of New System	November 11, 2019
d. Final acceptance of new System	December 23, 2019
e. Final Completion Date	December 31, 2019

1.8 SUPERVISION OF WORK

- A. The General Contractor shall be held directly responsible for the correct installation of all work performed under this Contract. The General Contractor must make good repair,

without expense to the Commonwealth, of any part of the new work, or existing work to remain, which may become inoperative on account of leaving the work unprotected or unsupervised during construction of the system, or which may break or give out in any manner by reason of poor workmanship, defective materials or any lack of space to allow for expansion and contraction of the work during the General Contractor's warranty period, from the date of final acceptance of the work by the Town of Longmeadow.

- B. The General Contractor shall furnish a project manager in charge of the project as well as a competent Massachusetts licensed supervisor satisfactory to the Town of Longmeadow Project Manager and to the Designer. The superintendent or his qualified designee shall be on site at all times that work is being performed and shall supervise all work under this contract and who shall remain on duty at the site throughout the Contract period while work is in progress. In addition, the superintendent and/or his qualified designee shall be available on call, 24 hours a day, seven days per week, to respond to emergencies caused by or affecting the work under this contract.
 - 1. Submit the name and resume of the superintendent for approval to the Town of Longmeadow Project Manager. Include experience with projects of equal size and complexity.
 - 2. Provide the cell phone numbers of the superintendent and his qualified designees, for inclusion in the Town of Longmeadow/ Center School Emergency Contacts Database.
 - 3. The Superintendent shall not be the electrical foreman.

1.9 GENERAL CONTRACTOR'S USE OF PREMISES

- A. Contractor's work areas:
 - 1. Provide enclosures in accordance with 015000 1.13 to minimize impact to surrounding areas.
 - 2. Maintain means of egress, lighting, and building HVAC in occupied areas surrounding work areas.
 - 3. The university will provide at least one room within one of the wings for storage of job materials. The contractor shall protect the room during construction and restore the room to its present condition upon job conclusion. Elevator will not be available for use.
- B. The General Contractor shall schedule as per Section 015000 - Temporary Facilities and Controls, the shutting down or interrupting any utilities, services or facilities which may affect the operation of the building, services or facilities of the school building.
- C. Coordinate with Town of Longmeadow project manager, work in connection with adjacent driveways, walks, or other facilities which would prevent access thereto or interrupt, restrict, or otherwise infringe upon the Operating Agency's use thereof.
- D. The General Contractor shall be aware of the sensitivity of Building Occupants to noise, dust, debris, vibration, and site maintenance and take appropriate precautions to avoid conflict.
- E. Damage to existing work, if caused by the General Contractor's operations under this Contract, shall be repaired at the General Contractor's expense.

- F. The General Contractor can gain access to the premises during the hours specified below. In addition the General Contractor and his personnel will limit themselves only within the working premises during working hours. If work needs to be scheduled during times other than those listed below, General Contractor shall inform the Town of Longmeadow Project Manager two weeks prior to work.
1. For unoccupied school building: 7:00 AM through 5:00 PM, additional weekday hours and Saturday hours available upon request to the Town of Longmeadow.
 2. For occupied school building: 3:30 PM through 12:00 PM, additional weekday hours and Saturday hours available upon request to the Town of Longmeadow. If daytime hours are required for testing or inspection with authority having jurisdiction, request permission and obtain escort by a Town of Longmeadow Staff member.
- G. Confine operations at the site to areas permitted by:
1. Laws
 2. Ordinances
 3. Permits
 4. Contract Documents
 5. Owner's Regulations
- H. All workers performing work on the security system shall hold a valid Massachusetts "S-License".
- I. The contractor shall provide identification of each employee and subcontractor as required for CORI checks. Submit a list of all workers to Town of Longmeadow, including subcontractors, that shall be allowed to work on the project, for CORI checks to be performed by the Town of Longmeadow. Allow for one week from submittal of documentation for completion of CORI check process. Only approved individuals are allowed on the work site without escort.
- J. All workers will be required to wear identifying badges. In secure areas, submit names of workers for clearing by the Town of Longmeadow Project Manager. Badges shall display worker name, company and Town of Longmeadow contract number.
- K. All workers will also be required to wear a hi-vis "T-Shirt" with the electrical contractor's logo or employer logo imprinted on the back.
- L. All available existing utilities adjacent to the construction site will be available for use during construction as is unless indicated otherwise. Temporary connections to these utilities, all metering, transformers, removal, usage, and their associated costs will be the responsibility of the Contractor.
- M. The General Contractor shall verify that Subcontractors have visited the site and included all costs associated with the location of the project, and any restriction or limitations the location of the project may pose.
- N. Employers and Subcontractors shall at all times conduct their operations in a courteous, professional manner while on the project or in the vicinity of the project. Harassment, offensive language or behavior will not be permitted on the site.
- O. The Town of Longmeadow can neither accept nor assume responsibility for the security of the Contractor's material or equipment which is lost, stolen or vandalized. The Contractor is advised to exert caution in placement and storage of his equipment and material.

- P. Parking: Parking spaces on at the school grounds are limited when school is in session and the Town of Longmeadow shall designate parking lot spaces near the construction site for the Contractor's use.
- Q. Radios, tape players, "boom boxes", or other audio entertainment equipment, including personal entertainment devices, shall not be allowed on the project site.
- R. The Town of Longmeadow prohibits tobacco use everywhere at the school, inside buildings and throughout the grounds. This policy applies to everyone and anyone on campus, including students, staff, faculty, contractors and visitors. For the purpose of this policy, 'tobacco' refers to any and all tobacco products, whether inhaled or ingested, as well as electronic cigarettes.
- S. The Contractor shall not allow the use of intoxicating beverages, smoked substances, or non-prescription controlled substance drugs upon or about the work site.
- T. The Contractor shall provide and maintain in good serviceable condition at all times, warning signs and/or non-combustible barriers, forms and fire resistive tarps or plastic, suitable for the purpose, and shall be installed adjacent to each work area, for complete enclosure and/or isolation areas, which are associated with the work under the contract. Barriers shall be a secure fence, guardrail, cover, or similar assembly designed and erected to provide protection from accidental access.

1.10 WORK PERFORMED UNDER SEPARATE CONTRACTS

- A. The Owner reserves the right to let separate contracts in connection with and concurrent to the work.
- B. The Contractor shall afford Other Contractors reasonable opportunity for the introduction and storage of their materials and equipment and the execution of their work, and shall properly connect and coordinate his work with theirs.
- C. If any part of the Contractor's work depends upon the work of any other separate Contractor for proper execution or results, the Contractor shall inspect and promptly report to the Designer any apparent discrepancies or defects in such work that render it unsuitable for such proper execution and results. Failure of the Contractor to so inspect and report shall constitute an acceptance of the Other Contractor's work.
- D. Should the Contractor cause damage to the work or property of any Other Contractor on the Project, the Contractor shall, upon due notice, settle with such Other Contractor by agreement or arbitration, if he will so settle. If such separate Other Contractor sues the Owner or initiates an arbitration proceeding on account of any damage alleged to have been so sustained, the Owner shall notify the Contractor who shall defend such proceedings at the Owner's expense, and if any judgment or award against the Owner arises there from the Contractor shall pay or satisfy it and shall reimburse the Owner for all attorney's fees and court or arbitration costs which the Owner has incurred.
- E. The contractor shall cooperate and coexist with Town of Longmeadow custodial and cleaning staff during the project. Both entities have work and tasks to fulfil and shall not be disrupted or prohibited by the contractor of this project. The contractor shall not receive additional compensation for sequencing work around cleaning or conference schedules.

1.11 COORDINATION

- A. The General Contractor shall be responsible for the proper fitting of all the work and for the coordination of the operations of all Subcontractors or material and persons engaged upon the work. The General Contractor shall do, or cause his agents to do, all cutting, fitting, adjusting, and repair necessary in order to make the several parts of the work come together properly.
 - 1. Examine Contract Documents in advance of start of construction and identify in writing questions, irregularities or interference to the Town of Longmeadow Project manager in writing. Failure to identify and address such issues in advance becomes the sole responsibility of the General Contractor.
- B. Execute the work in an orderly and careful manner with due regard to the occupants of the facility, the public, the students, the employees, and the normal function of the facility.
- C. The work sequence shall follow planning and schedule established by the General Contractor as approved by the Designer and the Town of Longmeadow Project Manager. The work upon the site of the project shall commence promptly and be executed with full simultaneous progress in each wing. Work operations which require the interruption of utilities, service, and access shall be scheduled so as to involve minimum disruption and inconvenience, and to be expedited so as to insure minimum duration of any periods of disruption or inconvenience. See 013200.
- D. The General Contractor shall review the tolerances established in the specifications for each type of work and as established by Subcontractor organizations. The General Contractor shall coordinate any Subcontractors and resolve any conflicts that may exist between Subcontractor tolerances without additional cost to Town of Longmeadow.
- E. Coordinate the work of this contract with that work of "Separate Contracts".

1.12 REFERENCE STANDARDS

- A. For products specified by association or trade standards, comply with requirements for the standard, except where more rigid requirements are specified or are required by codes. Refer to Section 014200 - REFERENCES.
- B. Where reference is made in the Contractual Documents to Publications and Standards issued by Associations or Societies, the intent shall be understood to specify the current edition of such Publications or Standards (including tentative revision) in effect on the date of the contract advertisement notwithstanding any reference to a particular date.

1.13 PRE-CONSTRUCTION CONFERENCE

- A. In accordance with Article V of the CONTRACT AND GENERAL CONDITIONS, a pre-construction conference to review the work will be conducted by the Town of Longmeadow Project Manager.
- B. Representatives of the following shall be required to attend this conference:
 - 1. Town of Longmeadow
 - 2. Designer
 - 3. General Contractor

4. All Subcontractors
 5. Applicable Municipal Agencies
- C. The General Contractor shall have a responsible representative at the pre construction conference to be called by the Town of Longmeadow Project Manager following the award of the contract, as well as representatives of field or office forces and major Subcontractors. All such representatives shall have authority to act for their respective firms. The pre-construction conference is to be held within five days of Notice to Proceed, or as otherwise determined by Town of Longmeadow.
- D. Contact List: The Contractor shall provide to the Designer and Town of Longmeadow Project Manager a list containing the following:
1. Contractor's name, address, office and cell phone number, fax number, e-mail address and after hours emergency phone number.
 2. Contractor's Superintendent name email address and cell phone number.
 3. Contractor's assistant superintendent designee name, email address and cell phone number,
 4. Each Sub-Contractor's name, email address, address, office and cell phone number, fax number and description of the products or services they will provide to the project.
 5. Emergency 24/7 Contacts: Primary contact and back-up contact – provide names, their work phone number, home phone number and cell phone number.
- E. Agenda: Discuss items of significance that affect progress, including the following:
1. Introduction of Contractor and Subcontractor representatives, Designers, and Town of Longmeadow Project Manager, and other attendees
 - a. Sign-in sheet shall be filled out with participant names, phone numbers and email addresses
 2. Project Logistics
 - a. Construction schedule.
 - b. Phasing.
 - c. Critical work sequencing.
 - d. Use of the premises.
 - e. Noise mitigation
 - f. Working hours/second and second shift work requirements.
 - g. Parking and construction limits.
 - h. Office, work, and storage areas.
 - i. Responsibility for temporary facilities and controls.
 - j. Materials & Equipment deliveries and priorities.
 - k. Security & CORI.
 - l. Progress cleaning.
 3. Safety
 - a. Designation of responsible personnel. The Contractor shall identify a contractor safety representative responsible to address any safety concerns of the Town of Longmeadow. This person may also fill other roles within the contractor's project area e.g. project manager, superintendent, foreman, etc .
 - b. Contractor's site specific safety plan
 - c. Recognized safety practices expected on building grounds.

- d. First aid.
 - e. Emergency phone numbers and Medical Facilities
4. Administrative Procedures
- a. Distribution of the Contract Documents
 - b. Requests for Information and Responses
 - c. Submittal procedures
 - d. Change Order procedures
 - e. Procedures for processing Applications for Payment
 - f. Preparation of Record Documents
 - g. Permits, inspection requests
5. Other issues as brought up by the Participants, user groups and stakeholders
- F. Reporting: Minutes of the meeting shall be prepared by the Designer or designated representative and shall be distributed to each party present. The General Contractor shall be responsible for distributing the minutes to all Filed-Sub Contractors.

1.14 PROJECT MEETINGS

- A. Project meetings shall be held on a weekly basis through August and bi-weekly thereafter, and as required, subject to the discretion of the Designer and/or Town of Longmeadow Project Manager.
- B. Attendees: Each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work. Meeting shall be chaired by the contractor's supervisor, and attended by the Town of Longmeadow Project Manager and attended by the designer/engineer on an as needed basis. Building employee representatives and Town/Fire Department personnel may also be expected in attendance.
1. "SEPARATE CONTRACTS" contractor attendance: from time to time it may be useful to have attendance of "separate contracts" representatives as part of the regular project meeting. This inclusion shall not be construed as a substitute for a separate meeting requirement as defined in 1.16 below.
- C. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
1. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
2. Review present and future needs of each entity present, including the following:
- a. Interface requirements.
 - b. Sequence of operations.
 - c. Separate Contracts coordination meetings and conflict resolutions
 - d. Status of submittals.
 - e. Deliveries.

- f. Off-site fabrication.
 - g. Access.
 - h. Site utilization.
 - i. Temporary facilities and controls.
 - j. Manpower.
 - k. Hazards and risks, including reports of any accidents that have occurred.
 - l. Progress cleaning.
 - m. Quality and work standards.
 - n. Change Orders.
 - o. Documentation of information for payment requests.
- D. As a prerequisite for monthly payments, ordering schedules, shop drawing submitted schedules, and coordination meeting schedules shall be prepared and maintained by the General Contractor and shall be revised and updated on a monthly basis, and a copy shall be submitted to the Town of Longmeadow Project Manager and Designer.
- E. In order to expedite construction progress on this project, the General Contractor shall order all materials immediately after the approval of shop drawings and shall obtain a fixed date of delivery to the project site for all materials ordered which shall not impede or otherwise interfere with construction progress. The General Contractor shall present a list and written proof of all materials and equipment ordered (through purchase orders). Such list shall be presented at the meetings and shall be continuously updated.
- F. Scheduling shall be discussed with all concerned parties, and methods shall be presented by the General Contractor, which shall reflect construction completion not being deferred or foreshortened. Identify critical long-lead items and other special scheduling requirements. The project schedule is to include time for submission of shop drawing submittals, time for review, and allowance for resubmittal and review.
- G. Project meetings shall be chaired by the Construction Supervisor.
- H. Minutes of the project meetings shall be prepared by the Construction supervisor and shall be distributed to all present. The Designer's meeting minutes shall be the only official meeting record. Minutes shall enumerate each topic item, and each topic shall be updated at each progress meeting. Actions to be taken for each topic shall be recorded, along with identification of the party responsible for each action item. Items shall not be removed from the Minutes until all issues with each item have been resolved.
- I. "SEPARATE CONTRACTS" COORDINATION MEETINGS
- 1. A Separate Coordination Meeting shall be scheduled as conditions warrant with "SEPARATE CONTRACTS" Contractors. These meetings shall be minimally attended by the Town of Longmeadow Project Manager . Other staff may also be in need for attendance and must be planned for including the Subcontractor's representatives, project engineer/designer, Building use representatives and necessary Authorities having Jurisdiction. Superintendents and other representatives from other "SEPARATE CONTRACTS" contractors shall also be in attendance.
 - 2. Agenda of these meetings shall include:
 - a. Discussion and schedule upcoming work activities and potential conflicts for possible work area encumbrance.
 - b. Discussion of milestone completion activities which depend on the successful completion and integration of work by the "other" contractor.
 - c. Discussion and resolution of specific work installation conflicts.

3. All contractors shall resolve conflicts and agree at a mutually acceptable work schedule, pathways and installation sequences. In case of work progress impasse, the Town of Longmeadow Project manager and individual project Designers shall derive a work schedule solution. Except for extraordinary circumstances for extreme conflict imbalance, all contractors shall accept that conflicts will occur in the prosecution of the work and their resolution is part of this construction contract without claim for additional contract costs.

1.15 PERMITS, INSPECTION, AND TESTING REQUIRED BY GOVERNING AUTHORITIES

- A. Promptly on award of the Contract and prior to the start of construction, the General Contractor shall complete an application to the applicable Building Code enforcement authority for a Building Permit and shall secure the general building permits for the work. Such Permit shall be displayed in a conspicuous location at the project site, throughout the course of construction, until the permit is signed off for final approval. The building permit fees shall be paid by the Contractor. The General Contractor shall complete an application to the Town of Longmeadow Fire Department and shall secure the Fire Alarm System installation permit for the work.
 1. The Town of Longmeadow Project Manager shall fill out sections applicable to Town of Longmeadow ownership, and shall submit the permit form to the General Contractor.
 2. The Designer shall provide required information for completion of sections having to do with Code analyses, Construction Control Affidavits, and shall provide four (3) complete, wet-signed sets of construction documents, including Drawings, Specifications, and all calculations and other narratives, including chapter 9 report, required by the various Authorities Having Jurisdiction. Designer shall provide that package to the Contractor, electronically in editable pdf or writable document.
 3. The Contractor shall fill out the remaining sections of the Building Permit Application form that apply to the identification and qualifications of the contractor, including names and license numbers of its responsible representatives, as required by the Authorities Having Jurisdiction, and shall provide a check to pay the required fee(s). The Contractor shall make (3) three electronic copies (CD's) and (1) one hardcopy of the permit then provide the entire package (original plus three permit copies) to the Town of Longmeadow Project Manager
 4. Town of Longmeadow Project Manager shall submit two sets of the completed Building Permit Application with the Chapter 9 Report, plans, specifications and fee to each the State Building Inspector, and to Town of Longmeadow Fire Department, and retain one set for record.
 5. The executed Building Permit & Fire Alarm Permits will be delivered to the Town of Longmeadow Project Manager who will forward such permit to the Contractor. The General Contractor shall distribute copies to the Designer as soon as practical.
 6. The Contractor shall prominently display a notice copy of the building permit. A working copy of the permit shall be kept in a loose leaf binder with all other permit working copies for inspection records during the prosecution of the work.
 7. When periodic inspections require signature record on the binder copy of the building permit, the Contractor shall subsequently make copies of the permit signature status and deliver these to the Designer and Town of Longmeadow Project Manager.
- B. Unless otherwise specified under the Sections of the Specifications, the General Contractor shall pay such proper and legal fees to public officers and others as may be necessary for the due and faithful performance of the work and which may arise incidental to the fulfilling

of this Contract. As such, all fees, charges, and assessments in connection with the above shall be paid by the General Contractor.

- C. General Contractor and specialized Subcontractors as applicable shall identify all permits (other than general building permit) required from Authorities having jurisdiction over the Project for the construction and occupancy of the work. The General Contractor shall prepare the necessary applications and submit required plans and documents to obtain such permits in a timely manner, and shall furnish the required information to the Building Official and obtain the required permits as early as practicable after award of the Contract.
1. The General Contractor shall display all notice permit cards as required by the Authorities, and shall deliver legible photocopies of all permits to Town of Longmeadow Project Manager and the Designer promptly upon their receipt.
 2. Working copies of all permits shall be kept in a loose leaf binder with the Building Permit working copy for inspection records during the prosecution of the work.
 3. The General Contractor shall arrange for all inspections, testing and approvals required for all permits, and shall notify the Designer and Town of Longmeadow's Project Manager of such inspections at least five (5) business days in advance (longer if so required in the various Sections of the Specifications), so they may arrange to observe.
 4. The General Contractor shall comply with all conditions and provide all notices required by all permits.
 5. The General Contractor shall perform and/or arrange for and pay all testing and inspections required by the Governing Codes and Authorities, other than those provided by Town of Longmeadow, and shall notify the Designer and Town of Longmeadow's Project Manager of such inspections at least five (5) business days in advance of all such testing or inspection, so they may arrange to observe.
 6. Where Inspecting Authorities require corrective work for conformance with applicable Codes and Authorities, the General Contractor shall promptly comply with such requirements, except in cases where such requirements clearly exceed the requirements of the Contract Documents, in which case the General Contractor shall proceed in accordance with the procedures for modifications or changes in the work established in the Contract Documents, as amended.
- D. The General Contractor shall conform to all conditions and requirements of the permit and code enforcement authority.
- E. The General Contractor shall maintain at the site, for the duration of construction operations, at least one (1) up-to-date copy of all relevant codes and standards listed in the Contract Documents or determined to be applicable to the work. One (1) copy of such codes shall be for the exclusive use of Town of Longmeadow and the Designer and its Consultants, and shall be kept in the General Contractor's site office.
- F. The construction of any new Fire Protection System or any work which impacts or involves changes to an existing Fire Protection Systems or related equipment (fire alarm, sprinkler, fixed extinguishing system) will require the Contractor to obtain a permit from the Local Fire Department. Specific submission requirements for permit application and final inspection procedures are under the prevue of the Local Fire Department and are described herein. . The cost and administration of all submissions to the Local Fire Department is the responsibility of the Contractor. Any work which disables part or all of a fire protections system for more than 8 hours shall require the submission and approval of an impairment plan to the Town of Longmeadow Project Manager, and the designer.

- G. If the Contract Documents, laws, ordinances, rules, regulations or orders of any public authority having any jurisdiction require any portion of the Work to be inspected, tested, or approved, the General Contractor shall give the Designer, the Town of Longmeadow Project Manager or his/her designated representative, and such Authority timely notice (5 business days minimum) of its readiness so the Designer may observe such inspecting, testing, or approval.

1.16 CUTTING, CORING, AND PATCHING, UNLESS OTHERWISE INDICATED

- A. In all cases, the General Contractor shall coordinate all cutting, coring, fitting and patching of the work that may be required to make its several parts come together properly and fit it to receive or be received by work of the Subcontractors shown on the Drawings and Specifications. The Subcontractor(s) shall perform all cutting, coring, patching and fire stopping related to his work for all work requiring holes with a maximum dimension of 4". The General Contractor shall perform all cutting, coring, patching and fire stopping for all holes shown on Civil, Architectural and Structural drawings regardless of size and for all holes with any dimension over 4" indicated on Fire Protection, Plumbing, Mechanical and Electrical plans, details and risers.
- B. The General Contractor shall coordinate that the work of the Subcontractor is not endangered by any cutting, coring, excavating, or otherwise altering of the work and shall not allow the cutting or altering the work of any Subcontractor except with the written consent of the Designer.
- C. Prior to coring or cutting of concrete, perform 3D imaging of affected area to locate any rebar, tension cables, conduits, pipes or other obstructions. Provide results of investigations, including mapping of obstructions to Designer, Town of Longmeadow Resident Engineer and Project Manager. Where conflicts appear propose alternate locations for required openings to the Designer for approval, if required to avoid reinforcing bars and tendons, electrical and signal conduits, and other internal obstructions. Any obstructions that are cut that affect the integrity of the structure and/or MEP systems shall be repaired by the contractor at no additional cost to the owner. 3D imaging shall be performed by the General Contractor prior to all coring or cutting regardless of whether the coring or cutting will be performed by a Subcontractor or by the General Contractor and regardless of proposed hole size(s).
- D. Submit a written request to Designer at least three (3) business days in advance of executing any cutting or alteration which affects:
 - 1. Work of Town of Longmeadow or separate Contractor.
 - 2. Structural value or integrity of any element of the Project.
 - 3. Integrity or effectiveness of weather-exposed or moisture-resistant elements or systems.
 - 4. Efficiency, operational life, maintenance, or safety of operational elements.
 - 5. Visual qualities of sight-exposed elements.
 - 6. Request shall include:
 - a. Identification of the Project.
 - b. Description of affected work.
 - c. The necessity for cutting, alteration, or excavation.
 - d. Effect on work of Town of Longmeadow or any separate General Contractor, or on structural or weatherproof integrity of Project.

- e. Description of proposed work:
 - f. Alternatives to cutting and patching.
 - g. Cost proposal, when applicable.
 - h. Written permission of any separate General Contractor whose work will be affected.
- 7. Should conditions of Work or the schedule indicate a change of products from original installation, General Contractor shall submit request for substitution.
 - 8. Submit written notice to Designer designating date and time the work will be uncovered a minimum of three business days in advance.
- E. Performance:
- 1. Execute cutting and patching by methods which will prevent damage to other work, and will provide proper surfaces to receive installation of repairs.
 - a. In general, where mechanical cutting is required, cut work with sawing and grinding tools, not with hammering and chopping tools. Core drill openings through concrete work.
 - b. Prior to cutting and structural steel or concrete work, contact Designer and Project Structural Engineer in writing. Do not cut any structural steel and concrete work until approval has been granted by the Designer and the Project Structural Engineer.
 - 2. Execute fitting and adjustment of products to provide a finished installation to comply with specified products, functions, tolerances, and finishes.
 - 3. Restore work which has been cut or removed; install new products matching existing to provide completed Work in accordance with requirements of Contract Documents.
 - 4. Fit work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
 - 5. Patch with seams which are durable and as invisible as possible. Flash and seal all penetration of exterior work. Comply with specified tolerances for the work.
 - 6. Restore exposed finishes of patched areas; and, where necessary extend finish restoration onto retained work adjoining, in a manner which will eliminate evidence of patching.
 - a. Where patch occurs in a smooth painted surface, extend final paint coat over the entire unbroken surface containing the patch.
 - 7. Refinish entire surfaces as necessary to provide an even finish to match adjacent finishes:
 - a. For continuous surfaces, refinish to nearest intersection.
 - b. For an assembly, refinish entire unit.
- F. Existing Utilities Services:
- 1. Interruptions to critical existing utility services will not be allowed except as scheduled per Section 015000 - Temporary Facilities and Controls and as outlined in 1.7 above.
 - a. Sanitary sewer, storm drainage, and water changeovers as affecting existing services shall be done with no disruptions of existing services and scheduling of such work will require approval in writing by the Town of Longmeadow.
 - b. All relocation of existing electrical, telephone, and gas services that are utility company owned shall be performed by the respective utility company, and the cost of any charges for such work shall be paid by the General Contractor. All utility installations and relocation shall be the responsibility of the General

Contractor. Coordination of all of the aforesaid work is the responsibility of the General Contractor.

2. Existing utilities that are indicated on the Drawings or whose locations are made known to the General Contractor prior to excavations, though accuracy and information as to grades and elevations may be lacking, shall be protected from damage during the excavation and backfilling operations and, if damaged by the General Contractor, it shall be repaired by the General Contractor at his/her own expense.
3. All exposed conduits, wires, and/or cables shall be provided with sufficient protection and support to prevent failure, fraying, or damage due to backfilling or other construction operations.

1.17 DEBRIS REMOVAL

- A. The General Contractor shall coordinate the removal of all demolition and construction waste by the Subcontractor from the job site on a daily basis. Waste shall be segregated for recycling. Comply with requirements of Sections 017418 – DEMOLITION WASTE MANAGEMENT AND DISPOSAL and 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.
- B. Debris shall be legally disposed of in a D.E.P. approved disposal site. The site to be used shall be submitted to and approved by the Town of Longmeadow Project Manager prior to the start of construction. All required dumping permits shall be obtained prior to start of construction. General Contractor shall submit receipts from the disposal site(s) as evidence of legal disposal. The Contractor shall pay the cost of any charges for debris removal.
- C. The General Contractor shall bear responsibility for maintaining the building and site clean and free of debris, leaving all work in clean and proper condition satisfactory to Town of Longmeadow and the Designer. This is especially critical after the building is utilized during the school session. The General Contractor shall ensure that each of the Subcontractors clean up during and immediately upon completion of their work. Clean up includes the following tasks:
 1. Remove all rubbish, waste, tools, equipment, appurtenances caused by and used in the execution of work.
 2. Vacuum up dust created by the execution of work.
- D. Prevent the accumulation of debris at the construction site, storage areas, parking areas, and along access roads and haul routes.
- E. Provide containers for deposit of debris in storage area to facilitate daily cleanup, and schedule periodic collection and disposal of debris.
- F. Prohibit overloading of trucks to prevent spillage on access and haul routes.
- G. The General Contractor shall be responsible for proper disposal of all construction debris leaving the site.

1.18 FIELD MEASUREMENTS

- A. Although care has been taken to ensure their accuracy, the dimensions shown for existing items and structures are not guaranteed. It is the responsibility of the General Contractor to verify these dimensions in the field before fabricating any construction component. No claims for extra payment due to incorrect dimensions will be considered by the Commonwealth.

1.19 EMERGENCY PROCEDURES

- A. The Contractor shall thoroughly familiarize himself local Emergency Procedures and inform all subcontractors of same.:
- B. Emergencies: In the event of an emergency on-site, telephone for emergency services (ambulance, fire department or police assistance)
- C. Telephone for Emergency Service (911)
- D. Make the scene safe.
- E. Render First-Aid if possible.
- F. Preserve evidence.
- G. Call the Town of Longmeadow Project Manager.
- H. Call the Town of Longmeadow Project Manager significant incidents/injuries beyond first aid, including situations that have the potential to cause significant personal injury or damage to Town of Longmeadow property. All spills of hazardous materials regardless of quantity shall be reported to MADEP if appropriate, and any necessary outside responders, unless the contractor has specified their own responder.
- I. Contact the appropriate outside agencies as required by law, including OSHA for fatalities or injuries requiring hospitalization of three or more individuals (by Contractor). All regulatory notifications required for environmental events shall be made by Town of Longmeadow. Contractors shall report any incident involving a radiographic source to Town of Longmeadow and the Nuclear Regulatory Commission (NRC) when require.

SAFETY REGULATIONS

- J. This project is subject to compliance with Public Law 91 596 "Occupational Safety and Health Act" latest edition (OSHA 29 CFR 1926), with respect to all rules and regulations pertaining to construction, including Volume 36, numbers 75 and 105, of the Federal Register, as amended, and as published by the U.S. Department of Labor.
- K. Submit the name of the General Contractor's safety officer to the Town of Longmeadow Project Manager. Submit copies of safety reports to the Town of Longmeadow Project Manager monthly.
- L. Maintain a written hazard communication program in accordance with OSHA 29CFR 1910.1200. Keep MATERIAL SAFETY DATA SHEETS (MSDS) on site and upon request provide MSDS sheets for materials used in the construction
- M. All accident reports are to be transmitted to the Town of Longmeadow Project Manager within 24 hours of occurrence.

- N. The Contractor shall immediately notify Town of Longmeadow Project Manager if an OSHA, DEP or EPA regulator visits the site.
- O. Town of Longmeadow personnel shall have the authority to exercise on-site compliance audits on the construction site. Deficiencies discovered during site inspections and visits will be relayed to the contractor's company safety representative and the Town of Longmeadow Project Manager. The contractor will communicate back to the Town of Longmeadow Project Manager and Environmental Health and Safety on the course of corrective action to be taken and the timeline for completion. If during such an audit, in his or her professional opinion, there exists an imminent danger or serious violation of established environment, health and safety standards that could lead to death or serious physical harm, damage to school property or the environment, the Town representative has the right to request the immediate halt of such operations.
- P. Hazardous Waste Generation: Any work generating Hazardous or so-called Universal Wastes will comply with all requirements of 310 CMR 30.000. The proper storage, use and disposal of any hazardous chemicals or substances brought on site by the Contractor are the responsibility of Contractor. The Town of Longmeadow will not be responsible for any hazardous materials left on site, the cost to remove these materials will be the Contractor's responsibility. All hazardous wastes generated as a result of demolition and remodeling shall be contained, collected, segregated, labeled per all applicable federal EPA, Massachusetts DEP, and Federal DOT regulations or other applicable local, state or federal hazardous waste regulations, pending the appropriate disposition. Contractor shall provide for properly packaging hazardous waste, preparing the proper shipping papers, identifying a permitted disposal site, prior to shipment of the waste. Town of Longmeadow will review the hazardous waste shipment and sign the paperwork.
- Q. Non Destructive Testing: The Contractor shall notify the Town of Longmeadow Project Manager and 3 days prior to the use of a radiography or x-ray equipment. The Contractor shall demonstrate safety procedures acceptable to the University and also provide sufficient personnel to maintain the safety zone perimeter as required by code. Town of Longmeadow Project Manager must be contacted to review all radiography to be performed at school property before it takes place. In the event of a failed source, it is the contractor's responsibility to recover a damaged radiography source, moisture density gauge or other radioactive source used in the construction industry and to decontaminate any soil, equipment or other university property contaminated by a failed source.
- R. All Hot Works, including cutting, welding, brazing, etc., requires a permit from the Town of Longmeadow Fire Department. A Hot Works permit is not required for work performed outside. Contractor must provide a minimum of one operable fire extinguisher approved by a recognized testing laboratory and rated for the intended purpose near each Hot Work operation. At least one employee of the contractor shall remain on the site for one hour after the hot work has ceased to ensure against the outbreak of fire.
- S. Use of Liquefied Propane Gas (LPG) and containers on site must be approved by and a permit must be secured through the local Fire Department.
1. Conformance to State Fire Prevention Regulations 527 CMR 6 and National Fire Protection Association standard on LPG: NFPA 58 1998.
 2. Contractor must provide a minimum of one operable 20 BC rated fire extinguisher approved by a recognized testing laboratory near each LPG operation.
- T. Contractors performing work in buildings that will cause smoke or dust particles to become airborne must first check for the existence and location of heat or smoke detectors and other types of fire protection system equipment which may be affected by the work. The contractor shall provide for isolation or protection of such equipment. Upon completion of

the work, the contractor shall provide for the reactivation of such equipment. the Town will require that new system smoke detectors be bagged on a daily basis where smoke, paint, or dust particles may affect them. In this event bags must be removed at the end of the day.

- U. All construction will comply strictly with the Massachusetts State Building Code Article 30 (780 CMR 30): Required fencing, sidewalk sheds, storage of flammables, portable fire extinguishers, fire standpipe operation and rubbish removal will be enforced by Environmental Health & Safety.

1.20 OSHA SAFETY AND HEALTH COURSE DOCUMENTATION

- A. OSHA Safety and Health Course Documentation Records: Chapter 306 of the Massachusetts Acts of 2004 requires that everyone employed at the jobsite must complete a minimum 10-hour long course in construction safety and health approved by the U.S. Occupational Safety and Health Administration (OSHA) prior to working at the jobsite. Compliance is required of General Contractors' and Subcontractors' on-site employees at all levels whether stationed in the trailer or working in the field. Unless the Massachusetts Attorney General's office indicates otherwise, this requirement does not apply to home-office employees visiting the site or to suppliers' employees who are making deliveries.
- B. Documentation records shall be initially compiled by the General Contractor and any Subcontractor as part of their certified payrolls, and the General Contractor shall create and maintain a copy of the documentation on site at all times. On-site documentation shall be filed in alphabetical order and immediately available to Town of Longmeadow's Project Manager and OSHA inspectors. Fines imposed for non-compliance shall be promptly paid by the General Contractor at no additional expense to Town of Longmeadow. Delays in the progress of the Work caused by such non-compliance will not be acceptable as the basis for an extension of contract time or change order request.

1.21 DAMAGE RESPONSIBILITY

- A. The General Contractor shall repair, at no cost to Town of Longmeadow, any damage to building elements, site appurtenances, landscaping, utilities, etc. caused during demolition operation and work of this Contract.

1.22 OWNER FURNISHED PRODUCTS

- A. Products indicated "N.I.C." (Not in Contract), or "E. O." (Equipment by Owner), or "O.F.O.I." (Owner Furnished Owner Installed), or other similar acronyms as defined in the contract documents will be furnished and installed by the Owner. Coordination and provision of service lines for such products shall be included under these Construction Contract Documents, if indicated. Final connections from service lines to equipment will be by the Owner, unless otherwise indicated

1.23 Town of Longmeadow - SCHOOL OCCUPANCY

- A. Beneficial Use and Occupancy: Refer to requirements in Section 017700 - CONTRACT CLOSEOUT, Par. 1.6.

- B. School shall be sparsely occupied during the summer recess, School shall be fully occupied during the regular school year. At no point during the construction term shall the school be fully vacated, nor have the existing occupancy permit rescinded. Work shall be arranged to reflect the ongoing needs of the building and its occupants.

1.24 ASBESTOS AND HAZARDOUS MATERIALS DISCOVERY

- A. If unanticipated asbestos-containing materials or other Hazardous Materials not included in Contract are discovered at any time during the course of work, the General Contractor shall cease work in the affected areas only and continue work in other areas, at the same time notify Town of Longmeadow project manager, and the Designer of such discovery. Do not proceed with work in such affected areas until written instructions are received. In the absence of unit prices, costs shall be negotiated or otherwise established prior to commencement of removal, in accordance with provisions of the Contract.
- B. The Designer's Hazardous Materials Consultant, the Town of Longmeadow Project Manager will work with the Contractor to initiate removal or encapsulation of the asbestos. An extension of the completion date may be granted equal to the time lost. Proper notification must be made to the MADEP through the ANF-001 form, and the Town of Longmeadow.

1.25 SPECIAL REQUIREMENTS

- A. The General Contractor shall prepare a Health and Safety Plan that addresses protection of employee and public health and safety. The minimum contents of the Plan are specified in Section 013300 – SUBMITTAL REQUIREMENTS.
- B. The General Contractor shall be solely responsible for implementing the procedures specified in the Plan.

1.26 LIST OF DRAWINGS

GENERAL

- 1. **G0.00 TITLE SHEET**

FIRE ALARM

- 2. **EF0.00 ELECTRICAL FIRE ALARM LEGEND, NOTES & SEQUENCE OF OPERATIONS MATRIX**
- 3. **EFD2.00 ELECTRICAL FIRE ALARM A WING LOWER LEVEL DEMOLITION PLAN**
- 4. **EFD2.01 ELECTRICAL FIRE ALARM B WING LOWER LEVEL DEMOLITION PLAN**
- 5. **EFD2.02 ELECTRICAL FIRE ALARM C WING LOWER LEVEL DEMOLITION PLAN**
- 6. **EFD2.10 ELECTRICAL FIRE ALARM A WING MAIN LEVEL DEMOLITION PLAN**
- 7. **EFD2.11 ELECTRICAL FIRE ALARM C WING MAIN LEVEL DEMOLITION PLAN**
- 8. **EFD2.20 ELECTRICAL FIRE ALARM A WING UPPER LEVEL DEMOLITION PLAN**
- 9. **EFD2.21 ELECTRICAL FIRE ALARM C WING UPPER LEVEL DEMOLITION PLAN**
- 10. **EF2.00 ELECTRICAL FIRE ALARM A WING LOWER LEVEL NEW WORK**
- 11. **EF2.01 ELECTRICAL FIRE ALARM B WING LOWER LEVEL NEW WORK**
- 12. **EF2.02 ELECTRICAL FIRE ALARM C WING LOWER LEVEL NEW WORK**
- 13. **EF2.10 ELECTRICAL FIRE ALARM A WING MAIN LEVEL NEW WORK**

- | | | |
|------------|---------------|--|
| 14. | EF2.11 | ELECTRICAL FIRE ALARM C WING MAIN LEVEL NEW WORK |
| 15. | EF2.20 | ELECTRICAL FIRE ALARM A WING UPPER LEVEL NEW WORK |
| 16. | EF2.21 | ELECTRICAL FIRE ALARM C WING UPPER LEVEL NEW WORK |
| 17. | EF7.00 | ELECTRICAL FIRE ALARM RISER DIAGRAM |
| 18. | EF8.00 | ELECTRICAL FIRE ALARM DETAILS |

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 013300

SUBMITTAL REQUIREMENTS

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

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

1.2 REQUIREMENTS INCLUDED

- A. Shop drawings, products data, samples, submittal logs (shop drawings and samples, RFI, PCO, CO and SK drawings), weather protection (if applicable) schedule of values, CPM, and schedule.

1.3 SHOP DRAWINGS, PRODUCTS DATA, AND SAMPLES

A. General:

1. Review and submit to the Designer and where outlined below to the Town of Longmeadow Project Manager, shop drawings, project data and samples required by Specifications Sections in (6) hard copies and (1) electronic copy. Electronic copy to be delivered by email or posted to the contractor's FTP site with email notice that the submittal has been posted.
2. No submissions made by FAX nor a scanned copy of a fax will be accepted.
3. The General Contractor, within two weeks after the Pre-Construction Meeting, shall prepare and submit for the Designer and the Town of Longmeadow Project Manager's approval, a Schedule of Shop Drawings, Product Data and Samples required to be submitted for the Work. The schedule shall indicate, by Subcontractor, the date by which final approval of each item must be obtained, and shall be revised as required by conditions of the Work, subject to the Town of Longmeadow Project Manager's approval. The Schedule of Shop Drawings, Product Data and Samples shall correspond with the construction schedule so that the submissions relate to the time when the products and/or systems will be required on the site. Neither the Designer nor the Town of Longmeadow Project Manager will approve a schedule that calls for out-of-sequence submittals.

B. Shop Drawings:

1. Original drawings shall be prepared by General Contractor, Subcontractor, Supplier or Distributor, which illustrate some portion of the Work, showing fabrication, layout, setting, or erection of details.
 - a. Shop drawings shall be prepared by a qualified detailer.
 - b. Details shall be identified by reference to sheet and detail numbers indicated on Contract Drawings.
 - c. Maximum sheet size shall be 30-inch by 42-inch.

- d. Submit with the required number of opaque prints specified and electronic media herein specified.

C. Product Data:

1. Manufacturers' catalog sheets, brochures, diagrams, schedules, performance charts, illustrations, and other standard descriptive data. Provide manufacturer's catalogue sheet, specification for each product and other pertinent data as required under the individual specification.
 - a. Modify product data submittals to delete information which is not applicable to the project.
 - b. Supplement standard information to provide additional information applicable to the project.
 - c. Clearly mark each copy to identify pertinent materials, products, or models.
 - d. Show dimensions and clearances required.
 - e. Show performance characteristics and capacities.
 - f. Show wiring diagrams and controls.
2. All such data shall be specific and identification of material or equipment submitted shall be clearly made in ink. Data of general nature will not be accepted.
3. Product Data shall be accompanied by transmittal notice. The General Contractor's stamp of approval shall appear on the printed information itself.
4. Submit the information listed above in both hard and electronic format.

D. Samples: Shall not be required on this project

E. Mock-ups: Shall not be required on this project

1.4 GENERAL CONTRACTOR'S RESPONSIBILITIES:

A. Review shop drawings, Product Data and Samples prior to submission. Verify:

1. Field measurements.
2. Field construction criteria.
3. Catalog numbers and similar data.
4. Conformance with Specifications.
5. Integration with adjoining work.
6. Delivery schedule.
7. Is the product an equal to the product specified or a substitution? If either of these occur a comparison sheet must be submitted comparing the proposed product to the product specified. Refer to G.C. Article IV. 3 for review criteria.

B. All shop drawings prepared by Subcontractors shall be processed through the General Contractor. The General Contractor shall check all the shop drawings for conformity with the Contract Documents and particularly for field measurements and proper fit with adjoining work prior to submitting same to the Designer for approval. Certification shall appear on each shop drawing stating that the General Contractor has made his/her check. Format and content of the General Contractor's certification stamp shall be subject to approval by the Town of Longmeadow Project Manager and the Designer and shall include, but not be limited to:

1. The Term "By Others" shall not be used on shop drawings, the General Contractor shall state by whom related items are to be furnished and/or installed.

2. The Designer reserves the right to reject and return to the General Contractor, without examination, any shop drawings which have not been previously checked and certified as outlined above, which carry the term "by other" or such vague reference, which are difficult to read, which have arrived by FAX or which in any way are obviously not in conformity with Contract Requirements.
 3. Shop drawings shall show materials, design, dimensions, connections and other details necessary to ensure that they accurately interpret the Contract Documents and shall also show adjoining work in such detail as required to provide proper connection with same.
 4. The Designer will check and approve shop drawings only for conformance with the design concept and for compliance with information given in the Contract Documents. Approval of shop drawings by the Designer will not release the General Contractor from his responsibility for furnishing same of proper dimensions, size quantity and quality to effectively perform the work and carry out the requirements and intent of Contract Documents.
 5. Such approval will not relieve the General Contractor from responsibility for errors of any sort in the shop drawings, nor for the proper coordination of any submittal with all other work. If the shop drawings deviate, or are intended to deviate, from the Contract Documents, the General Contractor shall so advise the Designer in writing at the time the shop drawings are submitted, stating the difference in value between the Contract requirements and that denoted by said shop drawings.
 6. The General Contractor shall assume full liability for delay attributed to insufficient time for delivery and/or installation of material or performance of the work when approval of pertinent shop drawing is withheld due to the failure of the General Contractor to submit, revise, or resubmit shop drawings in adequate time to allow the Designer and the Town of Longmeadow Project Manager a reasonable time, not to exceed twenty-one (21) calendar days, for normal checking and processing of each submission or resubmission.
 7. The initial Equipment submittal will be done in such a manner to expedite the process, to allow the construction work to begin as quickly as possible upon contract award. Coordination of turnaround times, for checking and processing, and required contents of the initial equipment submittal shall be discussed and agreed upon as part of the kick-off meeting. Initial submittal processing shall not exceed Ten (10) calendar days.
- C. Coordinate each submittal with requirements of Contract Documents.
- D. The General Contractor's responsibility for errors and omissions in submittals is not relieved by the Designer's review and approval of submittals, unless Designer gives tentative written acceptance of specific deviations identified as such by the General Contractor, subject to written concurrence by the Town of Longmeadow Project Manager.
- E. Notify the Designer in writing at the time of submission, of deviations in submittals from requirements of Contract Documents or previous submissions.
- F. Work that requires submittals shall not commence unless submitted with Designer's stamp and initials or signature indicating review and approval, and Town of Longmeadow Project Manager's initials or signature of concurrence indicate review and approval.
1. No work shall be started in the shop or on the job, or materials delivered to the site, until pertinent shop drawings have been approved by the Designer and the Town of Longmeadow Project Manager.

- G. After aforesaid review and approval, distribute copies.
- H. Maintain two (2) copies of each approved submittal at the project site. One for the General Contractor and one for the Town of Longmeadow project manager.

1.5 SUBMISSION REQUIREMENTS:

- A. General: All equipment and material submittals shall be made electronically and simultaneously to the Designer's Office and the Town of Longmeadow Project Manager. In addition two (2) printed copies of all submittals shall be transmitted to the Town of Longmeadow Project Manager; The Designer will log in electronic submittals and track the review process by engineers. The General Contractor shall distribute all Civil, Structural, and MEP shop drawings directly to the Designer. All submittals shall be in both printed and electronic copies as noted. Electronic copies of all submittals shall be delivered by email, or posted to the contractor's FTP site with email notice that the submittal has been posted. Provide electronic delivery with a clear subject title, including submittal number, and "Center School".
- B. Make submittals promptly in accordance with approved schedules, and in such sequence as to cause no delay in the work.
- C. Each submittal item shall be individually identified and numerically sequenced first by specification section, then by sequential submission numbering (for example: 260000.2.10-1. As much as practical, product submittals shall be individually numbered and logged for submittal review.
- D. Submittals shall include:
 - 1. Date and revision dates.
 - 2. Project title and number.
 - 3. The names of:
 - a. Designer;
 - b. General Contractor;
 - c. Subcontractor;
 - d. Supplier;
 - e. Manufacturer;
 - f. Separate detailer when pertinent.
 - 4. Identification of product or material.
 - 5. Location of work and relation to adjacent structure or materials.
 - 6. Field dimensions clearly identified as such.
 - 7. Specification Section number and specific paragraph prefix under which each item is specified.
 - 8. Submission sequence number suffix.
 - 9. Applicable standards, such as ASTM number.
 - 10. A blank space, five-inch by four-inch, for the Designer's stamp.
 - 11. General Contractor's remarks. Identify exceptions or deviations from Contract Documents and reasons for them.

- a. If shop drawings submitted by the General Contractor indicate a departure from the Contract and the Designer deems it to be minor adjustment in the interest of Town of Longmeadow (subject to concurrence by the General Contractor stating it does not involve a change in Contract Price or extension of time), the Designer may approve the submission, but the approval shall be subject to Town of Longmeadow review and acceptance of the Designer's recommendation.
 - b. The approval of Town of Longmeadow shall be inferred to contain in substance the following: The change is so ordered with the understanding that it does not involve any change in the Contract Price or Time, and that it is subject generally to all contract stipulations and covenants, and is without prejudice to any and all rights of Town of Longmeadow under the Contract.
12. General Contractor's stamp, initialed or signed certifying review and approval of submittal.
 13. Any other items as called for by the Designer, the Town of Longmeadow Project Manager, or required by the manufacturers.
 14. The Designer reserves the right to ask for shop drawings for any or all items on the project, whether or not requested in individual specification sections, at no additional cost to the Owner.

1.6 RESUBMISSION REQUIREMENTS:

- A. Resubmission: Resubmission procedure shall follow the same procedures as the initial submittal with the following exceptions:
- B. Shop Drawings:
 1. Transmittal shall contain the same information as the first transmittal except that the submission number shall indicate resubmission numerical suffix (for example: 260000-2.10-1-R1). The drawing number/description shall be identical as the first transmittal but the date shall be the revised date for that submission.
 2. No new material should be included on the same transmittal for the resubmission.
 3. Indicate on drawings any changes which may have been made other than those requested by the Designer.
- C. Product Data and Samples:
 1. Submit any new data and samples as required from previous submittal.

1.7 SUBMITTAL REVIEW PROCEDURES, ACTIONS AND DISTRIBUTION

- A. The Town of Longmeadow Project Manager, and his/her designees will review submittals concurrently with the Designer and his/her consultant engineers. The Town of Longmeadow Project Manager shall communicate to the Designer any comments pertinent to the submittal review within a (21 calendar days) review period time frame. After the Designer's engineering review, distribution shall be as stated herein.
 1. If submittal is 'reviewed - no exceptions taken', or 'reviewed, make corrections noted', the Town of Longmeadow Project Manager shall indicate the status to the Designer. The Designer shall include the Town of Longmeadow Project Manager's comments to each submittal review sheet, stamp the submittal cover sheet with their status

- review, and transmit back to the General Contractor and Town of Longmeadow Project Manager, electronic sets of the submittal review. The General Contractor shall then distribute said submittals to appropriate Subcontractors.
2. If submittal is 'reviewed - revise and resubmit' or 'rejected', the Town of Longmeadow Project Manager shall indicate the status to the Designer. The Designer shall include the Town of Longmeadow Project Manager's comments to each submittal review sheet, stamp the submittals cover sheet with their status review, and transmit back to the General Contractor and Town of Longmeadow Project Manager, electronic sets of the submittal review. The General Contractor shall then distribute said submittals to appropriate Subcontractors
 3. The review period, for the Designer and the Town of Longmeadow Project Manager, will not exceed twenty-one (21) calendar days. The General Contractor is required to anticipate review time, including time for possible rejection and resubmission, in establishing Schedule dates.
 - a. The aforementioned time provided the Designer for checking shop drawings is from the date of receipt of shop drawings by the Designer to the time stamp of shop drawings returned to the General Contractor by the Designer.
 4. The Designer will process the submission and indicate the appropriate action on the submission review and transmittal. Incomplete or erroneous transmittals will be returned without action.
 5. The Designer will fill out transmittal in the following sequence:
 - a. Date received from General Contractor.
 - b. Date returned to General Contractor.
 - c. Action taken on submission.
 - d. Distribution, including number of copies distributed and type of material distributed (i.e., print, brochure or sample, etc.).
 - e. Designer's remarks.
- B. Designer's Review Stamp Status and Contractor's Actions:
1. Stamped REVIEWED, "NO EXCEPTIONS TAKEN":
 - a. No corrections or resubmissions required, fabrication may proceed.
 2. Stamped REVIEWED, "MAKE CORRECTIONS NOTED":
 - a. If General Contractor complies with noted corrections, fabrication may proceed. Submit corrected print for final review.
 - b. If, for any reason, the General Contractor cannot comply with the noted corrections, fabrication shall not proceed and General Contractor shall resubmit, following procedures outlined in this Section.
 3. Stamped REVIEWED, "REVISE AND RESUBMIT" OR "REJECTED":
 - a. General Contractor shall revise and resubmit for review. Fabrication shall not proceed.
- C. Manufacturer's Instruction
1. When required in individual Specification Section, submit manufacturer's printed instructions for delivery, storage, assembly, installation, start-up, adjusting and finishing, in quantities specified for product data with two (2) additional copies submitted to the Town of Longmeadow Project Manager Reserve an additional 3 sets for inclusion in Close-out Binders.

- D. Certificates of Compliance: Submit certificates of compliance with the associated Shop Drawings, Product Data, and Samples required for the product in quantities specified for certificates of compliance, with two (2) additional copies submitted to the TOWN OF LONGMEADOW Project Manager. Reserve an additional 3 sets for inclusion in Close-out Binders.

- E. Patterns and Colors: Submit accurate color charts and pattern charts to the Designer for review and selection whenever a choice of color or pattern is available in a specified product, unless the exact color and pattern of a product are indicated in the Contract Documents. Color and Pattern charts shall represent the manufacturer's complete standard offerings, except where Specifications limit the offerings by defining a particular series or product type which is normally limited in color and pattern availability. Color and Pattern charts shall be submitted in quantities specified with two (2) additional copies submitted to the Town of Longmeadow Project Manager. Reserve an additional 3 sets for inclusion in Close-out Binders.

1.8 SCHEDULE OF VALUES

- A. Prior to the first request for payment, the General Contractor shall submit to the Designer and the Town of Longmeadow Project Manager, a Schedule of Values of the various portions of the Work in sufficient detail to reflect various major components of each Subcontractor, including quantities when requested, aggregating the total contract sum, and divided so as to facilitate payments for work under each Section. The schedule shall be prepared in such form as specified or as the Town of Longmeadow Project Manager may approve, and it shall include data to substantiate its accuracy. Each item in the Schedule of Values shall include its proper share of overhead and profit. This schedule, including breakdown and values, requires the approval of the Designer and the Town of Longmeadow Project Manager and shall be used only as a basis for the General Contractor's request for payment

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 014000
QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

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

1.2 SUMMARY

- A. This section includes administrative and procedural requirements for the quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified and indicated. These services do not relieve the Contractor of responsibility for compliance with the Contract Documents requirements.
 - 1) Specific quality control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
 - 2) Specified tests, inspections and related actions do not limit Contractor's quality control procedures that facilitate compliance with the Contract Document requirements.
 - 3) Requirements for Contractor to provide quality-control services required by the Designer, U.M.A. Project Manager, University or authorities having jurisdiction are not limited by provisions of this Section.
- C. Related Sections:
 - 1) Division Sections for specific test and inspection requirements

1.3 GENERAL CONTRACTOR'S QUALITY ASSURANCE

- A. Qualifications for Service Agencies: Engage inspection and testing services agencies, including independent testing laboratories, which are pre-qualified as complying with "Recommended Requirements for Independent Laboratory Qualification" by the American Council of Independent Laboratories, and which specialize in the types of inspections and tests to be performed.
- B. Each independent inspection and testing agency engaged on the project shall be authorized by authorities having jurisdiction to operate in the Commonwealth of Massachusetts.

1.4 GENERAL CONTRACTOR'S TESTING RESPONSIBILITIES

- A. The General Contractor shall provide inspections, tests and quality control services specified in individual specification Sections and required by governing authorities, except where they are specifically indicated to be solely the responsibility of a Subcontractor in the respective specification section
- B. Engage and pay for the services of an independent agency acceptable to the Designer and Town of Longmeadow Project Manager to perform the specified inspections, testing, and quality control. Submit qualifications to the Designer and Town of Longmeadow Project Manager. General Contractor's testing agency/laboratory shall be licensed by the Commonwealth of Massachusetts Department of Public Safety.
- C. Re-testing: The General Contractor is responsible for re-testing where results of required inspections, tests or similar services prove unsatisfactory and do not indicate compliance with Contract Documents requirements, regardless of whether the original test or service was the General Contractor's responsibility.
- D. Substitutions, Suspicious Issues and Designer Initiated Testing: The General Contractor is responsible for inspections, tests and similar services for substitutions, suspicious issues identified by the General Contractor, the Designer or Town of Longmeadow Project Manager, and testing initiated by the Designer.
- E. Associated Services: The General Contractor shall cooperate with agencies performing required inspections, tests and similar services and provide reasonable auxiliary services as required. Notify the agency sufficiently in advance of operations to permit assignment of personnel. Auxiliary services required include but are not limited to:
 - 1. Provide access to the work and furnish incidental labor and facilities necessary to facilitate inspections and tests.
 - 2. Take adequate quantities or representative samples of materials that require testing or assist the agency in taking samples.
 - 3. Provide facilities for storage and curing of test samples and delivery of samples to testing laboratories.
 - 4. Provide the agency with a preliminary design mix proposed for use for material mixes that require control by the testing agency.
 - 5. Provide security and protection of samples and test equipment at the project site.
- F. The General Contractor shall prepare and submit to the Designer and Town of Longmeadow Project Manager for approval a Quality Assurance and Quality Control Plan within 30 days from Notice to Proceed. A Quality Assurance and Quality Control (QA/QC) Plan shall promote completion of all work in accordance with the Contract Documents including Contract, Construction Drawings, Specifications, Project Procedures, Approved Submittals and Shop Drawings, Approved Changes, Applicable Codes and Regulations, Referenced Industry Standards, and similar items. The primary purpose of this quality plan is to ensure that all in place work by the General Contractor and all Subcontractors is performed correctly the first time and is turned over and represented as complete and defect free in accordance with the Contract Documents.
- G. If required by the Contract, the General Contractor shall assign a dedicated Quality Assurance and Quality Control Manager for the duration of the project. If the Contract does not require a dedicated Quality Assurance and Quality Control Manager, the General Contractor shall prepare and submit to the Designer and Town of Longmeadow Project Manager their QA/QC Plan as discussed in Par. E above. In addition, if this Contract does

not require a dedicated QA/AC Manager, the duties of the QA/AC Manager as delineated in Par. 1.5F6 shall be carried out by another qualified member of the General Contractor's onsite staff.

1. The purpose of a QA/QC Manager shall be to prepare and submit the Quality Assurance and Quality Control Plan for approval and to be responsible for and to manage adherence to the plan throughout the construction process. The QA/QC Manager shall be designated for the project from the initial notice to proceed through system acceptances by both the designer and Town of Longmeadow Project Manager. The QA/QC Manager shall at all times instill an expectation that all work will be completed correctly and in an expeditious manner and shall be responsible for enforcement of the General Contractor's Staff and all Subcontractors to this plan.
2. Have extensive experience in building construction, project controls, and previous QA/QC training and practical knowledge.
3. Have excellent communication and writing skills, be highly organized and be able to work with both management and Subcontractors.
4. Have a working knowledge of project scheduling.
5. The General Contractor shall submit substantiating documentation attesting to the proposed QA/QC Manager's capabilities to the Town of Longmeadow Project Manager and the Designer for approval.
6. Duties of the QA/QC Manager:
 - a. Prepare and submit QA/QC Plan for approval.
 - b. Conduct and submit minutes for all requisite Quality Meetings.
 - c. Coordinate and report on all daily quality activities.
 - d. Verify accurate documentation by Subcontractors and Vendors.
 - e. Oversee final project records pertaining to quality.
 - f. Report, photograph and distribute evidence of deficient and/or defective construction conditions or materials that cannot be corrected within three work days of observation. When such conditions or materials are remedied report, photograph and distribute evidence of remedial work prior to concealing. Photographs shall be dated and defects and/or deficiencies shall be clearly labeled on the photographs.

1.5 TOWN OF LONGMEADOW 'S INDEPENDENT TESTING AGENCIES

- A. Town of Longmeadow may engage an independent testing agency at its own expense to perform certain tests and similar services as set forth in Section 014325. Information provided by Town of Longmeadow's Independent Testing Agency shall be for the sole use of Town of Longmeadow 's Project Manager, and shall not relieve the General Contractor of its responsibilities to provide its own quality control, to meet all requirements of the Contract and to provide a completed project free from construction defects.
- B. It is the General Contractor's responsibility to provide and pay for its own inspection and testing to assure quality control. General Contractor shall be responsible for coordinating its work with requirements of Town of Longmeadow 's testing agencies, and shall provide reasonable services in support of facilitating work of Town of Longmeadow's testing agencies as required.

1.6 DUTIES OF THE GENERAL CONTRACTOR'S TESTING AGENCIES

- A. The General Contractor's independent testing agency engaged to perform inspections, sampling and testing of materials and construction shall cooperate with the Designer and General Contractor in performing its duties, and shall provide qualified personnel to perform required inspections and tests.
- B. The testing agency shall notify the Designer and General Contractor promptly of irregularities or deficiencies observed in the work during performance of its services.
- C. The testing agency shall not perform any duties of the General Contractor.
- D. The General Contractor is responsible for scheduling times for inspections, tests, taking samples and similar activities.

1.7 GENERAL CONTRACTOR'S QUALITY CONTROL REQUIREMENTS, GENERAL

- A. Maintain quality control over suppliers, manufacturers, products, services, site conditions, and workmanship to produce work of the quality as specified.
- B. Comply fully with manufacturer's instructions, including each step in sequence.
- C. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- D. Perform work by persons qualified to produce workmanship of specified quality.
- E. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortions, or disfigurement. Anchorage devices shall be labeled to allow for visual inspection and verification of type of anchorage device.

1.8 MANUFACTURER'S REPRESENTATIVES

- A. If required by specific Specification Sections, manufacturer's representative shall be present at the job site for supervision of work during installation of materials. Such representative shall be present during all aspects of construction to ensure proper installation of all applicable items. Refer to other sections of these specifications for additional requirements.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

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SECTION 014200

REFERENCES

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

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

1.2 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract including, but not limited to, the following:
 - 1. Town of Longmeadow.
 - 2. The Designer (the Engineer-of-Record).
 - 3. The Town of Longmeadow Project Manager.
 - 4. The General Contractor.
- B. "Reviewed": When used to convey Designer's action on General Contractor's submittals, applications, and requests, "reviewed" is limited to Designer's duties and responsibilities as stated in the Conditions of the Contract.
- C. "Directed": A command or instruction by Designer. Other terms including "requested," "authorized," "selected," "approved," "required," and "permitted" have the same meaning as "directed."
- D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- H. "Provide": Furnish and install, complete and ready for the intended use.
- I. "Project Site": Space available for performing construction activities subject to town approval. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

REFERENCES

1.3 INDUSTRY STANDARDS

- A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- B. Publication Dates: Comply with standards in effect as of date of the Contract Documents, unless otherwise indicated.
- C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
 - 1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source, and have available on site for reference.

1.4 ABBREVIATIONS AND ACRONYMS

- A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale Research's "Encyclopedia of Associations" or in Columbia Books' "National Trade & Professional Associations of the U.S."

AA	Aluminum Association, Inc. (The)
AAMA	American Architectural Manufacturers Association
AASHTO	American Association of State Highway and Transportation Officials
ABAA	Air Barrier Association of America
ACI	ACI International (American Concrete Institute)
AGC	Associated General Contractors of America (The)
AIA	American Institute of Architects (The)
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
ALSC	American Lumber Standard Committee, Incorporated
AMCA	Air Movement and Control Association International, Inc.
ANSI	American National Standards Institute
APA	APA - The Engineered Wood Association
ARMA	Asphalt Roofing Manufacturers Association
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
ASME	ASME International (The American Society of Mechanical Engineers International)
ASTM	ASTM International (American Society for Testing and Materials International)

AWI	Architectural Woodwork Institute
AWPA	American Wood-Preservers' Association
AWS	American Welding Society
BHMA	Builders Hardware Manufacturers Association
BIA	Brick Industry Association (The)
CDA	Copper Development Association
CISCA	Ceilings & Interior Systems Construction Association
CRI	Carpet & Rug Institute (The)
CSI	Construction Specifications Institute (The)
DHI	Door and Hardware Institute
EPA	Environmental Protection Agency (United States)
FM	Factory Mutual
FMRC	Factory Mutual Research (Now FM Global)
FSC	Forest Stewardship Council
GA	Gypsum Association
GANA	Glass Association of North America
GS	Green Seal
HPVA	Hardwood Plywood & Veneer Association
ICRI	International Concrete Repair Institute, Inc.
IESNA	Illuminating Engineering Society of North America
ILI	Indiana Limestone Institute of America, Inc.
ISO	International Organization for Standardization
ISSFA	International Solid Surface Fabricators Association
ITS	Intertek Testing Service NA
LEED	Leadership in Energy & Environmental Design (USGBC)
MFMA	Maple Flooring Manufacturers Association, Inc.
NAAMM	National Association of Architectural Metal Manufacturers
NAIMA	North American Insulation Manufacturers Association
NBGQA	National Building Granite Quarries Association, Inc.
NCMA	National Concrete Masonry Association
NeLMA	Northeastern Lumber Manufacturers' Association
NEMA	National Electrical Manufacturers Association
NFPA	NFPA (National Fire Protection Association)
NFRC	National Fenestration Rating Council
NOFMA	NOFMA: The Wood Flooring Manufacturers Association (Formerly: National Oak Flooring Manufacturers Association)
NRCA	National Roofing Contractors Association

NSF	NSF International (National Sanitation Foundation International)
NTMA	National Terrazzo & Mosaic Association, Inc. (The)
NWWDA	National Wood Window and Door Association (Now WDMA)
SDI	Steel Deck Institute
SDI	Steel Door Institute
SGCC	Safety Glazing Certification Council
SJI	Steel Joist Institute
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association
SSINA	Specialty Steel Industry of North America
SSPC	SSPC: The Society for Protective Coatings
TCA	Tile Council of America, Inc.
UL	Underwriters Laboratories Inc.
USGBC	U.S. Green Building Council
WCLIB	West Coast Lumber Inspection Bureau
WDMA	Window & Door Manufacturers Association (Formerly: NWWDA - National Wood Window and Door Association)
WWPA	Western Wood Products Association

- B. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of current edition of Codes in the Commonwealth of Massachusetts.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 015000

TEMPORARY FACILITIES AND CONTROLS

1.1 GENERAL PROVISIONS

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

1.2 REQUIREMENTS INCLUDED

- A. Temporary Facilities and Controls including the following:

1. Staging.
2. Maintenance of Access.
3. Dust Control.
4. Noise Control.
5. Cleaning During Construction.
6. Telephone Service
7. Sanitary Facilities.
8. Parking.
9. Debris Control and Removal.
10. Safety Protection.
11. Vehicle and Equipment Protection.
12. Delivery of Materials.
13. Shut Down Notices / Service Interruptions
14. Construction Cores.

1.3 STAGING

- A. All staging, planking and scaffolding, exterior and interior, required for the proper execution of the work and over eight feet in height, shall be furnished, installed, and maintained by the General Contractor.
1. Erection and dismantling of staging shall be performed only by trained, certified, and experienced staging personnel qualified to perform such work.
 2. Copies of such certifications, clearly indicating qualifications, shall be provided to the Town of Longmeadow Project Manager prior to commencement of such erecting and dismantling work.
- B. All staging up to eight feet in height shall be provided by the individual Subcontractors as applicable to their work.

1.4 MAINTENANCE OF ACCESS

- A. The General Contractor shall provide and maintain for the duration of his contract, a means of access to, around and within the site, as indicated on the Contract Drawings, for vehicular traffic and authorized personnel. This means of access shall be construed to sustain the weight of equipment customarily engaged for use in construction projects of this type and magnitude. The General Contractor shall, without additional compensation from the Commonwealth, furnish labor and materials as may be required from time to time to maintain this means of access in an acceptable condition as determined by the Designer. Pedestrian access shall provide adequate protection against falling debris, slippage, adequate lighting, warning and directional signs, and protection against construction activities.

1.5 DUST CONTROL

- A. The General Contractor and all Subcontractors shall provide adequate means for the purpose of preventing dust caused by construction operations from creating a hazard, nuisance, and from entering adjacent occupied areas throughout the period of the construction contract.
- B. This provision does not supersede any specific requirements for methods of construction or applicable general conditions set forth in the Contract Articles with added regard to performance obligations of the General Contractor.

1.6 NOISE CONTROL

- A. Work must be scheduled and performed in such a manner as to not interfere with the operations of the Owner. Construction work that is deemed by the Town of Longmeadow Project Manager to be excessively noisy will be required to be done during non-normal working hours and at no additional expense to the Town.
- B. Comply with requirements of authorities having jurisdiction. Develop and maintain a noise-abatement program and enforce strict discipline over all personnel to keep noise to a minimum.
- C. The General Contractor and Sub-Contractors are required to employ means and methods to eliminate structurally-borne and atmospheric-transmitted noise.
- D. Execute construction work by methods and by use of equipment which will reduce excess noise.
 - 1. Equip air compressors with silencers, and power equipment with mufflers.
 - 2. Manage vehicular traffic and scheduling to reduce noise.
 - 3. Structurally transmitted (i.e. impact drilling, hammering, etc.) shall be limited to the hours the building is unoccupied.

1.7 CLEANING DURING CONSTRUCTION

- A. Unless otherwise specified under the various Sections of the Specifications, the General Contractor shall perform clean-up operations during construction as herein specified.

1. Refer to Section 017418 – DEMOLITION WASTE MANAGEMENT AND DISPOSAL and Section 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL for additional requirements.
 - B. Control accumulation of waste materials and rubbish
 - C. Clean interior areas prior to start of finish work and maintain areas free of dust and other contaminants during finish operations.
 - D. Maintain project in accordance with all local, Commonwealth of Massachusetts, and Federal Regulatory Requirements.
 - E. Store volatile wastes in covered metal containers, and remove from premises.
 - F. Prevent accumulation of wastes which create hazardous conditions.
 - G. Provide adequate ventilation during use of volatile or noxious substances.
 - H. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
 1. Do not burn or bury rubbish and waste materials on site.
 2. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
 3. Do not dispose of wastes into streams or waterways.
 4. Identify potential sources of cleaning water runoff and propose abatement procedures.
 - I. Use only those materials which will not create hazards to health or property and which will not damage surfaces.
 - J. Use only those cleaning materials and methods recommended by manufacturer of surface materials to be cleaned.
 - K. Execute cleaning to ensure that the buildings, the sites, and adjacent properties are maintained free from accumulations of waste materials and rubbish and windblown debris, resulting from construction operations.
 - L. Provide on-site containers for collection of waste materials, debris, and rubbish.
 - M. Remove waste materials, debris and rubbish from the site periodically and dispose of at legal disposal dump site (DEP approved).
 - N. Handle material in a controlled manner with as few handlings as possible. Do not drop or throw materials from heights.
 - O. Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not damage surrounding surfaces.
- 1.8 TELEPHONE SERVICE
- A. The General Contractor shall provide and pay for his/her own telephone and data services.

1.9 SANITARY FACILITIES

1.10 PARKING

- A. Parking: Parking spaces can be very limited and the School will not provide designated parking lot spaces for the Contractor's use. The contractor shall not park or idle on Town of Longmeadow sidewalks or lawn areas, or otherwise disrupt school activities. On street parking will be available for vehicles.

1.11 DEBRIS CONTROL AND REMOVAL

- A. Debris shall not be permitted to accumulate or migrate and the work shall at all times be kept satisfactorily clean. Facility trash receptors shall not be used for the disposal of debris. Dumpster shall be provided by the General Contractor for removal of debris for all Subcontractors.
- B. Remove debris from the work site on a daily basis.
- C. DO NOT USE ANY WASTE OR RECYCLING CONTAINER OF THE OWNER.
- D. See 017418 and 017419 for provision and maintenance of contractor's dumpsters, Debris Management and Disposal.

1.12 SAFETY PROTECTION

- A. At no time shall the work be left unattended without proper safety protection and shall not be left unprotected to the weather and accessible to the public. It is the responsibility of the General Contractor to maintain proper safety protection for the public while work is in progress or unattended.

1.13 VEHICLE AND EQUIPMENT PROTECTION

- A. All construction activities shall be performed in such a manner so as not to dust, stain or damage any building elements, equipment, vehicles, etc. within general vicinity of the construction work area. Any damage to these items shall be cleaned and repaired at the expense of the General Contractor.
 - 1. All construction vehicles and equipment on site shall be effectively disabled and secured when not in use.

1.14 DELIVERY & STORAGE OF MATERIALS & EQUIPMENT

- A. Materials and equipment may be delivered to the Contractor's or Sub-Contractor's protected and secured warehouse or may be delivered to the site. Notify the Town of Longmeadow Building Manager of significant deliveries and demonstrate their location. Properly protect and store all materials until needed for incorporation into the work.
- B. No materials will be received by School personnel

- C. Limited interior areas may be available for materials and equipment storage as authorized only by the Town of Longmeadow Project Manager and/or Building Manager. All storage areas must be defined by temporary fencing and/or caution tape. No materials and equipment may be stored beyond authorized and designated areas agreed to by the Town of Longmeadow Project Manager.

1.15 SHUT DOWN NOTICE / SERVICE INTERRUPTIONS

- A. Service interruptions will be needed from time to time for the necessary integration and activation of the work under this contract. It is the obligation and responsibility of the general contractor and all subcontractor forces to properly plan and administrate all necessary interruptions in a manner to minimize impacts to building functions and school operations. The contractor shall plan all interruptions for hours when the building is normally closed, unless otherwise unavoidable. The Electrical Subcontractor shall provide any required temporary power.

1.16 CONSTRUCTION CORES, KEYS AND SECURITY CARD ACCESS

- A. The General Contractor shall review with the Town of Longmeadow Project Manager which doors will require construction cores and which doors will require the contractor to hold keys for School locks. The Town of Longmeadow Project Manager shall assist the Contractor in obtaining required keys and installing construction cores as needed.
- B. The General Contractor shall meet with the Town of Longmeadow Project Manager, and School administration to determine need for him and his subcontractors for security card access to building security points. The resident Engineer shall assist the Contractor in obtaining Contractor's security cards.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 016000

PRODUCT REQUIREMENTS

1.1 GENERAL PROVISIONS

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

1.2 REQUIREMENTS INCLUDED

- A. Products include material, equipment, and systems.
- B. Comply with Specifications and referenced standards as minimum requirements.
- C. Components required to be supplied in quantity within a Specification Section shall be the same, and shall be interchangeable.
- D. Do not use materials and equipment removed from existing structures, except as specifically required, or allowed, by the Contract Documents.
- E. In the case of an inconsistency between Drawings and the Project Manual, or within either document which is not clarified by addendum, the product of greater quality or greater quantity of work shall be provided in accordance with the Designer's interpretation.

1.3 WORKMANSHIP

- A. Comply with industry standards except when more restrictive tolerances or specified requirements indicate more rigid standards or more precise workmanship.
- B. Perform work by persons qualified to produce workmanship of specified quality.
- C. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, and racking.

1.4 MANUFACTURERS' INSTRUCTIONS

- A. When work is specified to comply with manufacturers' instructions, submit copies as specified in Section 013300 - SUBMITTAL REQUIREMENTS, distribute copies to persons involved, and maintain one set in field office.
- B. Perform work in accordance with details of instructions and specified requirements.

1.5 TRANSPORTATION AND HANDLING

- A. Refer to the Contract and General Conditions and Specifications Sections for requirements pertaining to transportation and handling of materials and equipment.

- B. Transport products by methods to avoid product damage; deliver in undamaged condition in manufacturers' labeled and unopened containers or packaging, dry
- C. Provide equipment and personnel to handle products by methods to prevent soiling or damage.
- D. Promptly inspect shipments to assure that products comply with requirements, that quantities are correct, and products are undamaged.

1.6 STORAGE AND PROTECTION

- A. Refer to the Contract and General Conditions and Specifications Sections for requirements pertaining to storage and protection of materials and equipment.
- B. Store products in accordance with manufacturers' instruction, with seals and labels intact and legible. Store sensitive products in weather tight enclosures; maintain within temperature and humidity ranges required by manufacturers' instructions.
- C. For exterior storage of fabricated products, place on sloped supports above ground. Cover products subject to deterioration with impervious sheet covering; provide ventilation to avoid condensation.
- D. Store loose granular materials on solid surfaces in a well-drained area; prevent mixing with foreign matter.
- E. Arrange storage to provide access for inspection. Periodically inspect to assure that products are undamaged, and are maintained under required conditions.
- F. Protect masonry and stone products from damage and staining.
- G. Protect finished materials, including window frames and doors, with protection acceptable to the Town of Longmeadow Project Manager.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 017200

SURVEYS AND RECORD DRAWINGS

1.01 GENERAL PROVISIONS

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

1.02 RECORD DRAWINGS

- A. Prior to final payment the Contractor shall provide an as-built plan of the facilities prepared by the Town of Longmeadow's surveyor. An electronic version of the as-built plan in AutoCAD 2009 or above format shall also be provided.
- B. Record Drawings shall consist of all the Contract Drawings.
- C. From the sets of drawings furnished by the Owner, the Contractor shall reserve one set for record purposes. From this set, the Contractor shall detach and furnish, at no charge to the Mechanical and Electrical Subcontractors the drawings of their portion of the Work for the same purpose.
- D. The Contractor and the above Subcontractors shall keep their marked up as-built set on the site at all times and note on it in colored ink or pencil, neatly and accurately, at the end of each working day, the exact location of their work as actually installed. This shall include the location and dimensions of underground and concealed Work, and any architectural, mechanical, or electrical variations from the Contract Drawings. All changes, including those issued by Addendum, Change Order, or instructions by the Engineer shall be recorded. Marked-up as-built drawings shall be prepared for the entire project and include all Work, including but not limited to:
 - 1. The location of all underground utilities and appurtenances referenced to permanent surface improvements, both horizontally and vertically at ten (10)-foot intervals and at all changes of direction.
 - 2. The location of all internal utilities and appurtenances, concealed by finish materials, including but not limited to valves, coils, dampers, vents, cleanouts, strainers, pipes, junction boxes, turning vanes, variable and constant volume boxes, ducts, traps, and maintenance devices.
 - a. The location of these items shall be shown by offsets to structure and drawing grid lines.
 - b. The tolerance for the actual location of these items on the marked up As Built Drawings shall be plus or minus 0.01 feet.
 - c. Each item shall be referenced by showing a tag number, areas served, and function on the marked up As Built drawing
- E. The Engineer may periodically inspect the marked up as-built drawings at the site. The proper and current maintenance of the information required on these drawings shall be a condition precedent to approval of the monthly applications for payment.

- F. At Substantial Completion, the Contractor shall submit the complete set of marked up as-built drawings to the Engineer. The Contractor shall check all marked up as-builts prepared by subcontractors and certify in writing on the title sheet of the drawings that they are complete and correct prior to submission to the Engineer.
- G. The Engineer shall review the marked up as-built drawings and verify by letter to the Owner that the Work is complete. The Contractor shall incorporate any and all changes onto the original drawings.
- H. The Contractor may make a written request for copies of the completed Record Drawings. The Contractor shall reimburse the Owner directly for the cost of printing of any requested Record Drawings.
- I. Submission of accurate marked up as-built drawings and their approval by the Engineer shall be a condition precedent to final payment.

END OF SECTION

SECTION 017418

DEMOLITION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for recycling and disposing of demolition waste.
- B. Related Work: The following items are not included in this Section and will be performed under the designated Sections:
 - 1. Section 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

1.3 DEFINITIONS

- A. Asphalt Pavement, Brick, and Concrete (ABC) Rubble: Rubble that contains only weathered (cured) asphalt pavement, clay bricks and attached mortar normally used in construction, or concrete that may contain rebar. The rubble shall not be mixed with, or contaminated by, another waster or debris.
- B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.
- C. Disposal: Removal off-site of demolition waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.
- D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.
- E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.
- F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

1.4 PERFORMANCE REQUIREMENTS

- A. General: Develop waste management plan that results in end-of-Project rates for salvage/recycling of 75 percent by weight of total waste generated by the Work.
- B. Salvage/Recycle Requirements: Salvage and recycle as much non-hazardous demolition and construction waste as possible including the following materials:

1. Asphaltic concrete paving.
 2. Concrete and concrete reinforcing steel.
 3. Brick and concrete masonry units.
 4. Coated brick, concrete, and concrete masonry units. Coatings shall include, but not be limited to: paint, stucco applications, plaster, etc..
 5. Wood studs, wood joists, plywood, oriented strand board, paneling and trim.
 6. Casework and cabinetry.
 7. Structural steel, miscellaneous steel and rough hardware.
 8. Roofing.
 9. Insulation.
 10. Doors, door frames and door hardware.
 11. Windows, glass, plastic and glazing.
 12. Metal studs.
 13. Gypsum board.
 14. Acoustical tile and panels.
 15. Carpet and carpet pad.
 16. Demountable partitions.
 17. Equipment.
 18. Plumbing fixtures, piping, supports, hangers, valves, and sprinklers.
 19. Mechanical equipment and refrigerants.
 20. Electrical conduit, copper wiring, lighting fixtures, lamps, and ballasts.
 21. Electrical devices, switchgear, panelboards, busway and transformers.
- C. In the event the General Contractor encounters previously unidentified material that is reasonably believed to be hazardous, asbestos containing, coated with lead-based paint, or oily debris, the General Contractor shall immediately stop work in the affected area and report the condition to the Designer and Town of Longmeadow. At no time shall such material be handled or disposed of by the General Contractor. The General Contractor agrees to cooperate with Town of Longmeadow and any consultants engaged by the town to perform services with respect to the analysis, detection, removal, containment, treatment, and disposal of such regulated materials.

1.5 SUBMITTALS

- A. Waste Management Plan (WMP): Submit three copies of plan within 30 days of date established for the Notice to Proceed, in a format acceptable to the Town of Longmeadow Project Manager.
- B. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit three copies of report. Include the following information:
 1. Material category.
 2. Generation point of waste.
 3. Total quantity of waste in tons.
 4. Quantity of waste salvaged, both estimated and actual in tons.

5. Quantity of waste recycled, both estimated and actual in tons.
 6. Total quantity of waste recovered (salvaged plus recycled) in tons.
 7. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.
- C. Facility Permitting Information: For disposal and incinerator facilities provide a copy of the facility's current solid waste management facility permit in accordance with 310 CMR 19.000.
- D. Facility Permitting Information: For off-site ABC rubble crushing and/or recycling facilities, provide a statement from the facility that references its specific exemption from the solid waste regulations (per 310 CMR 16.05 (3) (e)) or provide a copy of the facility's current solid waste management facility permit in accordance with 310 CMR 19.000.
- E. Record Keeping for Recycling and Landfill and/or Incinerator Disposal: Documentation to be submitted by the Contractor shall include the following as a condition of each payment:
1. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, and/or receipts.
 2. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, and/or receipts.
- F. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.
- G. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.
- H. Qualification Data: The Refrigerant Recovery Technician shall be certified by EPA-approved certification program and shall provide a copy of current certification to the Designer prior to starting work.
- I. Statement of Refrigerant Recovery: The Refrigerant Recovery Technician responsible for recovering refrigerant shall prepare and sign a document stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations and using equipment that has a current EPA Registration. The document shall include the name and address of technician, date refrigerant was recovered, amount of refrigerant recovered and shipped, and date of receipt of shipment by the reclaimer.
- 1.6 QUALITY ASSURANCE
- A. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction, including but not limited to, Massachusetts solid waste regulations contained in 310 CMR 16.00 and 310 CMR 19.000.
- 1.7 WASTE MANAGEMENT PLAN
- A. General: Develop plan consisting of waste identification, and waste reduction, handling, transportation and recycling/disposal procedures. Include separate sections in plan for recycling and disposal of demolition waste. Indicate quantities by weight throughout waste management plan.

- B. Waste Identification: Indicate anticipated types and quantities of demolition and site-clearing waste generated by the Work. Include estimated quantities and assumptions for estimates.
- C. Waste Reduction Program: List each type of waste and whether it will be recycled or disposed of in landfill or incinerator. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.
 - 1. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
 - 2. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
 - 3. Donated Materials: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt. Include names, addresses, and telephone numbers.
 - 4. Sold Materials: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt. Include names, addresses, and telephone numbers.
- D. Handling and Transportation Procedures: Include methods that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location(s) on Project site where materials separation will be located.
- E. Waste Management Coordinator: Identify General Contractor employee who will be the Waste Management Coordinator for the project. The Waste Management Coordinator will be responsible for implementing, monitoring, and reporting status of waste management work plan.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

- A. General: Implement Waste Management Plan as approved by the Designer. Provide containers, storage, signage, transportation, and other items as required to implement WMP for the entire duration of the Contract.
- B. The General Contractor shall conduct a Waste Management Meeting at the Site. The General Contractor shall review methods and procedures related to waste management including, but not limited to, the following:
 - 1. Distribute approved WMP to everyone concerned within three days of approved submittal return.
 - 2. Clearly identify the Waste Management Coordinator and explain the Coordinator's responsibilities.
 - 3. Review WMP with each subcontractor when they first begin work on-site. Review plan procedures and locations established for recycling and disposal.
 - 4. Review and finalize procedures for material separation and verify availability of containers and bins needed to maintain production.

5. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
 6. Provide recycling educational literature for all workers, Subcontractors, and suppliers engaged in on-site activities.
 7. Provide appropriate recycling signage for containers and workspaces.
- C. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walkways, and other adjacent occupied and used facilities.
1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, sold, and disposed.
 2. Comply with project requirements for controlling dust and dirt, environmental protection, and noise control.

3.2 SALVAGING DEMOLITION WASTE

- A. Salvaged Items for Sale and Donation: Sale activities are not permitted on Project site. Labor for loading donated items acceptable to local trade practices; union labor if applicable

3.3 RECYCLING DEMOLITION WASTE, GENERAL

- A. General: Recycle paper and beverage containers used by on-site workers.
- B. Recycling Receivers and Processors: Available recycling receivers and processors include, but are not limited to, those listed in the Massachusetts Recycling Directory, available from the Massachusetts State Bookstore (617-727-2834) located in the Massachusetts State House, for recycling operations within the Commonwealth of Massachusetts.
- C. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical. For waste which cannot be separated at Project site, co-mingle only with waste which is to be separated later at a recycling facility. Contamination of recycling containers with trash or other contaminants will be addressed by the General Contractor and who will be solely responsible for payment of all fines and penalties.
1. Provide appropriately marked containers or bins for controlling recyclable waste until they are removed from Project site. Include list of acceptable and unacceptable materials at each container and bin. Inspect containers and bins for contamination and remove contaminated materials if found.
 2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
 3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
 4. Store components off the ground and protect from the weather.
 5. Remove recyclable waste off School property and transport to recycling receiver or processor.
- D. Asphaltic Concrete Paving: Break up and transport paving to asphalt-recycling facility.

- E. Concrete: Deposit all debris in designated container to be transported to approved aggregate recycling facility to be crushed and screened for use as satisfactory soil for fill or sub-base.
- F. Masonry: Deposit all masonry debris in designated container to be transported to approved aggregate recycling facility to be crushed and screened for use as satisfactory soil for general fill or satisfactory soil for fill or sub-base. Clean and stack undamaged whole masonry units on wood pallets for reuse.
- G. Wood Materials: Sort and stack salvageable members according to size, type, and length. Separate lumber waste and deposit into appropriate container. Separate engineered wood products, panel products, and treated wood materials into designated containers.
- H. Metals: Separate metals by material type if practical. Stack salvageable structural steel members according to size, type of member, and length.
- I. Glass: Deposit glass debris into designated containers to be transported to approved glass-recycling facility.
- J. Plastics: Deposit plastic containers and debris into designated containers to be transported to approved plastic recycling facility.
- K. Gypsum Board: Deposit scraps of gypsum board into designated container protected from weather and transport to appropriate gypsum-recycling facility to be processed into soil amendment.
- L. Acoustical Ceiling Panels and Tile: Deposit pulp able mineral fiber panels into designated container protected from weather and prepare for transport, as directed by manufacturer, to appropriate recycling facility to be processed into new acoustic ceiling panels. Separate suspension system, trim, and other metals from panels and tile and sort with other metals.
- M. Carpet and Pad: Roll large pieces tightly after removing debris, trash, adhesive, and tack strips. Store clean, dry carpet and pad in a closed container or trailer provided by carpet reclamation agency or carpet recycler.
- N. Equipment: Drain tanks, piping, and fixtures. Seal openings with caps or plugs. Protect equipment from exposure to weather.
- O. Plumbing Fixtures: Separate by type and size fixtures suitable for reuse. Deposit all other fixtures into designated containers by material type to be transported to approved recycling facility.
- P. Piping: Separate piping materials by material composition. Deposit in designated containers. Separate supports, hangers, valves, sprinklers, and other components by material type and deposit in designated containers for transport to approved recycling facility.
- Q. Lighting Fixtures: Separate lamps by type and protect from breakage.
- R. Electrical Devices: Separate switches, receptacles, switchgear, transformers, meters, panelboards, circuit breakers, and other devices by type.
- S. Conduit: Deposit conduit and fittings into designated container.

3.4 DISPOSAL OF WASTE

- A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
 - 1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
 - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
 - 3. For solid waste disposal facilities located in the Commonwealth of Massachusetts, dispose of materials only in facilities which currently comply with applicable state regulations, including requirements of 310 CMR 16.00 {Site Assignment for Solid Waste Facilities} and 310 CMR 19.000 {Solid Waste Management}, and local bylaws.
- B. Burning: Do not burn waste materials.
- C. Disposal: Transport waste materials off the Owner's property and legally dispose of them.

END OF SECTION

SECTION 017419

CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 GENERAL

1.1 GENERAL PROVISIONS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for recycling and disposing of construction waste.
- B. Related Work: The following items are not included in this Section and will be performed under the designated Sections:
 - 1. Section 017418 - DEMOLITION WASTE MANAGEMENT AND DISPOSAL
 - a. Additional requirements for addressing existing materials in renovation and/or remodeling projects; not applicable to new construction.

1.3 DEFINITIONS

- A. Asphalt Pavement, Brick, and Concrete (ABC) Rubble: Rubble that contains only weathered (cured) asphalt pavement, clay bricks and attached mortar normally used in construction, or concrete that may contain rebar. The rubble shall not be mixed with, or contaminated by, another waste or debris.
- B. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, and/or installation of new materials as part of remodeling, renovation, or repair operations. Construction waste includes packaging.
 - 1. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations prior to renovations or remodeling.
- C. Disposal: Removal off-site of construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.
- D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.
- E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.
- F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

1.4 PERFORMANCE REQUIREMENTS

- A. General: Develop a Waste Management Plan to maximize recycling rate by weight of the total waste generated by the Work.
- B. Recycling Requirements:
 - 1. Maximize recycling of non-hazardous construction waste including the following materials:
 - a. Site-clearing waste.
 - b. Masonry and CMU.
 - c. Lumber, wood sheet materials, and wood trim.
 - d. Metals.
 - e. Roofing.
 - f. Insulation.
 - g. Glass.
 - h. Plastics.
 - i. Gypsum board, refer to paragraph below.
 - j. Acoustical ceiling panels.
 - k. Carpet and pad.
 - l. Piping.
 - m. Wire and cable.
 - n. Electrical conduit.
 - o. Packaging: 100 percent of the following uncontaminated packaging materials: Paper, cardboard, boxes, plastic sheet and film, polystyrene packaging, wood crates, plastic pails.

1.5 SUBMITTALS

- A. Waste Management Plan (WMP): Submit 3 copies of Plan within 30 days of date established for the Notice to Proceed, in a format acceptable to the Town of Longmeadow Project Manager.
- B. Waste Management Progress Reports: Concurrent with each Application for Payment, submit three copies of report. The following information shall be included:
 - 1. Material category.
 - 2. Generation point of waste.
 - 3. Total quantity of waste in tons.
 - 4. Quantity of waste recycled, both estimated and actual in tons.
 - 5. Total quantity, of waste recovered (recycled) as a percentage of total waste.
- C. Facility Permitting Information: For landfill and/or incinerator facilities, provide a copy of the facility's current solid waste management facility permit in accordance with 310 CMR 19.000.
- D. Record Keeping for Recycling and Landfill and/or Incinerator Disposal: Documentation to be submitted by the General Contractor shall include the following:
 - 1. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, and/or receipts.

2. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, and/or receipts.
 - E. Facility Permitting Information: For ABC rubble crushing and/or recycling facilities, provide a statement from the facility that references its specific exemption from the solid waste regulations (per 310 CMR 16.05 (3) (e)) or provide a copy of the facility's current solid waste management facility permit in accordance with 310 CMR 19.000.
 - F. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.
 - G. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.
- 1.6 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction, including but not limited to, Massachusetts solid waste regulations contained in 310 CMR 16.00 and 310 CMR 19.000.

1.7 WASTE MANAGEMENT PLAN

- A. General: Develop plan consisting of waste identification, and waste reduction, handling, transportation, and recycling/disposal procedures. Include separate sections in plan for recycling and disposal of construction waste. Indicate quantities by weight throughout waste management plan.
- B. Waste Identification: Indicate anticipated types and quantities of site-clearing and construction waste generated by the Work. Include estimated quantities and assumptions for estimates.
- C. Waste Reduction Program: List each type of waste and whether it will be recycled or disposed in a landfill or incinerator. Include points of waste generation, total quantity by weight of each type of waste, quantity for each means of recovery, and handling and transportation procedures.
 1. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
 2. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
 3. Donated Materials: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt. Include names, addresses, and telephone numbers.
 4. Sold Materials: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt. Include names, addresses, and telephone numbers.
- D. Handling and Transportation Procedures: Include methods that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location(s) on Project site where separated materials will be stockpiled.

- E. Waste Management Coordinator: Identify General Contractor employee who will be the Waste Management Coordinator for the project. The Waste Management Coordinator will be responsible for implementing, monitoring, and reporting status of waste management activities.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

- A. General: Implement Waste Management Plan as approved by the Designer. Provide containers, storage, signage, transportation, and other items as required to implement WMP for the entire duration of the Contract.
- B. The General Contractor shall conduct a Waste Management Meeting at the Site. The General Contractor shall review methods and procedures related to waste management including, but not limited to, the following:
 - 1. Distribute approved WMP to everyone concerned within three days of approved submittal return.
 - 2. Clearly identify the Waste Management Coordinator and explain the Coordinator's responsibilities.
 - 3. Review WMP with each subcontractor when they first begin work on-site. Review plan procedures and locations established for recycling and disposal.
 - 4. Review and finalize procedures for material separation and verify availability of containers and bins needed to maintain production.
 - 5. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
 - 6. Provide recycling educational literature for all workers, Subcontractors and suppliers engaged in on-site activities.
 - 7. Provide appropriate recycling signage for containers and workspaces.
- C. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walkways, and other adjacent occupied facilities.
 - 1. Designate and label specific areas on Project site necessary for separating materials that are to be recycled, reused, donated, sold, and disposed.
 - 2. Comply with project requirements for controlling dust and dirt, environmental protection, and noise control.

3.2 RECYCLING CONSTRUCTION WASTE, GENERAL

- A. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical. For waste, which cannot be separated at Project site, co-mingle only with waste, which is to be separated later at a recycling facility. The General Contractor will address contamination of recycling containers with trash or other contaminants and who will be solely responsible for payment of all fines and penalties.

1. Provide appropriately marked containers or bins for controlling recyclable waste until they are removed from Project site. Include list of acceptable and unacceptable materials at each container and bin. Inspect containers and bins for contamination and remove contaminated materials if found.
 2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
 3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
 4. Store components off the ground and protect from the weather.
 5. Remove recyclable waste off User Agency's property and transport to recycling receiver or processor.
- B. On-site crushing of asphalt pavement, brick, and concrete (ABC) rubble as described in 310 CMR 16.05, is not allowed. All ABC waste must be transported off-site to an asphalt batching plant or to an ABC crushing or recycling operation facility that is either conditionally exempt from 310 CMR 16.00 or has been sited and permitted in accordance with 310 CMR 16.00 and 310 CMR 19.000, respectively.

3.3 RECYCLING CONSTRUCTION WASTE

- A. Packaging:
1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
 2. Polystyrene Packaging: Separate and bag materials.
 3. Pallets: To the extent feasible, require shippers using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
 4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.
- B. Site-Clearing Wastes: Chip brush, branches, and trees on-site.
- C. Concrete: Deposit all debris in designated containers to be transported to approved aggregate recycling facility to be crushed and screened for use as satisfactory soil for fill or sub-base.
- D. Masonry: Deposit all masonry debris in designated containers to be transported to approved aggregate recycling facility to be crushed and screened for use as satisfactory soil for general fill or satisfactory soil for fill or sub-base. Clean and stack undamaged whole masonry units on wood pallets.
- E. Wood Materials:
1. Clean Cut-Offs of Lumber: Deposit into designated clean wood container to be transported to designated recycling facility for use as mulch or bio-fuel.
 2. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.
- F. Metals: Separate metals by material type if practical. Stack salvageable structural steel members according to size, type of member, and length.

- G. Asphalt Shingle Roofing: Deposit asphalt shingles in designated containers for off-site reuse. Nails, staples acceptable, flashing trim and accessories shall be recycled as metals.
- H. Glass: Deposit glass debris into designated containers to be transported to approved glass-recycling facility.
- I. Plastics: Deposit plastic containers and debris into designated containers to be transported to approved plastic recycling facility.
- J. Clean Gypsum Board: Deposit scraps of clean gypsum board into designated container protected from weather and transport to an appropriate gypsum board recycling outlet or permitted construction and demolition debris processing facility that will divert clean gypsum board to an appropriate gypsum board recycling outlet.
- K. Acoustic Ceiling Panels: Deposit pulp able mineral fiber panels into designated container protected from weather and prepare for transport, as directed by manufacturer, to appropriate recycling facility to be processed into new acoustic ceiling panels. Separate suspension system, trim, and other metals from panels and sort with other metals.
- L. Carpet: Deposit carpet into designated container protected from weather and prepare for transport, as directed by manufacturer, to appropriate recycling facility to be processed into new products.
- M. General: Recycle paper and beverage containers used by on-site workers.

3.4 DISPOSAL OF WASTE

- A. Except for items or materials to be recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
 - 1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
 - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
 - 3. For solid waste disposal facilities located in the Commonwealth of Massachusetts, dispose of materials only in facilities which currently comply with applicable state regulations, including requirements of 310 CMR 16.00 {Site Assignment for Solid Waste Facilities} and 310 CMR 19.000 {Solid Waste Management}, and local bylaws.
- B. Burning: Do not burn waste materials.
- C. Disposal: Transport waste materials off Owner's property and legally dispose of them.

END OF SECTION

SECTION 017700
CONTRACT CLOSEOUT

1.1 GENERAL PROVISIONS

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

1.2 FINAL CLEANING

- A. Unless otherwise specified under the various Sections of the Specifications, the General Contractor shall perform final cleaning operations as herein specified prior to final inspection.
- B. Maintain project site free from accumulations of waste, debris, and rubbish, caused by operations. At completion of work, remove waste materials, rubbish, tools, equipment, machinery and surplus materials, and clean all sight-exposed surfaces; leave project clean and ready for occupancy.
- C. Cleaning shall include all surfaces, interior and exterior in which the General Contractor has had access whether existing or new.
- D. Refer to Sections of the Specifications for cleaning of specific products or work.
- E. Use only those materials which will not create hazards to health or property and which will not damage surfaces.
- F. Use only those cleaning materials and methods that are recommended by the manufacturer of surface material to be cleaned.
- G. Employ experienced workmen, or professional cleaners, for final cleaning operations.
- H. Remove grease, mastic, adhesives, dust, dirt, stains, fingerprints, labels, and other foreign materials from sight-exposed interior and exterior surfaces.
- I. Repair, patch and touch up marred surfaces to specified finish, to match adjacent surfaces as acceptable to the Town of Longmeadow Project Manager.
- J. Leave pipe and duct spaces, plenums, furred spaces and the like clean of debris and decayable materials.
- K. At the end of the project, General Contractor and each Subcontractor shall remove all his tools, equipment, machinery, and surplus materials from the job site. The General Contractor shall remove all waste materials and rubbish from the project at this time. All temporary structures shall be removed and the project shall be left clean.

1.3 AS-BUILT DRAWINGS

- A. As-built Drawings shall consist of all the Contract Drawings. As-built Drawings shall be kept up-to-date. Information from on-going Work shall be recorded on As-built Drawings within 48 hours of Work being performed.
- B. The General Contractor and each Subcontractor shall be required to maintain one set of As-built Drawings, as the work relates to their Sections of the Specifications, at the site.
- C. The As-built Drawings shall be stored and maintained in the General Contractor's field office apart from other documents used for construction. The As-built Drawings shall be maintained in a clean, dry, and legible condition and shall not be used for construction purposes.
- D. As-built Drawings, as submitted by the General Contractor shall be verified in the field by the Designer or his Consultants. Verification by the Designer shall occur during the construction process and prior to the related work being completed and covered up.
- E. The As-built Drawings shall be available at all time for inspection by the Town of Longmeadow Project Manager or Designer. All deficiencies noted shall be promptly corrected.
- F. The following information shall be indicated on the As-Built Drawings:
 - 1. Record all changes, including change orders, in the location, size, number and type both horizontally and vertically of all elements of the project which deviate from those indicated on all the Contract Drawings.
 - 2. The tolerance for the actual location of utilities and appurtenances within the building to be marked on the As-built Drawings shall be plus or minus two (2) inches.
 - 3. The location of all internal utilities and appurtenances, concealed by finish materials, including but not limited to valves, coils, dampers, vents, cleanouts, strainers, pipes, junction boxes, turning vanes, variable and constant volume boxes, ducts, traps and maintenance devices. The location of these internal utilities, appurtenances, and devices shall be shown by offsets to the column grid lines on the Drawings.
 - 4. Each of the utilities and appurtenances shall be referenced by showing a tag number, area served and function on the As-built Drawings.
- G. At the end of each month and before payment for materials installed, the General Contractor, each Subcontractor, and agents of the Town shall review As-built Drawings for purpose of payment.
 - 1. If the changes in location of all installed elements are not shown on the As-Built Drawings and verified in the field, then the material shall not be considered as installed and payment will be withheld.
- H. Prior to the installation of all finish materials, a review of the As-built Drawings shall be made to confirm that all changes have been recorded. All costs to investigate such conditions shall be borne by the applicable party as determined by the Designer.
- I. At the completion of the contract, each Subcontractor shall submit to the General Contractor a complete set of his respective As-built Drawings indicating all changes. After checking the above drawings, the General Contractor shall certify in writing on the title sheet of the drawings that they are complete and correct and shall submit the As-built Drawings to the Designer.

1. As-Built Drawings shall be submitted electronically to the Designer, in a format which can be added to the complete plans as constructed.

- J. The Designer shall review the drawings and shall verify by letter to the Town of Longmeadow Project Manager that the work is accurate. The Designer shall incorporate all changes on the original drawings; thus creating Record Drawings. The Designer shall submit to the Town of Longmeadow Project Manager, electronic files in Autocad 2008 (or later version) format with two (2) sets of prints to be used for the final inspection of the project. Inaccuracies in As-built Drawings, as determined by the Designer and the Town of Longmeadow Project Manager, may be grounds for postponement of the final inspection or delay the processing of final payment until such inaccuracies are corrected by the General Contractor.

1.4 OPERATING AND MAINTENANCE REQUIREMENTS

- A. At least two weeks prior to the time of turning over this contract to the Operating Agency for Final Acceptance, the General Contractor shall secure and deliver to the Operating Agency via the Designer, three (3) complete, indexed files and three (3) CD or DVD copies, containing approved operating and maintenance manuals, shop drawings, record of paint colors, floor and ceiling materials and other data as follows.
 1. Operating manuals and operating instructions for each model and type of equipment in each of the various systems. Include operating instructions for systems integrating several pieces of equipment.
 2. Catalog data sheets for each item of mechanical or electrical or equipment actually installed including performance curves, rating data and parts lists.
 3. Catalog sheets, maintenance manuals, and approved shop drawings of all mechanical or electrical equipment controls and fixtures with all details clearly indicated, including size of lamps and other maintenance supplies.
 4. Operating procedures, including startup, shutdown, seasonal and weekend operations.
 5. Description of controls and sequence of operations.
 6. Maintenance Data:
 - a. Manufacturer's information, including list of spare parts.
 - b. Name, address, and telephone number of Installer or supplier.
 - c. Maintenance procedures.
 - d. Maintenance and service schedules for preventive and routine maintenance.
 - e. Maintenance record forms.
 - f. Sources of spare parts and maintenance materials.
 - g. Copies of maintenance service agreements.
 - h. Copies of warranties and bonds.
 - i. Name, address and telephone numbers of repair and service companies for each of the systems installed.
 7. Names, addresses and telephone numbers of all Subcontractors and suppliers, together with repair and service companies for each of the major systems installed under this contract.

8. Organize all close-out documents into three sets of new three-ring locking binders. All Binder shall be of identical color and type. Permanently label each binder on the front and spine faces with the Project Number and Title, submission date, binder sequence number, binder contents and Contractor's name.

- B. Non-Availability of operating and maintenance manuals or inaccuracies therein may be grounds for cancellation and postponement of any scheduled final inspection by the Town of Longmeadow Project Manager until such time as the discrepancy has been corrected.

1.5 DEMONSTRATION AND TRAINING

- A. Instruction: Instruct School maintenance personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
 1. Provide instructors experienced in operation and maintenance procedures.
 2. Provide instruction at mutually agreed-on times. For equipment that requires seasonal operation, provide similar instruction at the start of each season.
 3. Schedule training with Town of Longmeadow personnel with at least fourteen (14) days' advance notice.
 4. Coordinate instructors, including providing notification of dates, times, length of instruction, and course content.
- B. Program Structure: Develop an instruction program that includes individual training modules for each system and equipment not part of a system, as required by individual Specification Sections. For each training module, develop a learning objective and teaching outline. Include instruction for the following:
 1. System design and operational philosophy.
 2. Review of documentation.
 3. Operations.
 4. Adjustments.
 5. Troubleshooting.
 6. Maintenance.
 7. Repair.

1.6 CLOSEOUT REQUIREMENTS AND SUBMITTALS

- A. Procedural Requirements Prior to Use and Occupancy: Punch List:
 1. During the finishing stages of the project, the General Contractor shall make frequent inspections with Subcontractors, the Designer, so as to progressively check for and correct faulty work.
 2. During the course of construction of the project, the General Contractor shall procure and maintain test records and certificates that will be required prior to issuance of the Department of Public Safety (DPS) Certificate of Occupancy.
 3. When the General Contractor determines that he/she is Substantially Complete*, he/she shall prepare for submission to the Designer a list of items to be completed or corrected. The failure to include any items on such list does not alter the responsibility of the General Contractor to complete all work in accordance with contract Documents. The

General Contractor's list shall be accompanied with certificates that will be required as prerequisites for applying for a DPS inspection

- a. *NOTE: Substantially Complete means that less than one percent (1%) of all contract work, including change orders, remains to be done, and that none of the remaining work will affect health, safety, or function.
 4. Upon receipt of the General Contractor's list of items to be completed or corrected, the Designer will promptly make a thorough inspection, together with representatives of Town of Longmeadow and the School, and prepare a "punch list", setting forth in accurate detail any items on the General Contractor's list, and additional items that are not acceptable. Concurrently, the General Contractor will arrange for required inspections. Longmeadow Fire Department, Town of Longmeadow Electrical Inspection and other required inspections in coordination with the Town of Longmeadow Project Manager.
 5. When the punch list has been prepared, the Designer will arrange a meeting with the General Contractor and Subcontractors, and the Town of Longmeadow Project Manager, to identify and explain all punch list items and answer questions on the Work that must be done before Final Acceptance.
 6. The General Contractor shall immediately correct all punch list items that affect health, safety or function.
- B. the General Contractor shall provide the following "closeout submittals:"
1. Project record documents and as-built marked-up drawings.
 2. Approved operating and maintenance (O & M) data.
 3. Extended guarantees and warranties.
 - a. General Contractor's General Guarantee shall effectively include:
 - 1) A written guarantee, for one (1) year from date of Substantial Completion of the project, against defective workmanship, material, installation and equipment for all work of the project. Repair or replacement of defective workmanship, material, installation or equipment that develop within this period shall be accomplished promptly upon notification to the General Contractor, to the satisfaction of the Operating Agency, at no cost.
 - 2) Replace or repair material or equipment that requires excessive service during the guarantee period.
 - 3) Guarantee shall include 24-hour service of complete system(s) during guarantee period at no additional cost.
 - 4) Provide manufacturer's engineering and technical staff at site promptly to analyze and rectify problems that develop during guarantee period. If problems cannot be rectified promptly, to the satisfaction of the User Agency, advise the Designer in writing; describe efforts to rectify situation and provide analysis of cause of problem.
 - b. Manufacturer's Guarantee or Warranty
 - 1) In addition to guarantee requirements above, obtain manufacturers' written installation, equipment, and material warranties for time periods indicated in the various Specification Sections of the Contract Documents. Such manufacturers' warranties contained within the Specification Sections, together with any other warranties offered in manufacturers' published data, are to be transferred to the User Agency.
 4. Keys and access.

5. Spare parts and maintenance materials (“attic stock”),
 6. Evidence of compliance with requirements of governing authorities including, without limitations, the following:
 - a. Certificate of Inspection, in form of signed permits from the electrical, fire department, and any other required inspectors.
 - b. Certification from the local fire department to the effect that all detection, alarm and suppression systems, and other equipment or systems under fire department jurisdiction are approved.
 - c. Elevator certification(s) from the elevator inspector obtained through the General Contractor’s Elevator Subcontractor. As it pertains to interconnection of existing elevator recall system to new equipment & verification of functionality as designed.
 7. Certification, from the design Registered Professional Engineer, stating that the fire protection systems have been installed in accordance with the approved fire protection construction documents and meet the requirements of 780 CMR 903.1.
- C. Upon completion of the Work for which a permit has been issued, building official shall conduct a final inspection pursuant to 780 CMR 115.5.
- D. Prerequisites for Town of Longmeadow Final Approval: (referred to as Closeout Submittals):
1. Operating and maintenance (O & M) manuals and written operating instructions for the various systems.
 2. Catalog data sheets for each item of mechanical or electrical equipment actually installed including performance curves, rating data and parts lists.
 3. Catalog sheets, maintenance manuals, and approved shop drawings of all mechanical and electrical equipment controls and fixtures with all details clearly indicated, including size of lamps.
 4. Names, addresses, and telephone numbers of repair and service companies for each of the major systems installed under the construction contract.
 5. Signed Department of Public Safety (DPS) Certificate of Occupancy per 780 CMR 120.0
 6. Licensed Builder Final Affidavit/Report.
 7. Designer Affidavit of Compliance.
 8. Subcontractor Affidavits that specified equipment and installed items have been seismically braced in accordance with code requirements.
 9. Monetized punch list of the remaining Work that must be done before Final Acceptance.
 10. As-built documents should be completed (both electronic files and transparencies) and ready to transfer over to the UMA Project Manager. As-built documents shall consist of, but not be limited to, the following:
 - a. Drawings (in AutoCAD ver. 2008 or later format)
 - 1) Contract drawings, for all disciplines, marked-up to clearly indicate as-built conditions.
 - 2) All clarification and/or changed conditions sketches (SK’s).
 - b. Specifications (in .pdf format)
 - 1) All construction specifications.
 - 2) All addenda.

- c. Shop drawings, submittals, etc. (scanned format)*
 - 1) All approved shop drawings, submittals, etc.
 11. Approved documents submitted to the Town of Longmeadow or the Designer shall be electronically scanned (including the associated transmittals and, where applicable, the Designer-of-Record's and Project Manager's comments) as a .pdf document. All scanned approved submittals shall be included on a CD.
 12. The electronic file names, for each approved submittal, shall contain the following information:
 - a. For APPROVED or APPROVED AS NOTED Shop Drawings:
 - 1) Project Number Submittal's Date, APPROVED, Submittal Name, Submittal's Specification Section Name and Number, and Submittal's Revision Number.
 - 2) As an example, the file name of an approved submittal for Concrete
 - a) Design Mix: DFS991DC1 030106 APPROVED Concrete Design Mix Cast In Place Concrete 033000 Rev0.PDF
 - b. For Shop Drawings submitted for information only, e.g. welders certificate, the electronic file name shall contain the following information:
 - 1) Project Number Submittal's Date, FORINFO, Submittal Name, Submittal's Specification Section Name and Number, and Submittal's Revision Number.
 - 2) As an example the file name of a for information only submittal for a welder's certificate:
 - a) DFS991DC1 030106 FOR INFO Welders Certificate Quality Requirements 014000 Rev0.PDF
 - c. Unless otherwise stated all submitted documents shall include an electronic scanned image as noted above.
 - d. The electronic file name shall be printed on every shop-drawing page.
 13. The Town of Longmeadow Project Manager will attach the monetized punch list to the Town of Longmeadow Certificate of Agency Use and Occupancy, indicate the official date of Use and Occupancy, establish the date upon which all remaining punch list items must be completed (normally 30-45 calendar days), and procure appropriate signatures on the original and five (5) copies.
 14. After receipt of signatures, the Town of Longmeadow Project Manager will distribute the signed copies.
 15. Project schedules (in Primavera format, unless otherwise authorized), baseline, and all updates.
 16. Notification to Operating Agency and/Or User Agency of Proposed Use and Occupancy Date: The Town of Longmeadow Project Manager is to notify the Operating Agency and/or User Agency of the project Use and Occupancy date at least seven (7) calendar days in advance.
- E. Prerequisites for Town of Longmeadow Certificate of Final Inspection, Release, and Acceptance: the General Contractor shall cause the completion of all of the other punch list items within timeframe required, but not more than 45 calendar days if the timeframe is not indicated.
 1. If the General Contractor fails to pursue completion of the remaining monetized punch list work, on a continual basis, within the timeframe required by the certificate, Town of

Longmeadow may, after seven (7) calendar days written notice, elect to complete the work with separate forces and charge the work against the General Contractor.

2. At the end of the General Contractor's one (1) year guarantee period, the General Contractor shall transfer manufacturers' equipment and material warranties that are still in force to the Operating Agency.

1.7 GUARANTEES AND WARRANTIES

- A. Submit to the Designer all extended guarantees and warranties that have been specified in various, individual Sections of the Specifications. Guarantees shall be assembled by Specification No. and Section in accordance with Specifications Table of Contents.
 1. Guarantees and warranties shall be enforceable in the Commonwealth of Massachusetts and subject to interpretation in accordance with the laws of the Commonwealth of Massachusetts.
 2. Guarantees and warranties shall begin at the date of Substantial Completion of the Project. Guarantees and warranties which start at the date of shipment from the factory, or from the completion date of an individual portion of the project, are not acceptable.
- B. Unless more stringent requirements are otherwise specified, guarantee all work against defects of materials, equipment and workmanship for one year from the date of Substantial Completion or the date of issue of Certificate of Use and Occupancy for the building or portion thereof, whichever occurs first.
- C. If, within any guarantee period, repairs or changes are required in connection with guaranteed work, General Contractor shall promptly upon receipt of notice from Town of Longmeadow, and without additional expense to Town of Longmeadow, within ten business days:
 1. Place in satisfactory condition in every particular all guaranteed work and correct all defects.
 2. Make good all damage to building, site equipment, or contents thereof, including redecoration which, in the opinion of the Designer, results from the use of material, equipment or workmanship which are inferior, defective or not in accord with the terms of the Contract.
- D. If General Contractor, after such notice, fails to proceed immediately to comply with terms of guarantee, Town of Longmeadow may correct defects and hold General Contractor liable for all expenses incurred.
- E. Promptly after completion of the work, obtain from each Subcontractor where a guarantee is required, a warranty addressed to and in favor of the Town of Longmeadow or the School Personell if directed by Project Manager.
- F. Delivery of any warranty required does not relieve the General Contractor from any obligation assumed under other provisions of the Contract.
- G. Deliver guarantees and warranties to the Designer before or with the application for Final Payment.
- H. The general warranty set forth in the General Conditions is in addition to, exclusive of, and not in substitution of such guarantees as may be required in the Specifications.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

DIVISION 02 – EXISTING CONDITIONS

SECTION 024101

SELECTIVE BUILDING DEMOLITION

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

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

1.2 DESCRIPTION OF WORK

A. Work Included:

1. Removal of all existing fire alarm system components and wiring except as indicated on the drawings.
2. Demolition and removal of selected portions of buildings and structures and as required for new work. Refer to the Drawings for additional requirements.
3. Salvage of existing items to be reused or turned over to the facility.
4. Removal and legal disposal of demolished materials off site. Except those items specifically designated to be relocated, reused, or turned over to the facility, all existing removed materials, items, trash and debris shall become property of the Contractor and shall be completely removed from the site and legally disposed of at her/his expense. Salvage value belongs to the Contractor. On-site sale of materials is not permitted.
5. Demolition and removal work shall properly prepare for alteration work and new construction to be provided under the Contract.
6. Scheduling and sequencing operations without interrupting utilities serving occupied areas. If interruption is required, obtain written permission from the utility company and the Town of Longmeadow Project Manager. Schedule interruption when the least amount of inconvenience will result.

B. Alternates: Not Applicable.

C. Items To Be Installed Only: Not Applicable.

D. Items To Be Furnished Only: Not Applicable.

E. Related Work: The following items are not included in this Section and will be performed under the designated Sections:

1. Section 015000 - TEMPORARY FACILITIES AND CONTROLS:
 - a. Maintenance of access, cleaning during construction, dust and noise control.
2. Section 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL:
 - a. Waste management and recycling.
3. Section 260000 - ELECTRICAL WORK:

- a. Disconnecting, capping and otherwise making inactive existing electrical services in areas where demolition and removal work is required. Electrical tradesmen will disconnect, cap, inactivate and lower to floor such items where required to be removed under Section 260000 - ELECTRICAL WORK. Removal and disposal of such materials shall be then done under this Section 024101 – SELECTIVE BUILDING DEMOLITION.
- b. Disconnect and reinstallation of electrical equipment temporarily interrupted during construction.

1.3 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Salvage: Detach items from existing construction and deliver them to the User Agency ready for reuse, at a location designated by the User Agency. Protect from weather until accepted by User Agency.
- C. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated. Protect from weather until reinstallation.
- D. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.4 MATERIALS OWNERSHIP

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

1.5 SUBMITTALS

- A. Schedule of Selective Demolition Activities: Indicate the following:
 1. Detailed sequence of selective demolition and removal work, with early and late starting and finishing dates for each activity. Ensure User Agency's on-site operations are uninterrupted if applicable.
 2. Interruption of utility services. Indicate how long utility services will be interrupted.
 3. Coordination for shutoff, capping, and continuation of utility services.
 4. Use of elevator and stairs.
 5. Locations of proposed dust- and noise-control temporary partitions and means of egress, including for other occupants affected by selective demolition operations.
 6. Coordination of User Agency's continuing occupancy of portions of existing building and of User Agency's partial occupancy of completed Work.
 7. Means of protection for items to remain and items in path of waste removal from building.

- B. Inventory: After selective demolition is complete, submit a list of items that have been removed and salvaged, and turned over to the User Agency.
- C. Predemolition Videotapes: Show existing conditions of adjoining construction and site improvements, including finish surfaces, that might be misconstrued as damage caused by selective demolition operations. Comply with Division 01. Submit before Work begins.
- D. Landfill Records: Provide trip tickets (receipts) indicating receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.
 - 1. Comply with submittal requirements in Section 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.

1.6 QUALITY ASSURANCE

- A. Examination of Existing Conditions: The Contractor shall examine the Contract Drawings for demolition and removal requirements and provisions for new work. Verify all existing conditions and dimensions before commencing work. The Contractor shall visit the site and examine the existing conditions as he finds them and shall inform herself/himself of the character, extent and type of demolition and removal work to be performed. Submit any questions regarding the extent and character of the demolition and removal work in the manner and within the time period established for receipt of such questions during the bidding period.
- B. Demolition Firm Qualifications: An experienced firm that has specialized in demolition work similar in material and extent to that indicated for this Project.
- C. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.
- D. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- E. Standards: Comply with ANSI A10.6 and NFPA 241.
- F. Predemolition Conference: Conduct conference at Project site. Review methods and procedures related to selective demolition including, but not limited to, the following:
 - 1. Inspect and discuss condition of construction to be selectively demolished.
 - 2. Review structural load limitations of existing structure.
 - 3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
 - 4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
 - 5. Review areas where existing construction is to remain and requires protection.

1.7 WARRANTY

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

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped.
- B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.
- D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Designer.
- E. Engage a professional engineer registered in the Commonwealth of Massachusetts to survey condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective demolition operations.
- F. Survey of Existing Conditions: Record existing conditions by use of preconstruction videotapes.
 - 1. Before selective demolition or removal of existing building elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.
- G. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Service/System Requirements: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.
 - 1. Arrange to shut off indicated utilities with utility companies and User Agency.
 - 2. If services/systems are required to be removed, relocated, or abandoned, before proceeding with selective demolition provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.

3. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing. Where entire wall is to be removed, existing services/systems may be removed with removal of the wall.
4. Prior to commencing cutting work in existing surfaces, take all precautionary measures to assure that mechanical and electrical services to the particular area have been made inactive. Coordinate with Fire Protection, Plumbing, HVAC, and Electrical subcontractors. Only licensed tradesmen of that particular trade shall disconnect and cap existing mechanical and electrical items that are to be removed, abandoned and/or relocated.
5. If, during the process of cutting work, existing utility lines are encountered which are not indicated on the Drawings, regardless of their condition, immediately report such items to the Designer. Do not proceed with work in such areas until instructions are issued by the Designer. Continue work in other areas.

3.3 PREPARATION

- A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
 1. Comply with requirements for access and protection specified in Section 015000 - TEMPORARY FACILITIES AND CONTROLS.
 2. Maintain adequate passage to and from all exits at all times. Before any work is done which significantly alters access or egress patterns, consult with the Designer and obtain approval of code required egress. Under no condition block or interfere with the free flow of people at legally required exits, or in any way alter the required condition of such exits.
- B. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.
 1. Strengthen or add new supports when required during progress of selective demolition.
 2. Remove temporary shoring, bracing and structural supports when no longer required.
 3. Post warning signs and place barricades as applicable during placement and removal of temporary shoring.
- C. Conduct demolition operations to prevent injury to people and damage to adjacent buildings and facilities to remain. Ensure safe passage of people around demolition area(s).
 1. Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction. Provide temporary barricades as required to limit access to demolition areas.
 2. Protect existing site improvements, appurtenances, and landscaping to remain.
- D. Drain, purge, or otherwise remove, collect, and dispose of chemicals, gases, explosives, acids, flammables, or other dangerous materials before proceeding with demolition operations.

3.4 SELECTIVE DEMOLITION, GENERAL

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
 2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
 3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during and after flame-cutting operations.
 5. Maintain adequate ventilation when using cutting torches.
 6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
 7. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
 8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 9. Dispose of demolished items and materials promptly. Comply with requirements in Section 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.
- B. Removed and Salvaged Items:
1. Clean salvaged items.
 2. Pack or crate items after cleaning. Identify contents of containers.
 3. Store items in a secure area until delivery to User Agency.
 4. Transport items to storage area designated by the Town of Longmeadow Project Manager.
 5. Protect items from damage during transport and storage.
- C. Removed and Reinstalled Items:
1. Clean and repair items to functional condition adequate for intended reuse. Paint equipment to match new equipment.
 2. Pack or crate items after cleaning and repairing. Identify contents of containers.
 3. Protect items from damage during transport and storage.
 4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

- D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Designer, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.
- E. Items for Re-use and Preservation of Existing Surfaces to Remain:
 - 1. The Contractor shall inspect closely each item specifically designated to be relocated, re-used, or turned over to the Owner prior to its removal, and immediately report damages and defects to the Designer and Town of Longmeadow Project Manager. The Contractor shall be responsible for any subsequent damage to the same other than latent defects not readily apparent from close inspection, and shall bear responsibility for its repair or same replacement as directed by the Designer, to the satisfaction of the Town of Longmeadow Project Manager.
 - 2. Unless special surface preparation is specified under other Specification Sections, leave existing surfaces that are to remain in a condition suitable to receive new materials and/or finishes.

3.5 PROTECTION OF PUBLIC AND PROPERTY

- A. Provide all measures required by federal, state and municipal laws, regulations, and ordinances for the protection of surrounding property, the public, workmen, and Commonwealth's employees during all demolition and removal operations. Measures are to be taken, but not limited to installation of sidewalks, sheds, barricades, fences, warning lights and signs, trash chutes and temporary lighting.
- B. Protect all walks, roads, streets, curbs, pavements, trees and plantings, on and off premises, and bear all costs for correcting such damage as directed by the Designer, and to the satisfaction of the Town of Longmeadow Project Manager.
- C. Demolition shall be performed in such a manner that will insure the safety of adjacent property. Protect adjacent property from damage and protect persons occupying adjacent property from injuries which might occur from falling debris or other cause and so as not to cause interference with the use of other portions of the building, of adjacent buildings or the free access and safe passage to and from the same.
- D. Every precaution shall be taken to protect against movement or settlement of the building, of adjacent buildings, structures, sidewalks, roads, streets, curbs and pavements. Provide and place at the Contractor's own expense, all necessary bracing and shoring in connection with demolition and removal work.
- E. Remove portions of structures with care by using tools and methods that will not transfer heavy shocks to existing and adjacent building structures, both internal and external of the particular work area.
- F. Provide and maintain in proper condition, suitable fire resistive dust barriers around areas where interior demolition and removal work is in progress. Dust barriers shall prevent the dust migration to adjacent areas. Remove dust barriers upon completion of major demolition and removal in the particular work area.
- G. Protect unaltered portions of existing construction, including finishes, furnishings and equipment

- H. Provide secure weather protection where demolition has removed a portion of the exterior envelope.

3.6 DISCOVERY OF HAZARDOUS MATERIALS

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

3.7 CUTTING

- A. Perform all cutting of existing surfaces in a manner which will ensure a minimal difference between the cut area and new materials when patched. Use extreme care when cutting existing surfaces containing concealed utility lines which are indicated to remain and bear full responsibility for repairing or replacement of all such utilities that are accidentally damaged.
- B. Provide a flush saw cut edge where pavement, curb and concrete removals abut new construction work or existing surfaces to remain undisturbed.

3.8 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Comply with requirements of Section 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL and the following.
 - 1. Do not allow demolished materials to accumulate on-site.
 - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
 - 3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
- B. Burning: Do not burn demolished materials.

3.9 CLEANING

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

END OF SECTION

DIVISION 07 – THERMAL AND MOISTURE PROTECTION

SECTION 078416
THROUGH-PENETRATION FIRESTOP SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes through-penetration firestop systems for penetrations through the following fire-resistance-rated assemblies, including both empty openings and openings containing penetrating items:
 - 1. Floors.
 - 2. Walls and partitions.
 - 3. Construction enclosing compartmentalized areas.
- B. Related Sections include the following:
 - 1. Division 26 Sections providing cable and conduit penetrations.

1.3 PERFORMANCE REQUIREMENTS

- A. General: For the following constructions, provide through-penetration firestop systems that are produced and installed to resist spread of fire according to requirements indicated, resist passage of smoke and other gases, and maintain original fire-resistance rating of assembly penetrated.
 - 1. Fire-resistance-rated load-bearing walls, including partitions, with fire-protection-rated openings.
 - 2. Fire-resistance-rated non-load-bearing walls, including partitions, with fire-protection-rated openings.
 - 3. Fire-resistance-rated floor assemblies.
- B. For through-penetration firestop systems exposed to view, traffic, moisture, and physical damage, provide products that after curing do not deteriorate when exposed to these conditions both during and after construction.
 - 1. For floor penetrations with annular spaces exceeding 4 inches (100 mm) in width and exposed to possible loading and traffic, provide firestop systems capable of supporting floor loads involved either by installing floor plates or by other means.
 - 2. For penetrations involving insulated piping, provide through-penetration firestop systems not requiring removal of insulation.

- C. For through-penetration firestop systems exposed to view, provide products with flame-spread ratings of less than 25 and smoke-developed ratings of less than 450, as determined per ASTM E 84.

1.4 SUBMITTALS

- A. Product Data: For each type of through-penetration firestop system product indicated.
- B. Shop Drawings: For each through-penetration firestop system, show each kind of construction condition penetrated, relationships to adjoining construction, and kind of penetrating item. Include firestop design designation of testing and inspecting agency acceptable to authorities having jurisdiction that evidences compliance with requirements for each condition indicated.
 - 1. Submit documentation, including illustrations, from a qualified testing and inspecting agency that is applicable to each through-penetration firestop system configuration for construction and penetrating items.
 - 2. Where Project conditions require modification of qualified testing and inspecting agency's illustration to suit a particular through-penetration firestop condition, submit illustration, with modifications marked, approved by through-penetration firestop system manufacturer's fire-protection engineer.
 - 3. Provide UL Testing Certification Number for all Through-Penetration Firestops using UL 1479 (ASTM E814).

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: A licensed installer who is qualified by having the necessary certification, experience, staff, and training to install manufacturer's products per specified requirements. A manufacturer's willingness to sell its through-penetration firestop system products to Contractor or to an installer engaged by Contractor does not in itself confer qualification on buyer.
- B. Source Limitations: Obtain through-penetration firestop systems, for each kind of penetration and construction condition indicated, from a single manufacturer.
- C. Fire-Test-Response Characteristics: Provide through-penetration firestop systems that comply with the following requirements and those specified in "Performance Requirements" Article:
 - 1. Firestopping tests are performed by a qualified testing and inspecting agency. A qualified testing and inspecting agency is UL, ITS, or another agency performing testing and follow-up inspection services for firestop systems acceptable to authorities having jurisdiction.
 - 2. Through-penetration firestop systems are identical to those tested per ASTM E 814. Provide rated systems complying with the following requirements:
 - a. Through-penetration firestop system products bear classification marking of qualified testing and inspecting agency.
 - b. Through-penetration firestop systems correspond to those indicated by reference to through-penetration firestop system designations listed by the following:
 - 1) UL in "Fire Resistance Directory."

2) ITS in "Directory of Listed Products."

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver through-penetration firestop system products to Project site in original, unopened containers or packages with intact and legible manufacturers' labels identifying product and manufacturer; date of manufacture; lot number; shelf life, if applicable; qualified testing and inspecting agency's classification marking applicable to Project; curing time; and mixing instructions for multicomponent materials.
- B. Store and handle materials for through-penetration firestop systems to prevent their deterioration or damage due to moisture, temperature changes, contaminants, or other causes.

1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install through-penetration firestop systems when ambient or substrate temperatures are outside limits permitted by through-penetration firestop system manufacturers or when substrates are wet due to rain, frost, condensation, or other causes.
- B. Ventilate through-penetration firestop systems per manufacturer's written instructions by natural means or, where this is inadequate, forced-air circulation.

1.8 COORDINATION

- A. Coordinate construction of openings and penetrating items to ensure that through-penetration firestop systems are installed according to specified requirements.
- B. Coordinate sizing of sleeves, openings, core-drilled holes, or cut openings to accommodate through-penetration firestop systems.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work are the following:
 - 1. Firestop Systems Inc.
 - 2. Hilti Construction Chemicals, Inc.
 - 3. Nelson Firestop Products.
 - 4. Tremco.

2.2 FIRESTOPPING, GENERAL

- A. Compatibility: Provide through-penetration firestop systems that are compatible with one another, with the substrates forming openings, and with the items, if any, penetrating through-penetration firestop systems, under conditions of service and application, as

demonstrated by through-penetration firestop system manufacturer based on testing and field experience.

- B. Accessories: Provide components for each through-penetration firestop system that are needed to install fill materials and to comply with "Performance Requirements" Article. Use only components specified by through-penetration firestop system manufacturer and approved by the qualified testing and inspecting agency for firestop systems indicated. Accessories include, but are not limited to, the following items:
1. Permanent forming/damming/backing materials, including the following:
 - a. Slag-/rock-wool-fiber insulation.
 - b. Sealants used in combination with other forming/damming/backing materials to prevent leakage of fill materials in liquid state.
 - c. Fire-rated form board.
 2. Temporary forming materials.
 3. Substrate primers.
 4. Collars.
 5. Steel sleeves.

2.3 MIXING

- A. For those products requiring mixing before application, comply with through-penetration firestop system manufacturer's written instructions for accurate proportioning of materials, water (if required), type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other items or procedures needed to produce products of uniform quality with optimum performance characteristics for application indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for opening configurations, penetrating items, substrates, and other conditions affecting performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Surface Cleaning: Clean out openings immediately before installing through-penetration firestop systems to comply with written recommendations of firestop system manufacturer and the following requirements:
1. Remove from surfaces of opening substrates and from penetrating items foreign materials that could interfere with adhesion of through-penetration firestop systems.
 2. Clean opening substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with through-penetration firestop systems. Remove loose particles remaining from cleaning operation.
 3. Remove laitance and form-release agents from concrete.

- B. Priming: Prime substrates where recommended in writing by through-penetration firestop system manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.
- C. Masking Tape: Use masking tape to prevent through-penetration firestop systems from contacting adjoining surfaces that will remain exposed on completion of Work and that would otherwise be permanently stained or damaged by such contact or by cleaning methods used to remove smears from firestop system materials. Remove tape as soon as possible without disturbing firestop system's seal with substrates.

3.3 THROUGH-PENETRATION FIRESTOP SYSTEM INSTALLATION

- A. General: Install through-penetration firestop systems to comply with "Performance Requirements" Article and firestop system manufacturer's written installation instructions and published drawings for products and applications indicated.
- B. Install forming/damming/backing materials and other accessories of types required to support fill materials during their application and in the position needed to produce cross-sectional shapes and depths required to achieve fire ratings indicated.
 - 1. After installing fill materials, remove combustible forming materials and other accessories not indicated as permanent components of firestop systems.
- C. Install fill materials for firestop systems by proven techniques to produce the following results:
 - 1. Fill voids and cavities formed by openings, forming materials, accessories, and penetrating items as required to achieve fire-resistance ratings indicated.
 - 2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.
 - 3. For fill materials that will remain exposed after completing Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.
 - 4. Provide completion sticker at each assembly with the following information:
 - a. UL Assembly number
 - b. Certification number
 - c. Install date

3.4 CLEANING AND PROTECTION

- A. Clean off excess fill materials adjacent to openings as Work progresses by methods and with cleaning materials that are approved in writing by through-penetration firestop system manufacturers and that do not damage materials in which openings occur.
- B. Provide final protection and maintain conditions during and after installation that ensure through-penetration firestop systems are without damage or deterioration at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated through-penetration firestop systems immediately and install new materials to produce through-penetration firestop systems complying with specified requirements.

END OF SECTION

DIVISION 09 – FINISHES

**SECTION 099100
PAINTING AND COATING**

PART 1- GENERAL

1.1 GENERAL PROVISIONS

- A. The Conditions of the Contract and all sections of Division 01, Summary, shall be part of this section unless otherwise specifically excluded.
- B. Filed Sub-bids
 - 1. The work scope is within limits to not require independent Sub-bids for this trade, in accordance with the provisions of M.G.L. c.149 §§44A-J.
- C. The Work of this section is shown on Drawings:
 - 3. Electric Fire Alarm (EFA-Series) Drawings: EF0.00, EFD2.00, EFD2.01, EFD2.02, EFD2.10, EFD2.11, EFD2.20, EFD2.21, EF2.01, EF2.02, EF2.10, EF2.11, EF2.20, EF2.21, EF7.00, EF8.00
- D. Sub-Sub Listings
 - 1. Sub-sub trades are categories of work within a filed sub-bid trade and are indicated in paragraph E. on the Form for Sub-Bid. If sub-sub trades are requested and identified follow the instructions below. The proposed contract price submitted by the filed sub-bidder on the Form for Sub-Bid includes the cost of any sub-sub trades.
 - a. Sub-sub bids are required for the following subcategories of this section:

CLASSES OF WORK	REFERENCE PARAGRAPH
-----------------	---------------------

None.

- 2. Sub-bidders shall include the appropriate information for the above listed sub-categories in Paragraph E. of the Form for Sub-bid.
 - 3. If the filed sub-bidder customarily performs the above work with its own workforce the sub-bidder should list its own name and trade and leave the dollar amount blank.
 - 4. If the filed sub-bidder does not customarily perform the above work with its own workforce the sub-bidder should list the name of the contractor performing the work, the trade and insert the dollar amount.
- E. Sub-Sub Trades
 - 1. Sub-sub trades are not required.

1.2 DESCRIPTION OF WORK

- A. Work Included: Provide all labor, materials, and equipment necessary to complete the

work of this Section, including but not limited to the following:

1. Non-abrasive surface preparation, priming, and finish coats as specified in this Section.
2. Non-abrasive surface preparation, spot priming, and finish coats for all ceiling, beam, wall, and column surfaces, including patches, where existing ceilings, fire alarm devices & appliances, junction boxes, conduit, wiremold, and raceways are removed under the work of this project.
3. Surface preparation, priming, and finish coats on any and all new surface wireway that may be required for the installation of devices where noted on plans or utilized in field.
4. Purchase of paint colors from manufacturer to match existing Center School standards.

B. Items To Be Installed Only:

Ceiling Tiles to be replaced shall be provided by Town of Longmeadow.

C. Items To Be Furnished Only: None.

D. Related Work: The following items are not included in this Section and will be performed under the designated Sections:

1. Division 2 Section 024101 Selective Building Demolition for removal of existing ceilings, light fixtures, fire alarm devices, conduit, wiremold, and raceways attached to non-asbestos containing surfaces.

1.4 UNIT PRICES

- A. None.

1.5 ALTERNATES

- A. None.

1.6 SUBMITTALS

- A. Refer to Division 01 Section 013300 Submittal Requirements for administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other miscellaneous submittals.
- B. Product Data: Manufacturer's technical information, label analysis, and application instructions for each material proposed for use.
- C. Painting Schedule: List each material to be finished and cross-reference, by name, the submitted manufacturer's specific coating system - primer, finish, etc., preparation and application. Identify each coating material by the manufacturer's catalog number and general classification.
- D. Certification by the manufacturer that products supplied comply with local regulations controlling use of volatile organic compounds (VOCs).
- E. Samples for Verification: Colors used shall be to match existing colors. Obtain from the Town of Longmeadow Project Manager, the color used and provide for each color and

material to be applied. Samples shall be prepared at the building on each type of surface requiring paint and shall have texture to simulate adjacent substrate.

1. Provide a list of materials and applications for each coat of each sample. Label each sample for location and application.

F. Qualification Data: For firms and persons specified in the "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

1.7 DEFINITIONS

A. "Paint" includes coating systems materials, primers, and other applied materials whether used as prime, intermediate, or finish coats, including the 2 specified finish coats over paint manufacturer's recommended, highest quality, prime coat and paint manufacturer's recommended non-abrasive preparation of the surface to be painted.

B. Standard coating terms defined in ASTM D 16 apply to this Section.

1. Flat refers to a lusterless or matte finish with a gloss range below 15 when measured at an 85-degree meter.
2. Eggshell refers to low-sheen finish with a gloss range between 20 and 35 when measured at a 60-degree meter.
3. Semi-gloss refers to medium-sheen finish with a gloss range between 35 and 70 when measured at a 60-degree meter.
4. Full gloss refers to high-sheen finish with a gloss range more than 70 when measured at a 60-degree meter.

1.8 QUALITY ASSURANCE

A. Paint products shall be low odor, low or zero VOC coating with anti-microbial properties.

B. Applicator Qualifications: Engage an experienced applicator who has completed painting system applications similar in material and extent to that indicated for this Project with a record of successful in-service performance.

C. Source Limitations: Obtain primers and undercoat materials for each coating system from the same manufacturer as the finish coats.

D. After initial finish systems are completed and accepted, the Architect will use the room or surface to evaluate coating systems of a similar nature. Final approval of colors will be from job applied samples.

1.9 INSTALLER QUALIFICATION

A. Contractor: The Painting Contractor shall be a professional painter who has been in business for a minimum of five years installing paint systems similar to those specified.

1.10 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to the job site in the manufacturer's original, unopened packages and containers bearing manufacturer's name and label and the following information:
 - 1. Product name or title of material.
 - 2. Product description (generic classification or binder type).
 - 3. Manufacturer's stock number and date of manufacture.
 - 4. Contents by volume, for pigment and vehicle constituents.
 - 5. Thinning instructions.
 - 6. Application instructions.
 - 7. Color name and number.
 - 8. VOC content.
- B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F. Maintain containers used in storage in a clean condition, free of foreign materials and residue.
- C. Remove oily rags and waste daily.

1.11 PROJECT CONDITIONS

- A. Apply waterborne paints only when temperatures of surfaces to be painted and surrounding air are between 50 and 90 deg F.
- B. Apply solvent-thinned paints only when temperatures of surfaces to be painted and surrounding air are between 45 and 95 deg F.
- C. Do not apply paint when relative humidity exceeds 85 percent; or to damp or wet surfaces.

1.12 WARRANTY

- A. Contractor: The Contractor shall provide certification that he has provided the paint manufacturer's recommended application for the substrate and warrant the paint will not fail for a period of two (2) years from the date of Substantial Completion.
- B. Paint Manufacturer: Paint manufacturer shall warrant that his paint system will not fail for a period of two (2) years from the date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Specified paint manufacturer's products are based upon most recent product literature available and do not reflect product line changes made in the manufacturers' efforts to limit environmental factors or remove mercury from their product formulations. No paint materials used on this project shall contain mercury. If the products listed do contain mercury or have been dropped from the manufacturer's line because they contained mercury or for other environmental factors the manufacturer's equivalent grade or a better grade product, subject

to the approval of the Town of Longmeadow Project Manager, shall be substituted for the specified product.

- B. If the paint manufacturer's current specifications for paint systems do not agree with the specified best grade, surface preparation or primer for the specified finish coats provide the paint manufacturer's recommended surface preparation and highest quality primer.

2.2 PAINT MATERIALS, GENERAL

- A. Material Compatibility: Provide primers and undercoats compatible with finish-coat materials to be provided and the substrates indicated.
- B. Material Quality: Provide manufacturer's best-quality, highest performance paint material of the various coating types specified. Paint-material containers not displaying manufacturer's product identification will not be acceptable. If a surface material not specified is encountered provide the manufacturer's best-quality paint material for that substrate.
 - 1. Proprietary Names: Use of manufacturer's proprietary product names to designate colors or materials is not intended to imply that products named are required to be used to the exclusion of equivalent products of other manufacturers. Furnish manufacturer's material data and certificates of performance for proposed substitutions.
- C. Colors: As selected by the Town of Longmeadow Project Manager.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions under which painting will be performed for compliance with requirements for application of paint.
 - 1. Proceed with paint application only after unsatisfactory conditions have been corrected and surfaces receiving paint are thoroughly dry.
 - 2. Start of painting will be construed as Applicator's acceptance of surfaces and conditions within a particular area.
- B. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.
 - 1. Notify the Designer about anticipated problems using the materials specified over substrates primed by others.

3.2 PREPARATION

- A. General: Comply with manufacturer's written instructions and recommendations applicable to substrates indicated.

- B. Cleaning: Before applying paint or other surface treatments, clean substrates of substances that could impair bond of the various coatings. Remove oil and grease before cleaning.
 - 1. Comply with manufacturer's written instructions for cleaning each particular substrate condition and as specified.
 - 2. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.
 - 3. Remove all grease, oil, and stains with chemical remover.
 - 4. Wash all surfaces with mineral spirits.
 - 5. Rinse with clear water.
 - 6. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.

- C. Materials Preparations: Mix and prepare paint materials according to manufacturer's written instructions.
 - 1. Maintain containers used in mixing and applying paint in a clean condition, free of foreign materials and residue.
 - 2. Stir material before application to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into material. If necessary, remove surface film and strain material before using.
 - 3. Use only thinners approved by paint manufacturer and only within recommended limits.

3.3 APPLICATION

- A. Apply paint in accordance with manufacturer's directions. Use applicators and techniques best suited for substrate and type of material being applied.

- B. Paint colors, surface treatments, and finishes are indicated in the paint schedules.
 - 1. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.
 - 2. Provide primer coats that are compatible with finish paint to be provided.
 - 3. The term "exposed surfaces" includes areas visible when permanent ceilings, wiremold, fire alarm devices, and lighting fixtures and similar components are in place. Extend coatings in these areas, as required, to maintain system integrity and provide desired protection.
 - 4. Before final installation of equipment, paint surfaces behind permanently fixed ceiling, lighting, and fire alarm components with prime coat only.

- C. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
 - 1. The number of coats and film thickness required are the same regardless of application method. Do not apply succeeding coats until previous coat has cured as recommended

- by manufacturer. If sanding is required to produce a smooth, even surface according to manufacturer's written instructions, sand between applications.
2. If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance. Give special attention to ensure that edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
 3. Allow sufficient time between successive coats to permit proper drying. Do not re-coat surfaces until paint has dried to where it feels firm, and does not deform or feel sticky under moderate thumb pressure, and until application of another coat of paint does not cause undercoat to lift or lose adhesion.
- D. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.
1. Brushes: Use brushes best suited for type of material applied. Use brush of appropriate size for surface or item being painted.
 2. Rollers: Use rollers of carpet, velvet-back, or high-pile sheep's wool as recommended by manufacturer for material and texture required.
 3. Spray Equipment: Use airless spray equipment with orifice size as recommended by manufacturer for material and texture required.
- E. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate to achieve dry film thickness indicated. Provide total dry film thickness of the entire system as recommended by manufacturer.
- F. Prime Coats: Before applying finish coats, apply a prime coat as recommended by manufacturer.
1. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas appear to ensure a finish coat with no burn-through or other defects due to insufficient sealing.
- G. Pigmented (Opaque) Finishes: Completely cover surfaces as necessary to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.
- H. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not complying with requirements.
- I. Apply additional coats when undercoats or other conditions show through final coat of paint until paint film is of uniform finish, color, and appearance.
- J. Prime Coats: Before application of finish coats apply a prime coat of material as recommended by the manufacturer to material that is required to be painted.
- K. Completed Work: Remove, refinish, or repaint work not in compliance with specified requirements.

3.4 FIELD QUALITY CONTROL

- A. Owner reserves the right to invoke the following test procedure at any time and as often as Owner deems necessary during the period when paint is being applied.
 - 1. The Owner may engage the services of an independent testing agency to sample the paint material being used. Samples of material delivered to the Project will be taken, identified, sealed, and certified in the presence of the Contractor.
 - 2. The testing agency will perform appropriate tests for the following characteristics as required by the Owner.

3.5 CLEANING

- A. Cleanup: At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from Project site.
 - 1. After completing painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping without scratching or damaging adjacent finished surfaces.

3.6 PROTECTION

- A. Protect work of other trades against damage by painting. Correct damage by cleaning, repairing or replacing, and repainting, as acceptable to Designer.
- B. Provide "Wet Paint" signs to protect newly painted finishes. Remove temporary protective wrappings provided by others to protect their work after completing painting operations.
- C. At completion of construction activities of other trades, touch up and restore painted surfaces damaged or defaced by construction activity.

3.7 INTERIOR PAINT SCHEDULE

- A. Number of coats scheduled is minimum required to provide adequate coverage.
 - 1. Interior Walls and Ceilings (including beams and columns):

Spot Prime	Benjamin Moore Super Spec Masonry Interior/Exterior 100% Acrylic
Product	Primer paint material furnished by Painter
Two Finish Coats	TBD
Product	TBD
 - 2. Wiremold:

Prime	Benjamin Moore Super Spec HP Acrylic Metal Primer (P04)
Product	Primer paint material furnished by Painter

Two Finish Coats	TBD
Product	TBD

END OF SECTION 099100

DIVISION 26 – ELECTRICAL

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SECTION 26 00 00

ELECTRICAL

PART 1 - GENERAL

1.0 GENERAL PROVISIONS

- A. The GENERAL REQUIREMENTS, DIVISION 1, and BIDDING AND CONTRACT REQUIREMENTS, DIVISION 0, are hereby made a part of this Specification Section.
- B. Examine all drawings and all sections of the specifications and requirements and provisions affecting the work of this section.
- C. The work listed in the following sections shall be made part of this Specification Section:

26 30 11 Fire Alarm with Voice Evacuation

1.1 SCOPE OF WORK

- A. This project includes the installation of a new fire alarm system in the existing 3 story 83,400 SF Center School, in Longmeadow MA. of existing office space into 1st Class offices. Selective demolition of existing systems shall be required.

The existing fire alarm system shall remain active until the new system has been tested and preliminary approved. The existing to remain, ancillary fire alarm components, listed in the construction documents, shall be relocated to the new system. Upon final testing and approval of the new system, the existing fire alarm system, devices, and conductor shall be removed. Upon removal, all surfaces shall be patched and panted, and ceiling tiles shall be replaced, to restore conditions.

- B. Refer to the specific requirements for this project included in the "Narrative Report for Compliance with the Fire Protection and Life Safety Systems Section of the Massachusetts State Building Code (780CMR) – Fire Protection Construction Documents", which shall be considered part of these specifications. Include all associated testing and certifications necessary for compliance and any required remedial actions and retest due to failure.

- C. The work under this section shall include the furnishing of all materials, labor, equipment and supplies and the performance of all operations to provide complete working systems, in general, to include the following items:

- 1. Identification
- 2. Raceways and Conduit
- 3. Wire and Cable (600V)
- 4. Wiring Devices and Plates
- 5. Outlet Boxes
- 6. Junction Boxes, Pull Boxes and Wireways
- 7. Sleeving
- 8. Fire Seal and Fireproof Sealant
- 9. Supervision and Approval

10. Electrical Connections Kitchen Equipment, and other Equipment provided under other sections or by Owner.
 11. Relocation of existing electrical components that interfere with new construction and removal and disposal of obsolete components.
 12. Testing
 13. Operating and maintenance instructions and manuals
 14. Shop drawings
 15. Record (as-built) drawings
- D. Electrical Work of this section is generally shown on the Fire Alarm Drawings.

1.2 RELATED WORK

- A. Principal classes of Work related to the Work of this section are listed in the Specification Table of Contents, and are specified to be performed under the indicated sections of the specifications. Refer to the indicated sections for description of the extent and nature of the indicated Work, and for coordination with related trades. This listing may not include all related Work items. It is the responsibility of the Contractor to coordinate and schedule the Work of this section with that of all other trades.
- B. The following work is not included in this section and will be provided under other sections:
1. Temporary sanitary facilities for use during construction and testing. Refer to Division 1, General Conditions.
 2. Telephone system, wire, cable, equipment and instruments.
 3. Painting and patching, except as specified herein.

1.3 DEFINITIONS

- A. As used in this section, the following items are understood to have the following meaning:
1. "*Contractor or Subcontractor* ", unless otherwise qualified, shall mean the installer of the work specified under this section.
 2. "*Furnish*" shall mean purchase and deliver to the project site, complete with every necessary appurtenance.
 3. "*Install*" shall mean unload at the delivery point at the site and perform all work necessary to establish secure mounting and proper operation at the proper location in the project.
 4. "*Provide*" shall mean "Furnish" and "Install".
 5. "*Work*" shall mean all labor, materials, equipment, apparatus, controls, accessories and all other items required for a proper and complete installation.
 6. "*Concealed*" shall mean hidden from sight in chases, furred-in spaces, shafts, hung ceilings, embedded in construction or in a crawl space. Areas to be concealed as part of tenant alterations to the building shall also be considered in this definition.
 7. "*Exposed*" shall mean not installed underground or concealed as defined above.
 8. "*Furnished by Others*" shall mean materials or equipment purchased under other sections of the general contract and installed by this section of the specifications by this trade Contractor.
 9. "*Owners Representative*" shall be the party responsible to make decisions regarding all contractual obligations in reference to the Scope of Work for the Owner.

10. *"Date of Substantial Completion"* shall indicate the date where the work has been formally accepted as evidenced by completed final punchlist or where the work has reached the stage that the Owner obtains beneficial use and commences utilization of the installed systems for business or occupancy purposes. The GENERAL REQUIREMENTS, DIVISION 1, shall supersede this definition where specifically defined.

1.4 CODES, REFERENCES AND PERMITS

- A. Materials, installation of systems and equipment provided under this section shall be done in strict accordance with the Department of Public Safety, Department of Environmental Protection, State Building Code and any other Codes and Regulations having jurisdiction including but not limited to:
 1. All Applicable NFPA Standards
 2. National Electrical Code (NEC).
 3. Occupational Safety and Health Administration (OSHA)
 4. State and Local Building Codes
 5. Underwriters' Laboratories, Inc (UL)
- B. Unless otherwise specified or indicated, materials, workmanship and equipment performance shall conform with the latest governing edition of the following standards, codes, specifications, requirements, and regulations, except when more rigid requirements are specified or are required by applicable codes but not limited to:
 1. American National Standards Institute (ANSI)
 2. American Society of Mechanical Engineers (ASME).
 3. American Society of Testing and Materials (ASTM)
 4. Illuminating Engineering Society (IES)
 5. Institute of Electrical and Electronics Engineers (IEEE)
 6. Insulated Cable Engineers Association (ICEA)
 7. National Electrical Contractors Association (NECA)
 8. National Electric Manufacturers Association (NEMA)
 9. Thermal Insulation Manufacturers Association (TIMA)
- C. Codes, laws and standards provide a basis for the minimum installation criteria acceptable. The drawings and specifications illustrate the scope required for this project, which may exceed minimum codes, laws and standards.
- D. Give all notices, file all plans, obtain all permits and licenses, and obtain all necessary approvals from authorities having jurisdiction. Deliver all certificates of inspection to the authorities having jurisdiction. No work shall be covered before examination and approval by the Owner's Representative, inspectors, and authorities having jurisdiction. Replace imperfect or condemned work to conform to requirements, satisfactory to Owner's Representative, and without extra cost to the Owner. If work is covered before inspection and approval, this Contractor shall pay costs of uncovering and reinstalling the covering, whether it meets contract requirements or not.

1.5 GENERAL REQUIREMENTS

- A. Nameplates

1. Each major component of equipment shall have the manufacturer's name, address, type or style, model or serial number, and catalog number on a plate secured to the equipment.

B. Equipment Guards

1. Belts, pulleys, chains, gears, couplings, projecting setscrews, keys, and other rotating parts so located that any person may come in close proximity thereto shall be completely enclosed or guarded. High-temperature equipment and piping so located as to endanger personnel or create a fire hazard shall be guarded or covered with insulation of type specified for service.

1.6 MATERIAL AND EQUIPMENT STANDARDS

- A. Where equipment or materials are specified with the name of a manufacturer, such specification shall be deemed to be used for the purpose of establishing a standard for that particular item. No equipment or material shall be used unless previously approved by the Owner's Representative.
- B. Substitutions may be offered for review provided the material, equipment or process offered for consideration is equal in every respect to that indicated or specified. The request for each substitution must be accompanied by complete specifications together with drawings or samples to properly appraise the materials, equipment or process. The Contractor shall highlight and list all applicable specification requirements which the substituted material deviates from.
- C. If a substitution of materials or equipment in whole or in part is made, this Contractor shall bear the cost of any changes necessitated by any other trade as a result of said substitution.
- D. All materials, equipment and accessories provided under this section shall be new and unused products of recognized manufacturers as approved.

1.7 SUBMITTALS

- A. Conform to the requirements of Division 1, General Conditions, for schedule and form of all submittals unless specifically noted otherwise in this section. Coordinate this submittal with submittals for all other finishes. Shop drawings and design layouts shall be prepared by licensed installing Contractor s and shall note the name(s), license number(s) and license expiration date(s) of the Contractor (s) installing electrical systems.
- B. Definitions:
 1. Shop Drawings are information prepared by the Contractor to illustrate portions of the work in more detail than indicated in the Contract Documents.
 2. Acceptable Manufacturers: The mechanical design for each product is based on the single manufacturer listed in the schedule or shown on the drawings. In Part 2 of the specifications, certain Alternate Manufacturers are listed as being acceptable. In addition, the MATERIAL AND EQUIPMENT STANDARDS paragraph potentially allows for substitutions as being acceptable. These are acceptable only if, as a minimum, they:
 - a. Meet all performance criteria listed in the schedules and outlined in the specifications.

- b. Fit within the available space it was designed for, including space for maintenance and component removal, with no modification to either the space or the product. Clearances to walls, ceilings, and other equipment will be at least equal to those shown on the design drawings. The fact that a manufacturer's name appears as acceptable shall not be taken to mean the Engineer has determined that the manufacturer's products will fit within the available space – this determination is solely the responsibility of the Contractor.
 - c. Products must adhere to all architectural considerations including, but not limited to; being of the same color as the product scheduled or specified, fitting within the architectural enclosures and details, and for lighting – being the same size and of the same physical appearance as scheduled or specified products.
- C. Submittal Procedures, Format and Requirements
- 1. Review submittal packages for compliance with Contract Documents and then submit to Owner's Representative for review. Submit enough sets of shop drawings such that, after review, two (2) sets will be kept by the reviewer, with only the remaining sets returned with reviewer's marks and comments.
 - 2. Each Shop Drawing shall indicate in title block, and each Product Data package shall indicate on cover sheet, the following information:
 - a. Title
 - b. Equipment number
 - c. Name and location of project
 - d. Names of Owner, Engineer and Seller
 - e. Names of manufacturers, suppliers, vendors, etc.
 - f. Date of submittal
 - g. Whether original submittal or resubmitted
 - 3. Shop Drawings showing manufacturer's product data shall contain detailed dimensional drawings (minimum ¼ inch – 1 foot scale) including plans and sections (where physical clearance could be an issue). Provide larger scale details as necessary.
 - 4. Submit accurate and complete description of materials of construction, manufacturer's published performance characteristics, sizes, weights, capacity ratings (performance data, alone, is not acceptable), electrical requirements, starting characteristics, wiring diagrams, and acoustical performance for complete assemblies. Drawings shall clearly indicate location (terminal block or wire number), voltage and function for all field terminations, and other information necessary to demonstrate compliance with all requirements of Contract Documents.
 - 5. Provide complete data for all auxiliary services and utilities required by submitted equipment. This shall include fuel, cooling and exhaust requirements and points of connections.
 - 6. Provide a complete description of all controls and instrumentation required including electrical power connection drawing for all components and interconnection wiring to starters, detailed information on starters, control diagrams, termination diagrams, and all control interfaces with a central control system.
 - 7. Provide installation and erection information including; lifting requirements, and any special rigging or installation requirements for all equipment.
 - 8. The Owner's Representative shall approve all materials before commitment for materials is made.

- D. Specifications and Schedule Compliance Statement
1. The manufacturer shall submit a point by point statement of compliance with each specification criteria listed in each paragraph for those submittals listed in Paragraph E: Product Data that are noted with an asterisk (*).
 2. The statement of compliance shall consist of a list of all paragraphs (line by line) identified in Part 2 and applicable Part 3 of the specification for which the submitted product in the opinion of the manufacturer complies, deviates, or does not meet.
 3. Where the proposed submittal complies fully, the word “comply” shall be placed opposite the paragraph number.
 4. Where the proposed submittal does not comply, or accomplishes the stated function in a manner different from that described, a full description of the deviation shall be provided.
 5. Verify each field of the associated schedule where associated technical data is presented on the drawings. Where the submitted material does not “comply” provide the value the submitted equipment will achieve based upon the specified conditions.
 6. Where a full description of a deviation is not provided, it shall be assumed that the proposed system does not comply with the paragraph in question and the product will be rejected.
 7. Submissions which do not include a point by point statement of compliance as specified shall be disapproved.
- E. Product Data: Submit complete manufacturer’s product description and technical information including:
1. Identification
 2. Raceways and Conduit
 3. Wire and Cable (600V)
 4. Wiring Devices and Plates
 5. Outlet Boxes
 6. Junction Boxes, Pull Boxes and Wireways
 7. Circuit breakers
 8. Fire Seal and Fireproof Sealant
 9. Seismic Restraints
 10. Identification, labels and tags.
- F. Submit shop drawings and product data grouped to include complete submittals of related systems, products and accessories in a single submittal.
- G. Deviations:
1. Concerning deviations other than substitutions, proposed deviations from Contract Documents shall be requested individually in writing whether deviations result from field conditions, standard shop practice, or other cause. Submit letter with transmittal of Shop Drawings which flags the deviation to the attention of the Owner’s Representative.
 2. Without letters flagging the deviation to the Owner’s Representative, it is possible that the Engineer may not notice such deviation or may not realize its ramifications. Therefore, if such letters are not submitted to the Owner’s Representative, the Seller shall hold the Engineers, his consultants and the Owner harmless for any and all adverse consequences resulting from the deviations being implemented. This shall apply regardless of whether the Engineer has reviewed or approved shop drawings containing the deviation, and will be strictly enforced.

3. Approval of proposed deviations, if any, will be made at discretion of Engineer.
- H. Schedule: Incorporate shop drawing review period into construction schedule so that Work is not delayed. This Contractor shall assume full responsibility for delays caused by not incorporating the following shop drawing review time requirements into his project schedule. Allow at least ten (10) working days, exclusive of transmittal time, for review each time shop drawing is submitted or resubmitted.
- I. Responsibility
 1. Intent of Submittal review is to check for capacity, rating, and certain construction features. The Contractor shall ensure that work meets requirements of Contract Documents regarding information that pertains to fabrication processes or means, methods, techniques, sequences and procedures of construction; and for coordination of work of this and other sections. Work shall comply with approved submittals to extent that they agree with Contract Documents. Submittal review shall not diminish responsibility under this Contract for dimensional coordination, quantities, installation, wiring, supports and access for service, nor the shop drawing errors or deviations from requirements of Contract Documents. The Engineer's noting of some errors while overlooking others will not excuse the Contractor from proceeding in error. Contract Documents requirements are not limited, waived nor superseded in any way by review.
 2. Inform Contractor, manufacturers, suppliers, etc. of scope and limited nature of review process and enforce compliance with contract documents.
- J. In the event that the Contractor fails to provide Shop Drawings for any of the products specified herein:
 1. The Contractor shall furnish and install all materials and equipment herein specified in complete accordance with these specifications.
 2. If the Contractor furnishes and installs material and/or equipment that is not in complete accordance with these specifications, he shall be responsible for the removal of this material and/or equipment. He shall also be responsible for the replacement of this material and/or equipment with material and/or equipment that is in complete accordance with these specifications, at the direction of the Owner's Representative.
 3. Removal and replacement of materials and/or equipment that is not in complete compliance with these specifications shall be done at no extra cost to the Owner.
 4. Removal and replacement of materials and/or equipment that is not in complete compliance with these specifications shall not be allowed as a basis for a claim of delay of completion of the Work.
- K. Mark dimensions and values in units to match those specified.
- L. Submit Material Safety Data Sheets (MSD) on each applicable product with submittal.

1.8 OPERATION AND MAINTENANCE DATA

- A. Commence preparation of the Operating and Maintenance (O&M) manuals immediately upon receipt of "Approved" or "Approved as Noted" shop drawings. The final submission shall be no later than two (1) month prior to the projected date of Substantial Completion of the Project.
- B. Each O&M document shall include the manufacturer's web address for equipment specific O&M information for Internet access by the Owner.

- C. The manual shall consist of three (2) sets of manuals and include three (2) sets of CDs, which shall contain the scanned content of the entire manual. The manual shall highlight the actual equipment used and not be a master catalog of all similar products of the manufacturer. The manual shall be submitted for review prior to creation of the CDs.
- D. The Manual shall contain the following:
 - 1. Operations Manual
 - a. Systems description including all relevant information needed for day-to-day operations and management including start-up and shut-down instructions.
 - b. Wiring diagrams, schematics, logic diagrams and sequence of operations that accurately depict the controls system.
 - c. Depiction of each interface screen where programmable logic and visual displays are provided. Descriptors shall be provided to define displayed data, alarms, etc.
 - d. A single sheet (for ease of removal) of all access codes and passwords necessary to access all levels of control and programming.
 - e. Trouble shooting guide defining common alarms/problems with possible cause and effect.
 - 2. Maintenance Manual
 - a. Define all maintenance activities required to ensure system operation within manufacturers specified parameters. Provide table of all required activities plotted vs. interval with adequate fill-in-space for "activity completion date" and "comments". Where multiple instrument readings are required, provide data sheet formatted to accommodate activity.
 - b. Define recommended spare parts inventory with part numbers and source defined for ordering by the Owner. Identify lead time on all parts, source location and cost.
 - c. Provide copy of all warranty information with associated date of substantial completion (commencement of warranty) and end date of coverage. Define all components/subsystems specifically included and excluded.
 - 3. Provide O&M manuals for each of the following:
 - a. Fire Alarm System

1.9 COORDINATION

- A. Refer to Division 1, General Conditions, for coordination requirements applicable to this section, unless specifically noted otherwise in this section.
- B. Materials and apparatus shall be installed as fast as conditions of the building will permit and must be installed promptly when and as required.
- C. Make reasonable modifications in the work as required by structural interferences, or by interference with existing conditions, or for proper execution of the work without extra charge.

1.10 RECORD DRAWINGS

- A. Refer to DIVISION 1, General Conditions, for record drawings and procedures to be provided under this section, unless specifically noted otherwise in this section.
- B. Record Drawings (red-line drawings) will be updated by this Contractor daily for review with the monthly requisition. The record drawing shall be an accurate depiction of the systems as completed, including dimensions (vertical/horizontal) of concealed components off fixed building elements.
- C. The Electrical Foreman shall maintain complete and separate set of prints of Contract Drawings at job site at all times and shall record work completed and all changes from original Contract Drawings clearly and accurately including work installed as a modification or addition to the original design.
- D. At completion of work the Electrical Contractor shall prepare a complete set of record drawings on AutoCAD showing all systems as actually installed. The Architectural background AutoCAD files will be made available for the Contractor's copying, at his expense, to serve as backgrounds for the drawings. The Electrical Contractor shall transfer changes from field drawings onto AutoCAD drawings and submit copy of files and three sets of prints to Owner's Representative for comments as to compliance with this section. CADD layering as established by the A&E design team shall be maintained with any and all changes done by the Contractor.
- E. The Architect and Engineer are not granting to the Contractor any ownership or property interest in the CADD Drawings by the delivery of the CADD Disks to the Contractor. The Contractor's rights to use the CADD disks and the CADD Drawings are limited to use for the sole purpose of assisting in the Contractor's performance of its contractual obligations under its contract with respect to the Project. The Architect and Engineer are granting no further rights. Any reuse or other use by the Contractor will be at the Contractor's sole risk and without liability to the Architect and Engineer. The Contractor hereby waives and releases any losses, claims, damages, liabilities of any nature whatsoever, and costs (including attorney fees) arising out of, resulting from, or otherwise related to the use of the CADD Disks and CADD Drawings by the Contractor. The Contractor, to the maximum extent permitted by law, hereby agrees to indemnify, defend and hold the Architect and Engineer harmless from all loses, claims, damages, liabilities, and costs (including attorney fees) arising out of, resulting from, or otherwise related to the use of the CADD Disks and CADD Drawings by the Contractor.
- F. Record Drawings, shall show "as-built" condition of details, sections, riser diagrams, control changes and corrections to schedules. Schedules shall show actual manufacturer and model numbers of final equipment installation.
- G. The Electrical Contractor shall submit the record set for approval by the engineer a minimum of four (4) weeks prior to seeking the permanent certificate of occupancy.

1.11 WARRANTIES

- A. Submit manufacturer's standard replacement warranties for material and equipment furnished under this section. Such warranties shall be in addition to and not in lieu of all liabilities which the manufacturer and the Electrical Contractor may have by law or by provisions of the Contract Documents.
- B. All materials, equipment and work furnished under this section shall be guaranteed against all defects in materials and workmanship for a minimum period of one-year (1) commencing with the Date of Substantial Completion. Where individual equipment

sections specify longer warranties, provide the longer warranty. Any failure due to defective material, equipment or workmanship which may develop, shall be corrected at no expense to the Owner including all damage to areas, materials and other systems resulting from such failures.

- C. Guarantee that all elements of each system meet the specified performance requirements as set forth herein or as indicated on the drawings.
- D. Upon receipt of notice from the Owner of the failure of any part of the systems during the warranty period, the affected parts shall be replaced. Any equipment requiring excessive service shall be considered defective and shall be replaced.

1.12 INTERPRETATION OF DRAWINGS AND SPECIFICATIONS

- A. It is the intention of the specifications and drawings to call for complete, finished work, tested and ready for continuous operation. Any apparatus, appliance, material or work not shown on the drawings, but mentioned in the specifications or vice-versa, or any incidental accessories necessary to make the work complete in all respects and ready for operation, even if not particularly specified, shall be provided by this Contractor without additional expense to the Owner.
- B. The drawings are generally diagrammatic. The locations of all items that are not definitely fixed by dimensions are approximate only. The exact locations must be determined at the project and deviations shall have the approval of the Owner's Project Manager before being installed. This Contractor shall follow drawings, including his shop drawings, in laying out work and shall check the drawings of other trades to verify spaces in which work will be installed. Maintain maximum headroom and space conditions. Where space conditions appear inadequate, notify the Owner's Representative before proceeding with the installation. This Contractor shall, without extra charge, make reasonable modifications in the layout as needed to prevent conflict with work of other trades or for proper execution of the work.
- C. Any requests for information (RFI) for resolving an apparent conflict or unclarity, or a request for additional detail, shall include a sketch or equivalent description of Contractor's proposed solution.

1.13 INSPECTION OF SITE CONDITIONS

- A. Prior to submission of bid, visit the site and review the related construction documents to determine the conditions under which the Work has to be performed and send a report, in writing, to the Owner's Representative, noting any conditions which might adversely affect the Work of this section of the specifications.

1.14 SURVEY AND MEASUREMENTS

- A. Base all required measurements, horizontal and vertical, from referenced points established WITH the Owner's Representative. The Electrical Contractor shall be responsible for correctly laying out the Work required under this section of the specifications.

- B. In the event of discrepancy between actual measurements and those indicated, notify the Owner's Representative in writing and do not proceed with the related work until instructions have been issued.

1.15 DELIVERY, STORAGE AND HANDLING

- A. No materials shall be delivered or stored on site until corresponding Shop Drawings have been approved.
- B. All manufactured materials shall be delivered to the site in original packages or containers bearing the manufacturer's labels and product identification.
- C. Protect materials against dampness. Store off floors, under cover and adequately protected from damage.
- D. Inspect all equipment and materials, upon receipt at the job site, for damage and conformance to approved shop drawings.

1.16 PROTECTION OF WORK AND PROPERTY

- A. This Contractor shall be responsible for the care and protection of all work included under this section until the completion and final acceptance of this Contract.
- B. Protect all equipment and materials from damage from all causes including, but not limited to, fire, vandalism and theft. All materials and equipment damaged or stolen shall be repaired or replaced with equal material or equipment at no additional cost to the Owner.
- C. Damaged materials are to be removed from the site; no site storage of damaged materials will be allowed.

1.17 SUPERVISION

- A. Supply the service of a competent Supervisor with a minimum of five (5) years of experience in Electrical construction supervision who shall be in charge of the Electrical work at the site.

1.18 SAFETY PRECAUTIONS

- A. Life safety and accident prevention shall be a primary consideration. Comply with all of the safety requirements of the Owner and OSHA throughout the entire construction period of the project.
- B. Furnish, place and maintain proper guards and any other necessary construction required to secure safety of life and/or property.

1.19 SCHEDULE

- A. Construct work in sequence under provisions of Division 1 and as coordinated with the Owner's Representative.

1.20 CUTTING AND PATCHING

- A. Include all coring, cutting, patching, and fireproofing necessary for the execution of the work of this section. Structural elements shall not be cut without written approval of the Architect. This Contractor shall be responsible for taking all precautions required to identify hidden piping, conduits, etc. Provide fire stopping to maintain the fire rating of the fire resistance-rated assembly. All penetrations and associated fire stopping shall be installed in accordance with the fire stopping manufacturer's listed installation details and be listed by UL or FM.
- B. All work shall be fully coordinated with all phases of construction, in order to minimize the requirements for cutting and patching.
- C. Form all chases or openings for the installation of the work of this section of the specifications, or cut the same in existing work and see that all sleeves or forms are in the work and properly set in ample time to prevent delays. Confine the cutting to the smallest extent possible consistent with the work to be done. In no case shall piers or structural members be cut without the approval of the Owner's Representative.
- D. Fit around, close up, repair, patch, and point around the work specified herein to match the existing adjacent surfaces and to the satisfaction of the Owner's Representative.
- E. Fill and patch all openings or holes left in the existing structures by the removal of existing equipment, devices, boxes, or wiring which is part of this section of the specifications.
- F. All of this work shall be carefully done by workmen qualified to do such work and with the proper and smallest tools applicable.
- G. Any cost caused by defective or ill-timed work required by this section of the specifications shall be borne by this Contractor.
- H. When, in order to accommodate the work required under this section of the specifications, finished materials of other trades must be cut or fitted, furnish the necessary drawings and information to the trades whose materials must be cut or fitted.

1.21 SLEEVES, INSERTS AND ANCHOR BOLTS

- A. All pipes passing through floors, walls, ceilings or partitions shall be provided with fire stopping to maintain the fire rating of the structure. All penetrations and associated fire stopping shall be installed in accordance with the fire stopping manufacturer's listed installation details. Provide sleeves for all penetrations where required by the listed detail, for the penetration of all mechanical room floors and where specifically required on the drawings.
- B. Field drilling (core drilling), when required, shall be performed under this section of the specifications, after receipt of approval by the Owner's Representative.

1. When coring cannot be avoided, provide ¼ inch pilot hole prior to coring. When coring through floor or slab, verify location of core on floor below and protect and piping, ductwork, wiring, furniture, personnel, etc., below the location of the core.

1.22 ACCESSIBILITY

- A. All work provided under this section of the specification shall be installed so that parts requiring periodic inspection, maintenance and repair are accessible. Work of this trade shall not infringe upon clearances required by equipment of other trades, especially code required clearances to electrical gear. Minor deviations from the drawings may be made to accomplish this, but changes of substantial magnitude shall not be made prior to written approval from the Owner's Representative.

1.23 PROJECT CLOSEOUT

A. Certificates Of Approval

1. Upon completion of all work, provide certificates of inspections from the following equipment manufacturers stating that the authorized factory representatives have inspected and tested the operation of their respective equipment and found the equipment to be in satisfactory operating condition and installed per the manufacturers installation instructions and requirements.
 - a. Fire Alarm System

B. Construction Observations By The Engineer

1. The engineer shall make progress site visits during construction and one (1) substantial completion (punch list) site visit for determining substantial completion.
2. The Trade Contractors and the General Contractor are required to inspect their own work and make any corrections to the work to comply with the specifications and the contract documents. It is not the responsibility of the engineer to develop lists of incomplete work items.
3. Progress Site Visits
 - a. The purpose of the progress site visit by the engineer is to observe if the work is proceeding in accordance with the contract documents.
 - b. The engineer will prepare a field report which will note in general the work completed since the last observation visit, work found not to be in accordance with the contract documents and work not corrected since the previous observation visit.

C. Substantial Completion

1. When the Contractor considers the Work under this section is substantially complete, the Contractor shall submit written notice, with a detailed list of items remaining to be completed or corrected and a schedule of when each remaining work item will be completed. Should the engineer determine the list of remaining work does not constitute substantial completion the engineer will notify the Architect and/or Owner and he will not make a substantial completion site visit.
2. The following items shall be completed prior to the written request for substantial completion site visit:
 - a. Certification of successful operation of all systems.
 - b. Training of the Owner's personnel in the operation of the systems.

- c. Record Drawings in accordance with the contract specifications.
 - d. Operation and Maintenance manuals.
 - e. Testing reports.
 - f. Manufacturer's certificates of approvals.
 - g. Emergency contact list for reporting of malfunctioning equipment during the warranty period.
 - h. Contractors Project Completion certificate.
3. Should the Engineer, during the substantial completion visit, observe that the Work is substantially complete, s/he will provide a written listing of the observed deficiencies referred herein as the Punch List. The Punchlist will provide for a place for the Contractor to sign off and date each item individually indicating that the observed deficiency item has been corrected.
 4. Should the Engineer, during the substantial completion site visit, observe that the Work is not substantially complete, he will provide, a written list of the major deficiencies and a reason for the work not being considered substantially complete.
 5. If the work is found not to be substantially complete then the engineer shall be reimbursed for his time to reobserve the work. A reobservation fee shall be charged to the Contractor through the contractual agreement for any further observations by the engineer.
 6. The Contractor shall remedy all deficiencies listed in the punchlist within the time frame required by the contract.
- D. Engineer's Construction Completion Certification
1. Where required by the applicable code, the Engineer's Construction Completion Certification will be issued by NV5 when all life safety and health related issues are complete, all required functional tests are complete and all reports are complete. The following is a minimum listing of the required systems to be tested with reports generated indicating they are complete and ready for use:
 - a. Fire Alarm System
 2. There shall be NO outstanding items identified on the punchlist for scope within any of these categories.
- E. Final Completion
1. The following items shall be submitted prior to the written request for Final completion:
 - a. Revised Substantial Completion items to be resubmitted in accordance with the review process comments.
 - b. Warranties commencing the date of Substantial completion
 - c. Individual Signed and dated Punchlist acknowledging completion of all punchlist items
 2. When the Contractor considers all of the punchlist work items complete, the Contractor shall submit written notice to the towns project manager, all Punchlist items are complete and resolved and the work is ready for final observation site visit. The signature lines for completion of each punchlist item shall be signed by the Contractor indicating the work is complete and signed by the General Contractor indicating s/he has inspected the work and found it to be complete. Should the Engineer find the work to be finally complete and all Punchlist items are complete the Engineer will make a recommendation to the Architect or Owner. If the Engineer has found the punchlist work to be incomplete during final

inspection a written listing of the observed deficiencies will be prepared by the Engineer.

3. If the work is not fully complete then the engineer shall be reimbursed for his time to reobserve the work. A reobservation fee shall be charged to the Contractor through the contractual agreement for any reobservations by the Engineer.

F. Re-observation Fees

1. The re-observation fee shall be \$1200.00 per visit.

G. Contractor's Project Completion Certificate

1. Upon completion of work and prior to request for Certificate of Occupancy Contractor shall issue a certificate stating that work has been installed generally consistent with construction documents and all applicable codes. NV5 can furnish a blank Contractor's certificate form upon request. The certificate shall certify:
 - a. Execution of all work has been in accordance with the approved construction documents.
 - b. Execution and control of all methods of construction was in a safe and satisfactory manner in accordance with all applicable local, state and federal statutes and regulations.
2. The certificate shall include the following information:
 - a. Project.
 - b. Permit Number.
 - c. Location.
 - d. Construction Documents.
 - e. Date on Plans and specifications submitted for approval and issuance of the Building Permit.
 - f. Addendum(a) and Revision Dates.
3. The certificate shall be signed by the Contractor and include the following:
 - a. Signature.
 - b. Date.
 - c. Company.
 - d. License Number.
 - e. License Expiration Date.

PART 2 - PRODUCTS

2.0 IDENTIFICATION

A. Nameplates

1. Nameplates shall be laminated black Bakelite with minimum ¼ inch high white recessed letters.
2. Nameplates shall be securely attached to the equipment. Utilize mechanical fasteners such as galvanized steel or brass screws for exterior applications. High strength adhesives or cements may be used for interior applications.
3. "Fire Alarm Control Panel" Room shall be identified with laminated red bakelite with signage with a minimum of 1" high white recessed lettering.

2.1 RACEWAYS AND CONDUIT

- A. Rigid Galvanized Steel (RGS) Conduit
 - 1. RGS shall be zinc-coated steel that conforms to ANSI C80.1, UL Specification No. 6 and Federal Specification WW-C-581e by Allied Tube and Conduit, Republic Steel, Wheatland Tube or approved equal.
 - 2. RGS fittings shall be threaded. Split couplings or non-threaded fittings shall not be used.
 - 3. Nipples and Close Nipples shall be RGS, length as noted or as required to conform to field conditions.

- B. Electrical Metallic Tubing (EMT)
 - 1. EMT shall be zinc-coated steel that conforms to ANSI C80.3, UL Standard No. 797 and Federal Specification WW-C-563 a by Republic Steel, Allied Tube and Conduit or approved equal.
 - 2. EMT fittings shall be
zinc plated pressed steel gland and ring compression up to two (2) inches and zinc plated pressed steel double set screw from two (2) inches and up

- C. Wireways shall be minimum 16-gauge steel with all straight runs having hinged spring-latched covers. Finish shall be painted over a corrosion resistant phosphate pretreatment to protect against corrosion. Interior parts shall be smooth and free of sharp edges and burrs. Provide wireway as identified on the drawings for NEMA 1, 3R or 12 service. Wireways shall be equal to Square D and UL Listed.

2.2 WIRE AND CABLE (600V)

- A. Provide single-conductor, annealed copper wire and cable with insulation rated for 600 V, of sizes specified and scheduled on drawings, by General Electric, Southwire, Okonite or approved equal, for secondary service, feeders, branch and system wiring. Wire sizes shown and specified are American Wire Gauge for copper conductors.

- B. The use of aluminum conductors is not allowed.

- C. Wire #10 and larger shall be stranded; #12 and smaller shall be solid. Wire and cable shall have THWN-THHN or XHHW insulation for branch circuit and feeder conductors. Type RHWUSE shall be used for all conductors installed in below grade raceways for generator applications only.

- D. Conductor Color-coding
 - 1. Service entrance, branch circuit and feeder conductors shall be color-coded. Conductors #12 and #10 shall be colored with a factory applied solid or striped compound coating (black, red, blue). Neutrals and equipment grounds shall have solid compound or solid color coating (white, and green), except that neutrals with colored stripe shall be used where required by code.

- E. Cable
 - 1. Flexible Metal Clad (MC) cable shall be UL Listed with THHN insulated conductors with an insulated grounding conductor within galvanized steel or aluminum interlocked armor. Connectors shall be provided with lock nut connection to the termination point enclosure.

2. Flexible Metal Clad (MC) cable utilized for Fire Alarm service shall be power limited fire alarm metal clad cable, identified with a factory applied tracer and red markings along the entire length.

F. Splices and Terminations

1. Ampacity and temperature rating of splices and connectors shall be equal to or greater than those of associated wires and cables.
2. Make splices in branch circuit or feeder wiring from #12 to #10 with UL-listed, solderless screw on connectors rated 600 V.
3. Make splices in branch circuit or feeder wiring above #10 with UL-listed 90°C, 600V, compression butt splice barrel equal to Burndy YS-L HYLINK.
4. Conductor terminations shall be standard bolt-on lugs with hex screws listed for attachment of copper wire and cable to panelboards, switchboards, disconnect switches and other electrical equipment.
5. Make terminations for stranded conductors on screw terminals with UL Listed 105°C, 600V PVC insulated barrel compression locking fork tongue terminal equal to Burndy TP-LF VINYLUG.
6. Make bus terminations for conductors #6 and larger with UL-listed 90°C, 600V, compression standard barrel length lugs equal to Burndy YA-L for conductor sizes to #4/0. Connectors for cable 250 KCMil and larger shall be with UL-listed 90°C, 600V, compression long barrel length two hole lugs equal to Burndy YA-2N. Lugs shall be high conductivity seamless copper electro-tin plated for corrosion protection.

- G. Wire management shall be provided by self-extinguishing self-locking nylon ties with -65 to 350°F. range for bundling conductors.

- H. Cable pulling compounds shall be UL Listed and be suitable for use with the specified cable insulation system. The compound shall reduce the coefficient of friction, while not adding any long term issues to the installation such as premature aging of the insulation system, added flammability or drying in such a manner as to stick the cable in place in the raceway.

2.3 WIRING DEVICES AND PLATES

- A. Provide wiring devices by single manufacturer. Catalog designations of Cooper are specified, unless noted otherwise, to establish standards of quality for materials and performance. Colors of devices as specified below are White for standard applications. Refer to the drawings for color requirements that vary from White. Equal products by Leviton, Pass & Seymour or Hubbell will be accepted. Provide published manufacturers cross-reference sheet highlighted with the device specified and that being submitted with all device product data for approval.

- B. Toggle Switches shall be heavy duty, UL listed, specification grade as follows:

1. Single-pole shall be No. 2221W

- C. Receptacles:

1. Receptacles shall be nylon faced with rigid, glass reinforced nylon bodies. Wiring terminals shall be spring loaded terminal screws for back or side wiring. Receptacles shall be rated 20-ampere 125 volt. The yoke shall have a grounding terminal with a green hex head screw.

2. Duplex receptacles shall be UL Federal Specification WC-596 Specification Grade Extra Hard Duty 125V, 20A, 2 P, 3 W as follows:
 - a. General Use shall be No. 5362W (White)
 - b. General Use single receptacle shall be No. 5361W (White)
 - c. GFCI Interior shall be No. GF20W (White)

- D. Wiring Device Plates:
 1. Provide 0.032 inch nominal brushed Type 430 stainless steel device plates by the manufacturer of the wiring device for all flush mounted switches and receptacles installed in dry locations and where not subjected to physical abuse. Ganged plates shall be of one-piece construction to accommodate the required number of installed devices. Oversized plates to cover wall finish blemishes adjacent to the device box shall not be used.
 2. Provide heavy-duty cast aluminum horizontally mounted weatherproof covers for GFCI receptacles where weatherproof devices are specified equal to Hubbell No. WP26MH. Cover shall be attached to FS box with four (4) screws and spring back to the closed position upon removal of the cord set. Fasteners chrome-plated brass.
 3. Provide all device plates for receptacles and switches with engraving. Engraving shall indicate associated panelboard name and circuit number.

2.4 OUTLET BOXES

- A. Outlet and switch boxes on concealed work shall be at least 4 inch square, galvanized pressed steel conforming to UL 514A. Where installed in plaster, boxes shall be fitted with galvanized steel plaster covers of required depth to finish flush with finished wall or ceiling. Outlet boxes shall be by Steel City Electric Company, Appleton Electric Company, or approved equal.
- B. Outlet boxes installed in masonry walls or in concrete decking shall be UL Listed for the application.
- C. Outlet boxes installed in existing wall cavities shall be metallic 'old work' style secured with screw type support straps, and mounted securely within walls.
- D. Outlet boxes for interior surface mounted locations where RGS is specified where exposed to moisture, at kitchen and cafeteria equipment, adjacent to water or steam connections, and where indicated as weatherproof on drawings shall be cast malleable iron with an aluminum polymer enamel coating equal to Appleton Type FD. Conduit entries shall be threaded cast hubs. Device covers shall be coated malleable iron with moisture sealing gasket and stainless steel fasteners.
- E. All boxes shall have at least one (1) tapped and threaded grounding hole for connection of a 10-32 grounding screw.
- F. Box depth shall accommodate code required volume for the specified installation. Through wall boxes shall not be used.
- G. Outlet boxes for various systems including but not limited to fire alarm, shall be sized as required by the manufacturer. Boxes shall be cast where exposed to physical damage or installed in an exposed exterior location.

- H. Floor outlets shall be heavy-wall cast iron bodies with edge frames and floor plates of polished bronze. Boxes shall be watertight and be fully adjustable before and after pouring. Provide insert floor plates with hinged covers for duplex receptacles or for telephone connection as shown on the drawings. Multi-gang boxes shall be provided with internal removable barriers for separation of different voltages. Provide carpet plates where required. Boxes shall be equal to Steel City 840 SC Series.

2.5 JUNCTION AND PULL BOXES

- A. Provide galvanized steel junction and pull boxes where indicated and as necessary to facilitate installation. Steel shall be minimum 16 gauge. Junction and pull boxes shall be of code required dimensions. Cover shall be of the same type and thickness material as the box construction.
- B. Junction and pull boxes intended for dry interior locations shall be NEMA 1 enclosures with accessible, removable screw-on covers. Covers shall be secured with corrosion-resistant screws with keyhole slots to accommodate easy removal.
- C. Junction and pull boxes intended for wet or exterior locations shall be NEMA 3R enclosures with hinged gasketed covers. Interior and exterior shall be finished with a gray enamel powder coat over the galvanized metal. Hinge shall be galvanized steel with stainless steel pin. Covers shall be secured with corrosion-resistant zinc plated lockable pull catches.
- D. Custom fabricated medium to large junction and pull boxes shall have internal structural steel bracing welded to form a rigid assembly adequate to maintain alignment and shape in shipment and installation.

PART 3 - EXECUTION

3.0 DEMOLITION

- A. General
 - 1. Refer to the drawings for demolition scope applicable to the project.

3.1 IDENTIFICATION

- A. Nameplates
 - 1. Provide nameplates on all equipment listed in other sections of this specification including but not limited to junction and pull boxes, disconnect switches, fire alarm panels, smoke detectors, pull stations, remote test/alarm stations and fire alarm annunciators.
 - 2. Nameplates shall designate equipment tag number as defined on the drawings, system voltage where applicable, circuit number, device controlled and system function. Fire Alarm Devices shall be labeled in accordance with their programming address, and in compliance with the specification section.
 - 3. Submit a complete list of proposed nameplates prior to order to ensure conformance to design criteria. Submittal shall include nomenclature, size and layout of typical tag, with a complete list of tag titles.

4. Samples of stickers together with color schedules shall be submitted during the submittal phase of this project.

B. Equipment Identification

1. Equipment identification designations shall be taken from equipment schedules and coordinated with the Owner's facility group to assure designations match up with Owner's maintenance management system identification database.

3.2 RACEWAYS AND CONDUIT

A. General

1. Unless specified or shown on drawings otherwise, install raceways and conduits concealed. Raceways and conduits may be run exposed on unfinished walls and basement ceilings with exposed structure, in mechanical rooms, dirt cellars, crawl spaces, electric rooms, attics and roof spaces.
2. Run concealed raceways and conduits in as direct lines as possible with minimum number of bends of longest possible radius. Install exposed raceways and conduits parallel to or at right angles to building lines.
3. Raceway and conduit runs shall be mechanically and electrically continuous from supply to outlet. Conduit shall enter and be secured to metallic enclosures with lock nut and bushing inside. Provide additional exterior lock nut for RGS connections. Bushings shall be the bonding type for conduit connections to metallic enclosures with concentric or eccentric knockouts. Lock nuts and bushings will not be required where conduits are screwed into threaded hubs.
4. Size raceways and conduits as required by NEC unless oversized raceways and conduits are shown on the drawings. Raceways and conduits shall be $\frac{3}{4}$ inch minimum.
5. Install conduit systems complete before installation of conductors. Blow through and swab after plaster is finished and dry, and before conductors are installed.
6. Raceways and conduits supports shall be rigidly attached to the building structure utilizing corrosion resistant components suitable for use with the selected raceway or conduit. Refer to the seismic restraint sections of this specification for any additional requirements.
7. Field bending, cutting and threading shall be executed with the proper tools, resulting in bends and shortened conduits and raceways that are equivalent to factory fabricated and purchased components.
8. Provide standoff clips for conduits on exterior and wet location walls.
9. Protect all vertical conduit runs from the entrance of foreign material before installation of conductors and the final closure of the raceway system.

B. Rigid Galvanized Steel (RGS) Conduit

1. RGS may be used for all raceway applications outlined for EMT. RGS shall be used in locations where subject to accidental damage or abuse and for all above grade exterior applications unless other wiring methods are specified on the drawings. All circuit conductors in excess of 600 V shall be installed in RGS.
2. RGS shall not be used in corrosive environments
3. All RGS fittings shall be threaded. Utilize Erickson couplings where joining two (2) threaded conduits that cannot be rotated.

C. Electrical Metallic Tubing (EMT)

1. EMT may be used for receptacle branch circuits, telephone, communications, fire alarm, circuit integrity cable, signal and instrumentation circuits and for control

circuits. EMT may be used in masonry walls, above hung ceilings, in equipment rooms, in mechanical and electrical chases and closets, in exposed locations along ceilings or walls above normal traffic level and where not subject to accidental damage or abuse.

2. EMT shall not be used in exposed applications below eight (8) feet above finished floor or in exterior or damp/wet/corrosive locations. Electrical, telephone and communications closets are considered exempt from this restriction and EMT may be installed below 8' AFF in this application only. EMT shall not be installed underground, in slabs on grade, in exterior locations, in hazardous areas, or for circuits operating at more than 600 V.

D. Miscellaneous Conduit Fittings

1. Expansion/Deflection Fittings: Raceways and conduit buried or secured rigidly on opposite sides of building expansion joints and long runs of exposed conduit subject to expansion and contraction due to variations in temperature shall have expansion fittings. Raceways and conduit shall cross building expansion joints at right angles. Provide separate external copper bonding jumper secured with grounding straps on each end of fitting. Fittings shall safely deflect and/or expand/contract to twice the distance of potential movement.

3.3 WIRE AND CABLE (600V)

- A. Homerun designations on the drawings are diagrammatic only. Install branch circuits and feeders from the power source to the attachment point as required for a complete system. Provide slack wire for connections to equipment installed by others. Refer to schedules and risers where specific conductor and associated raceway sizes are not indicated on the floor plans.
- B. Do not install branch circuit wiring with two (2) or three (3) circuits and common neutral.
- C. Install wires and cable in raceways as specified. All conductor sizing is based upon no greater than three (3) current carrying conductors in a conduit. Installation of up to six (6) circuits (no greater than twelve current carrying conductors) in a single conduit will be allowed if the conductor sizing is increased to the required ampacity to accommodate de-rating factors required by the NEC and NFPA 70.
- D. The minimum wire size shall be #12 unless specifically allowed on the drawings for wiring of controls. Branch circuits longer than 100 feet for 120 V from panel to last outlet shall be increased a minimum of one (1) size above that shown on the drawings to minimize voltage drop to less than 3%.
- E. Conductors shall be identified at all accessible locations in the following manner:
 1. Color code secondary service, feeders and branch circuit conductors as follows:

<u>208/120 Volts</u>	<u>Phase</u>
Black	A
Red	B
Blue	C
White	Neutral
Green	Ground
 2. Provide nonferrous wire markers, embossed or printed to correspond with the drawings. Labels shall be permanently marked so that the source of the branch

circuit or feeder may be readily identified. Hand written labels are not acceptable. Embossed tag equal to 3M Scotch Code STL-TAG or SCS-TM shall be applied with two (2) miniature cable ties or slipped through both end holes. Heat bonded tag equal to 3M Scotch Code SCS-HB shall be permanently affixed with a heat gun.

F. Cable

1. Flexible Metal Clad (MC) cable may be used in concealed locations for branch circuit wiring.
2. Power Limited Fire Alarm Metal Clad (PLFA-MC) cable utilized for Fire Alarm service may be used in concealed locations, run in wall and above drop ceilings.
3. Conductor color code shall comply with identification requirements as indicated in this section.

G. Splices and Terminations

1. No more than twelve splices of current carrying conductors or six (6) circuits, whichever is greater, shall be allowed in a single enclosure or junction box.
2. Splices and terminations shall be sized to the specified conductor. The insulation shall be cut back with the appropriate tools such that the conductors are not nicked or damaged.
3. The compression tool shall be appropriate for the installation of the provided lug or butt splice to ensure pressure necessary for a proper connection is applied.
4. Terminations shall not be stacked or bent unless specifically listed for the application.

H. Cable Pulling

1. Pull cables that share conduit at same time into completely installed raceway. Conductors shall not be pulled in raceways with existing wiring.

3.4 WIRING DEVICES AND PLATES

- A. Branch circuitry shall be attached to all devices using the attachment screw or utilizing back wiring chambers that utilize screws for compressing the connection on the wire. Quick stab features that do not require a positive screw on attachment for the conductor are not acceptable.
- B. Receptacle devices for other than 20 A, 120 V, 2 Wire, circuits shall be provided with tags indicating voltage characteristics and circuit number of outlet that match the nameplate or engraving required on the faceplate.

3.5 OUTLET BOXES

- A. Outlet and switch boxes shall be securely fastened to metal studs with a minimum of two (2) self-tapping screws. Boxes three (3) gang and greater shall be securely fastened to studs on both sides of the box.
- B. Fasteners for mounting boxes in damp or wet locations shall be stainless steel.

- C. Pressed steel boxes shall not be used for exposed surface mounted locations below 8 feet-0 inches AFF.
- D. Outlet and switch boxes shall not be installed back to back. Stagger box installation to adjacent stud spaces to maintain sound separation between rooms.

3.6 JUNCTION AND PULL BOXES

- A. Junction box covers shall be accessible. Do not install junction boxes above suspended ceilings except where ceiling is removable or where an access panel is provided.
- B. Pull boxes connected to concealed conduits shall be mounted with covers flush with finished wall or ceiling.
- C. Pull boxes exposed to rain or in damp/wet locations shall be weatherproof NEMA 3R unless noted otherwise on the drawings.
- D. No pull box shall be within two (2) feet of another.
- E. Provide clamps, grids, cable ties and other non-conductive or combustible appurtenances to secure cables. No cable shall be unsupported for more than thirty (30) inches. Cables shall not touch or be unsupported within one (1) inch of the box cover.
- F. Each junction and pull box shall have a suitable laminated plastic nameplate with white cut letters identifying power source, voltage and driven load of the associated branch circuits or feeders.

3.7 BASIC ACCEPTANCE TESTS

- A. General Scope
 - 1. This section covers the required field tests and inspections to assess the suitability for initial energization of electrical power distribution equipment and systems. Failed components shall be replaced and retested for no additional cost to the project.
 - 2. The purpose of this specification is to assure that all tested electrical equipment and systems are operational and within applicable standards and manufacturer's tolerances and that the equipment and systems are installed in accordance with design specifications.
 - 3. All testing shall be performed by the Contractor responsible for the installation of the systems or by an independent testing organization under contract with the Contractor.
 - 4. All equipment utilized for testing shall have a valid calibration sticker. All test reports shall indicate the equipment utilized and its associated calibration due date.
 - 5. Coordinate all required shutdowns with the Owner. Any and all testing required after the Owner has taken occupancy (temporary or permanent) shall be assumed to be conducted during premium time.
 - 6. A written record of all tests and a final report summarizing the findings shall be submitted for approval prior to energizing any electrical power distribution equipment and systems. All equipment shall be left in clean operational condition.

B. Inspection and Test Procedures

The following tests shall be conducted using the noted section of the latest edition of NETA ATS Acceptance Testing Specifications for Electrical Power Distribution Equipment Systems as a reference:

1. Low Voltage Cables - All feeders illustrated on the one line diagram shall be inspected and tested in accordance with the referenced standard. Visually inspect cables for physical damage, color code and proper termination. Check continuity for proper labeling and megger for insulation resistance. Megger test voltage shall be 1000VDC for one (1) minute with no values less than 50 megohms. Tabulate readings for each feeder. NETA ATS-7.3
2. Refer to Fire Alarm Specifications Section 26.30.11(3.1) for additional testing requirements.

END OF SECTION 26 00 00

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SECTION 26 30 11

FIRE ALARM – ADDRESSABLE WITH VOICE EVACUATION

PART 1 - GENERAL

1.0 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this section.
- B. All criteria establish within Specification 26 00 00 shall apply to this section unless specifically noted otherwise.

1.1 SUMMARY

- A. Section Includes:
 - 1. Fire Alarm Control Panel (FACP)
 - 2. Initiating Devices
 - 3. Notification Appliances.
 - 4. Annunciator, with microphone.
 - 5. Fire Alarm Transponder Panel (FATP)
 - 6. Cellular Autodialer.
 - 7. Acceptance Testing
- B. Related Sections include the following:
 - 1. Division 26 00 00 Electrical

1.2 DEFINITIONS

- A. Low Voltage: As defined in NFPA 70 for circuits and equipment operating at less than 50 V or for remote-control, signaling power-limited circuits.

1.3 ACTION SUBMITTALS

- A. Product Data: For each required component provide manufacturer's standard cut sheet containing technical details, listings and general information illustrating compliance with these specification requirements.
- B. Provide the following detailed documentation for review and evaluation:
 - 1. Point to point wiring diagrams of the entire system including all conductor quantity and sizing, labeling (numerical and color coding) and interconnections.
 - 2. Floor plans illustrating each initiating device and notification appliance with an assigned unique identification. This identification and audible notification appliance tap settings shall be illustrated on the floor plans and submitted for approval with the wiring diagrams.
 - 3. Individual device interconnection diagrams. Panel layouts shall indicate module placement and spare capacity allowance for future expansion.

4. Manufacturers catalog cut sheets of all components and devices.
 5. Battery capacity calculations clearly indicating required and spare capacity.
 6. Power supply capacity calculations including each circuit load, voltage drop and spare capacity.
- C. Submission of certification records for qualifications of the technicians performing final connection and testing.

1.4 CLOSEOUT SUBMITTALS

- A. Submit operations manual detailing all functions and operations of the system. User operating instructions shall be provided prominently displayed on a separate sheet located next to the control unit in accordance with UL Standard 864.
- B. Submit maintenance manuals and recommended spare parts list required to conform to NFPA maintenance guidelines. Instructions shall include but not be limited to:
1. Instructions for replacing any components of the system, including internal parts.
 2. Instructions for periodic cleaning and adjustment of equipment with a schedule of these functions.
 3. A complete list of all equipment and components with information as to the address and telephone number of both the manufacturer and local supplier of each item.
- C. Submit written test report in accordance with NFPA 72 Chapter 14 for notification of successful completion of each required test and a system Record of Completion in accordance with NFPA72 Section 10.18.
- D. Provide floor plan illustrating ambient and alarm sound levels to document notification appliance testing.
- E. As-built drawings shall include all device addresses, alphanumeric descriptors assigned in the control panel, and final notification appliance tap settings with modified spare power supply capacity illustrated.

1.5 QUALITY ASSURANCE

- A. The system design and installation shall conform to the following standards
1. All equipment shall be UL listed for its intended purpose.
 2. All applicable NFPA standards, including but not limited to: 70, 72, 90A, 92A, and 101.
 3. State Building Code.
 4. The Americans with Disabilities Act (ADA)
 5. All requirements of the Authority Having Jurisdiction (AHJ)
- B. The equipment supplier and the Contractor shall demonstrate a minimum 5 years' experience in the successful design and installation of addressable fire alarm systems similar in size and scope to that required for this project.

1.6 WARRANTY

- A. The installer and manufacturer's warranty shall be for a minimum period of one (1) year from the date of the final acceptance test approval.
- B. Include as part of their base bid the cost of a one-year test and inspection contract, to be held by the company which shall certify the completed installation. The contract shall provide for quarterly inspections in accordance with NFPA72 and local requirements. Any equipment found to be defective during the warrantee period shall be replaced by the Contractor at no additional charge to the Owner.

1.7 COORDINATION

- A. Coordinate sizes and locations actual equipment provided.

PART 2 - PRODUCTS

2.0 GENERAL

- A. Provide a complete addressable fire detection, alarm and control system with speaker/strobe signaling devices in compliance with all applicable codes and authorities having jurisdiction. The system shall interface with all other building systems for monitoring and control functions as specified.
- B. Provide automatic and manual, closed circuit, multiplex fire alarm communications according to the following Specifications and as shown on the drawings, wired, connected and left in first class operating condition.
 - 1. System shall operate from 3 wire AC supply with existing standby generator backup on failure of normal system and integral standby battery source backup on failure of the existing generator.
 - 2. Equipment shall be by one of the following manufacturers:
 - a. Edwards Systems Technology (EST)
 - b. FCI/Gamewell/Notifier
 - c. Siemens
 - 3. All references to manufacturers or suppliers model numbers are supplied to establish minimum standards of performance, function and quality. Equivalent equipment from one of the listed manufacturers above may be substituted for that specified.

2.1 SEQUENCE OF OPERATION

- A. Refer to Sequence of Operation Matrix on the plans and the Fire Protection Narrative for the intended system operation.

2.2 CONTROL

- A. General Requirements
 - 1. The microprocessor-based fire alarm system shall be designed and UL listed for Fire Alarm applications. The system operational characteristics shall be stored in non-volatile EEPROM memory, shall be field programmable and capable of being edited with no factory involvement.

2. The system shall support analog sensing techniques to monitor individual devices enabling the user to manually or automatically change the sensitivity parameters in accordance with design and application requirements. All inputs shall be subject to multi-level alarm verification. The system shall be capable of displaying status of the sensor by device. The system shall automatically identify any analog sensor which becomes dirty (maintenance alert), prior to false alarming. The system shall automatically conduct a recognized functional check of each sensor a minimum of three times daily. Failure of a sensor shall initiate a Trouble signal.
3. Standby batteries shall support the system in the event of a loss of primary power for 24 hours of full supervisory operation followed by 15 minutes of alarm. Batteries shall be mounted integral to the FACP.
4. An integral real time clock will provide time control functions including day of week programming to schedule control of detector sensitivity and alarm functions. The system shall be capable of multiple levels of alarm prioritization, and allow control by event, and may include cross zoning, stepping, and/or logic statement inputs.
5. Addressable loop wiring (Signaling Line Circuits - SLC) shall be wired in a Class Class A method. Each circuit shall allow for a minimum of 25% additional devices.
6. Communication circuits between networked fire alarm control panels shall be Class A, using Circuit Integrity Cable meeting UL 2196 standard.
7. Isolation Modules shall be provided to maintain circuit integrity in the event of an open, short or ground fault. Each addressable loop shall have a minimum of one (1) isolation module for every twenty (20) devices or one (1) per floor; whichever is greater.
8. Non-addressable loop wiring (Initiating Device Circuits - IDC) shall be wired in a Class A method.
9. Audible and visual circuits (Notification Appliance Circuits - NAC) shall be wired in a Class A method. Each circuit shall allow for a minimum of 25% additional devices. Provide a minimum of two (2) circuits per floor or area, alternately wiring adjacent notification appliances between circuits.

B. Control Panel

1. The Fire Alarm Control Panel (FACP) shall support up to a minimum of 500 supervised analog/addressable devices, 4 dedicated notification appliance circuits, RS485 peer-to-peer network communications and an RS232 printer/programming port. The panel shall be capable of operating in default mode whereby the system will respond to an alarm condition even in the event of an addressable loop communications failure. Peer-to-peer operation is the ability to perform global annunciation and control on a network-wide basis from any network panel or annunciator.
2. The FACP shall provide the overall system monitoring, testing, display, reporting and firefighter controls to override automatic actions.
3. The FACP shall monitor all initiating devices and respond in accordance with the Sequence of Operation. Each initiating device shall have full analog sensing capabilities. The FACP will identify the exact type and location of every device and maintain operating characteristics stored in on-board EEPROM memory.

4. The FACP shall be enclosed in a locking semi-flush enclosure. All panel initiating and control status indicators shall be visible through a clear Lexan window. Access to the control panel shall be by key. The FACP shall incorporate a primary CPU, complete system power supplies, standby batteries, annunciation and the required switch functions to provide the system operation as specified. The main CPU shall have the necessary firmware to provide via software programming the following:
 - a. Logic statements/stepping alarm functions
 - b. Weekday/Holiday schedules
 - c. Analog sensitivity reporting
 - d. System sensor maintenance alerts
 - e. Individual sensor sensitivity adjustments
 - f. Day/night sensitivity adjustments
 - g. Alarm verification by point or zone
 - h. Alarm verification activity report
 - i. On demand system status printout
 - j. Normal and silent walk test
 - k. 1800 event history log and printout
 - l. All alarm and supervisory information shall be displayed on an 80-character backlit LCD display. The display shall be an integral part of the FACP and shall include a keypad with separate buttons for system status scrolling, alarm acknowledge, trouble acknowledge, reset and system drill. The unit shall have LED indicators for Normal, Alarm, Supervisory, Trouble and Test/Program.
 - m. Provide matrix switch and LED status panels for zone annunciation, zone disconnect, HVAC override or other related monitoring and control functions, integral to the FACP. These are intended for use by the Fire Department during an event, or by authorized personnel during testing periods. Keypad entered commands for these functions shall not be an acceptable substitute. Alarm LEDs shall be provided by type of device on a per floor and/or zone basis. Programmable two (2) position zone disconnect switches shall be provided on a per floor and/or zone basis with corresponding status LEDs. Placement of a switch in other than the normal condition shall initiate a supervisory signal.

C. Remote Cabinets

1. Provide distributed intelligent power supplies to accommodate the power requirements of NAC circuits. Power supplies shall communicate with the FACP via data communications, whereby each power supply shall report a loss of AC power, battery fail or ground fault, and each notification appliance circuit served shall be individually monitored for wiring integrity.
2. Provide fire alarm terminal cabinets where necessary. The cabinets shall have a removable hinged cover with lock and high barrier terminal strips with 64 or 128 point capacity mounted to a plywood backboard. Terminal cabinets shall be red and labeled with permanent white lettering
3. Remote Cabinet power shall be supplied from a standby generator supported panelboard as designated on the plans
4. Remote Cabinets shall be connected to the fire alarm control panel utilizing a class "A" loop, and wired using Circuit Integrity Cable meeting UL 2196 standard.

2.3 INITIATING DEVICES AND ACCESSORIES

- A. Provide addressable detectors as shown on the drawings. Detectors shall be connected to the addressable loop with two wires. All detectors shall incorporate built-in identification for the system to automatically identify various types of sensors. Detectors shall utilize a flashing LED which denotes normal operation, and latched LED which indicates an alarm condition. All common types of analog detectors shall be interchangeable with common twist-lock bases. The standard base shall have a supervised LED output and optional relay and isolator bases shall be available.
- B. Analog sensors shall provide indication to the control panel that a detector requires maintenance, and shall operate in stand-alone mode in the event of an addressable loop communications failure.
- C. Analog Photoelectric Smoke Detectors shall be continually monitored to measure any change in their sensitivity because of the environment (dirt, air temperature, humidity, etc.), and shall allow changes in sensitivity levels within the UL approved sensor's range. The photoelectric detector shall consist of a dust resistant, field cleanable photo chamber with microprocessor based solid state electronics.
- D. Analog Duct Smoke Detectors shall be continually monitored to measure any change in their sensitivity because of the environment (dirt, air temperature, humidity, etc.), and shall allow changes in sensitivity levels within the UL approved sensor's range. Detector shall be in accordance with the ceiling mounted device specified above. Duct detectors shall be supplied with a housing, remote indicator and sampling tubes sized according to duct width.
- E. Furnish each duct smoke detector with alarm and remote test control station. Test control shall be key actuated two position Test-Normal.
- F. Duct Carbon Monoxide Detectors shall be hybrid style sensors monitoring C/O levels in compliance with UL 2075. Units can be system connected appliances or provided with a monitor module for system connection. Duct detectors shall be supplied with a housing, remote indicator and sampling tubes sized according to duct width.
- G. Furnish each duct carbon monoxide detector with alarm and remote test control station. Test control shall be key actuated two position Test-Normal. Carbon monoxide alarm shall be local audio/visual.
- H. Analog Multi-Sensing Detectors shall employ photoelectric, ionization and thermal sensing principles. Sensors shall allow changes in sensitivity levels within the UL approved sensor's range.
- I. Analog Thermal detectors shall monitor the ambient temperature from 32 to 158° F, and provide fast response to rapid increases in temperature. Rate of rise detection rate and fixed set point shall be panel selectable.
- J. Manual Pull Stations shall be double action type with screw terminals and an integral toggle switch. The station shall be constructed of red Lexan with white raised letters, a key reset switch. The station shall have integral addressable electronics and mount to a standard single gang switch box or to a red cast aluminum, surface mount box when required.
- K. Carbon Monoxide Detectors shall be hybrid style sensors monitoring C/O levels in compliance with UL 2075. Units can be system connected appliances or provided with a monitor module for system connection.

- L. Monitor Modules shall be provided to monitor and connect conventional initiating devices onto the addressable loop.

2.4 NOTIFICATION APPLIANCES

- A. Primary Notification Appliances shall be flush mounted combination speaker/strobe units. Assembly shall be mounted on red lexan frame, on surface or flush wall/ceiling box. Where box is surface mounted, it shall be red cast aluminum.
- B. Visual notification appliances shall be self-synchronizing xenon strobes rated by UL 1971 test criteria and in accordance with the Americans with Disabilities Act and NFPA 72. Visual signals shall have a minimum effective intensity rating of 15 candela(cd) or as otherwise specified on the drawings.
- C. Speaker notification appliances shall be UL 1480 multi-tapped Cone or Re-Entrant Speakers. Speaker shall have ¼, ½, 1 or 2 watt settings. The minimum reverberant sound output shall be 85dBA at 10' at a 1-watt setting. Provide re-entrant units with 2, 4, 8 and 15 watt tap settings in all outdoor, shop or other designated high ambient noise areas.
- D. Each audio amplifier or each group of amplifiers shall include one (1) redundant backup amplifier. The system shall automatically switch to the backup amplifier upon failure of any one (1) of the primary amplifiers.
- E. Exterior alarm bells shall be 24VDC, 6-inch diameter – red suitable for wet location.

2.5 ACCESSORIES

- A. Remote Alarm Indicators shall be LED indicators on single gang plastic plates for smoke detectors as indicated on the plans.
- B. Control and Relay Modules shall be used to control conventional devices (notification circuits, AHUs, solenoid valve, existing door holders, existing elevator recall, etc.) over the addressable loop. Modules shall provide a supervised output rated for 2 amps at 24VDC, and .5 amps at 120VAC.
- C. Remote Annunciator shall be an 80 character alphanumeric LCD display with common LED indicators of Power On, Trouble, and Supervisory and Alarm conditions. Remote system control functions are required, and the annunciator shall provide key-enabled Alarm Silence, Trouble Silence, Drill/Test and Reset switches.. Remote Annunciator shall be provided with a microphone handset, capable of overriding the prerecorded messaging upon activation by the fire department.
 - 1. An eleven (11) inch by seventeen inch graphic depicting the architectural layout of the facility with stairwells, corridors, elevators and egress points clearly shown shall be framed and permanently mounted adjacent to the annunciator. Alphanumeric descriptors for each initiating device shall correspond to descriptors included on the graphic.
- D. Exterior Strobe shall be a flashing weatherproof strobe/beacon with a minimum 150,000 candlepower. The strobe shall be installed on a weatherproof cast aluminum box and cover.

- E. Provide surface mounted local Cellular Alarm Communicator/Transmitter for transmission of the alarm signal to the 24-hour UL Listed Remote Supervising Station. The Unit shall be equal to Notifier CELL-CAB-N with eternal antenna, The unit shall be by fire alarm system manufacturer to ensure proper compatibility, coding, timing and master keying. The technology shall be approved by the local fire department. Cellular Alarm Communicator shall be remote mounted unit, and shall be wired to the fire alarm control panel using Circuit Integrity Cable meeting UL 2196 standards.
- F. Door Holders are generally existing to remain, and are rated 24VAC/DC magnetic flush, semi-flush, surface and/or floor mounted where indicated on the drawings. Minimum holding force shall be twenty-five (25) pounds. Body shall be die cast with polished chrome finish. Provide swivel catch with required rod lengths and back plates for secure mounting to door.
- G. Provide Tone generator with Multi-Selectable tone in addition to prerecorded messaging. Tone shall be engaged in the event of panic switch use and Security Lockdown Situation.
- H. Existing Knox Box Key Repository shall remain where shown and required in accordance with local requirements.
- I. Provide As-Built Drawing Cabinet to house a complete set of as-built drawings housed in a red cabinet clearly marked 'As-Built Drawings' locked and keyed the same as the FACP.

PART 3 - EXECUTION

3.0 INSTALLATION

- A. All interconnections shall be installed in accordance with the manufacturer's system wiring diagrams.
- B. Final connections, panel start up, program, editing, and testing shall be conducted by qualified personnel with one of the following qualifications:
 - 1. Factory trained and certified by the equipment manufacturer.
 - 2. National Institute of Certification in Engineering Technologies (NICET) or IMSA fire alarm certified.
 - 3. Trained and qualified by an organization listed by a national testing laboratory for the servicing of fire alarm systems.
 - 4. The control panel manufacturer's representative shall be present to supervise panel start up, program editing and all tests.
 - 5. A dedicated circuit connection for supplying power to each building fire alarm panel and remote cabinet shall be provided as indicated. The power supply shall be equipped with a UL listed locking mechanism and identified with a red "FIRE ALARM CIRCUIT CONTROL" label.
- C. Labels
 - 1. All panels, terminal cabinets and annunciators shall be labeled with the Red plastic nameplates in accordance with other sections of this specification.
 - 2. Remote Alarm Indicators and Remote Test and Alarm Stations shall be labeled with the Red plastic nameplates in accordance with other sections of this specification. The label shall indicate the device monitored and associated mechanical equipment tag or room designation where applicable.
 - 3. All detectors shall be labeled with its assigned address on both the detector housing and the base with a black on clear typed label equal to Kroy 0.375 Industrial UV. The base address shall be legible without removal of the detector. The detector address shall be concealed when placed into the base.
- D. Wiring
 - 1. Wiring for the fire alarm system shall not be installed in conduits, junction boxes, or outlet boxes with conductors of lighting and power systems.
 - 2. Wiring for the fire alarm system shall be installed in conduit with limitations as outlined in Section 260000-3.02 of the specification. The use of MC cable shall follow the guidelines provided in Section 260000-3.03 of the specification. Exposed plenum rated thermoplastic jacketed wire/cable and/or fire alarm low energy cable will not be accepted.
 - 3. Minimum wire sizes shall be as follows:
 - a. Addressable loop wiring shall utilize minimum #16 AWG.
 - b. Notification appliance circuits shall utilize minimum #14 AWG.
 - c. Network communications wiring shall be a solid conductor non-shielded #16 twisted pair minimum.
 - d. All junction boxes shall be sprayed red and labeled "Fire Alarm". Conduit couplings shall be spray painted red prior to installation.
 - e. Connections and splices shall be made using screw terminal blocks. No more than one conductor shall be installed under any screw terminal. The uses of wire nut type connectors are prohibited in the system.

- f. All circuit conductors entering or leaving any mounting box, outlet box enclosure or cabinet shall be labeled in accordance with the wiring diagram. Labeling and color coding shall be consistent throughout the conductor run.
 - g. Wiring within any enclosure shall be readily accessible without removing any component parts.
 - h. No more than half loudspeaker/strobes serving middle and lower levels shall be connected to same circuit. Adjacent devices shall be alternately wired between circuits.
 - i. The fire alarm equipment manufacturer's representative shall be present for the connection of wiring to the control panel.
4. Control Panel
- a. The control panel and its assorted components shall be mounted so that no part of the enclosing cabinet is less than twelve (12) inches nor more than seventy-eight (78) inches above the finished floor.
 - b. All manually operable controls shall be between thirty-six (36) inches to forty-two (42) inches above the finished floor.
5. Detectors
- a. Detectors placement shall be in accordance with NFPA 72 requirements and recommendations.
 - b. Detectors shall be at least twelve (12) inches from any part of any lighting fixture and at least three (3) feet from diffusers of air handling systems.
 - c. Each detector shall be provided with appropriate mounting hardware as required by its mounting location.
 - d. Dust covers shall be installed over all smoke detectors until preliminary testing commences. All detectors, which indicate reduced sensitivity due to dirty condition, shall be cleaned prior to commencement of final testing.
6. Notification Appliances
- a. Notification appliances shall be mounted in accordance with NFPA 72.
 - b. Coordinate final quantity, location and power settings of audible notification appliances with ambient sound levels and interior finishes to comply with minimum & maximum sound pressure level requirements as follows:
 - 1) Total sound pressure level produced by combining ambient with all audible notification appliances operating shall not exceed 110dBA at the minimum hearing distance.
 - 2) An average ambient sound pressure level of 105dBA shall require the use of visible notification appliances.
 - 3) Unless otherwise permitted by NFPA 72, minimum sound pressure level produced by audible notification appliances shall be 15 dBA above the average ambient sound level or 5 dBA above the maximum sound level having a duration of at least sixty (60) seconds, whichever is greater, measured five (5) feet above the floor.
7. Coordinate the proper coding and timing of the Master Box as required by the municipal fire department system. Pay all associated charges.

3.1 TESTING

- A. Notify the Owner's Representative ten (10) business days before the tests are to be conducted. The tests shall be performed in accordance with the approved test procedures in the presence of the Owner's Representative. Furnish all instruments and personnel required for the tests.

- B. Preliminary Tests
 - 1. Perform insulation testing (megger), continuity and loop resistance checks on all system conductors to determine that the system is free from grounded, shorted, or open circuits. These tests shall be conducted prior to the installation of fire alarm equipment. Loop resistance measurement shall verify that the loop resistance does not exceed the manufacturers specified limits. Corrections shall be made and the system shall be retested to assure if deficiencies are found.
 - 2. Measure air flow with pressure sensor at each duct smoke detector sampling port, at the lowest design air flow of the duct system. Sampling air flow shall exceed smoke detector manufacturer's requirements.
 - 3. Perform complete functional and operational performance tests. Testing shall include verification that the circuits and components are electrically supervised and operate as intended. Coordinate functional testing with Elevator and HVAC Contractors where applicable to verify function of all control interfaces such as elevator recall and air handling unit shutdowns.
 - 4. A written report detailing the results of the preliminary tests shall accompany the request for Final Acceptance Test. The written Preliminary Test Report shall be submitted with:
 - a. Copy of FACP printer output verifying proper operation of each device in alarm or trouble, time stamped throughout the testing process.
 - b. The Operations and Maintenance Manual for the system.
 - c. The record (as-built) drawings.

- C. Final Acceptance Test
 - 1. The Fire Alarm System, other systems and equipment associated with the fire alarm system and accessory equipment shall be tested in accordance with NFPA 72. Verification of system completion shall be documented with a fully executed copy of the Record of Completion per NFPA 72 Figure 10.18.2.1.1. The listed tests in NFPA 72 Table 14.4.2.2 shall be conducted and documented with an executed copy of Figure 14.6.2.4 as well as manufacturer and job specific procedures to verify that the circuits and components are electrically supervised and operate as intended. The test shall include but shall not be limited to the following:
 - a. Visual inspection of all wiring connections.
 - b. Test of each function of the control panel.
 - c. Test of each circuit in both trouble and normal modes.
 - d. Tests of each alarm initiating device in both normal and trouble conditions. Remove each device from its base to test the supervisory feature.
 - e. Tests of each control circuit and device.
 - f. Tests of each alarm notification appliance. Open the wiring at the midpoint of the circuit to test the wiring supervisory feature. Provide copy of FACP printer output verifying proper operation. Verify each device's audible and visual output.
 - g. Tests of the primary and secondary power supplies and associated loss of each.
 - h. Complete operational tests under emergency power supply.
 - i. Ground fault monitoring circuit function.

- j. Measurement of sound pressure levels throughout the protected space. Provide background and evacuation signal sound levels on the floor plan submitted with device address and tap settings.
2. Final Fire Alarm System Testing shall include a preliminary test of the installed system, with the exception of items existing to remain (magnetic door holders, tamper switches etc...). Upon Approval of the Authority Having Jurisdiction, remaining fire alarm components shall be relocated to new system, and subject to reinspection and testing.

3.2 TRAINING

- A. Training course shall be provided for the operations and maintenance staff. The course shall be conducted in the building where the system is installed or as designated by the Owner's Representative. The training period shall consist of one half training day (eight (8) hours per day) and shall start after the system is functionally completed but prior to final acceptance tests. The instructions shall cover all of the items contained in the operating and maintenance instructions.

END OF SECTION 26 30 11

LIST OF DRAWINGS

EF0.00	ELECTRICAL FIRE ALARM LEGEND, NOTES & KEY PLANS
EFD2.00	ELECTRICAL FIRE ALARM A WING LOWER LEVEL DEMO PLAN
EFD2.01	ELECTRICAL FIRE ALARM B WING LOWER LEVEL DEMO PLAN
EFD2.02	ELECTRICAL FIRE ALARM C WING LOWER LEVEL DEMO PLAN
EFD2.10	ELECTRICAL FIRE ALARM A WING MAIN LEVEL DEMO PLAN
EFD2.11	ELECTRICAL FIRE ALARM C WING MAIN LEVEL DEMO PLAN
EFD2.20	ELECTRICAL FIRE ALARM A WING UPPER LEVEL DEMO PLAN
EFD2.21	ELECTRICAL FIRE ALARM C WING UPPER LEVEL DEMO PLAN
EF2.00	ELECTRICAL FIRE ALARM A WING LOWER LEVEL NEW WORK PLAN
EF2.01	ELECTRICAL FIRE ALARM B WING LOWER LEVEL NEW WORK PLAN
EF2.02	ELECTRICAL FIRE ALARM C WING LOWER LEVEL NEW WORK PLAN
EF2.10	ELECTRICAL FIRE ALARM A WING MAIN LEVEL NEW WORK PLAN
EF2.11	ELECTRICAL FIRE ALARM C WING MAIN LEVEL NEW WORK PLAN
EF2.20	ELECTRICAL FIRE ALARM A WING UPPER LEVEL NEW WORK PLAN
EF2.21	ELECTRICAL FIRE ALARM C WING UPPER LEVEL NEW WORK PLAN
EF7.00	ELECTRICAL FIRE ALARM RISER DIAGRAMS
EF8.00	ELECTRICAL DETAILS