



Project Manual

William E. Frost School

Roof Replacement

73 Main Street
Westford, MA 01886

July 16, 2013

Awarding Authority: Town of Westford
55 Main Street
Westford, MA 01886
Tel: (978) 692-5501
Fax: (978) 399-2557

Architect: Gienapp Design Associates, LLC
20 Conant Street
Danvers, MA
Tel: (978) 750-9062
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Set No.

William E. Frost School
Westford, MA

Roof Replacement

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PART A

Bidding and Contract Documents and Forms

William E. Frost School
Westford, MA

Roof Replacement

SECTION 00 1113

ADVERTISEMENT

Sealed bids for furnishing the following item will be received at the Office of the Town Manager, Westford Town Hall, 55 Main Street, Westford, MA 01886 until the time specified below at which time the bids will be publicly opened and read.

Specifications and bid forms may be obtained at the Office of the Town Manager Monday through Friday between 8 a.m. and 4 p.m.

Bids will be opened in the Office of the Town Manager on **August 6, 2013, at 11:00 a.m.** Each Bid must be accompanied by a bid security consisting of a BID BOND, CASH, or, CERTIFIED CHECK issued by a responsible bank or trust company in the amount of 5% of the bid price.

Pre-Bid Conference and Site Visit will be held at the **Town Hall Meeting Room** located at **55 Main Street**, on **July 29, 2013 at 1:30 p.m.** It is imperative that all prospective bidders have a representative in attendance.

A performance bond in an amount equal to 100 percent of the total amount of the contract price with a surety company qualified to do business in the Commonwealth of Massachusetts will be required for the faithful performance of the contract, as well as a labor and materials bond in an amount equal to 100 percent of the total contract price.

All bids for this project are subject to applicable public bidding laws of Massachusetts, including, but not limited to M.G.L. c.149, §§44A-44H, as amended.

Attention is directed to the minimum wage rates to be paid as determined by the Commissioner of Labor and Workforce Development and the weekly payroll record submittal requirements under the provisions of Massachusetts General Laws, Chapter 149, Section 26 through 27D inclusive.

Selection of the contractor will be based upon bidder qualifications, including evidence of past performance in similar projects, and bid price. The contract will be awarded to the bidder deemed by the awarding authority to be the lowest responsible and eligible bidder.

The bidder agrees that its bid shall be good and may not be withdrawn for a period of 30 days, Saturdays, Sundays and legal holidays excluded, after the opening of the bids.

The Town reserves the right to waive any informalities, to accept or reject, in whole or in part any or all bids, or take whatever other action may be deemed to be in the best interest of the Town.

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SECTION 00 2113

INSTRUCTIONS TO BIDDERS

1. Receipt and Opening of Bids

The Town of Westford, Massachusetts, herein called the Owner, acting by and through its Board of Selectmen, will receive sealed Bids for the project known as the Center Fire Station Source Capture Vehicle Exhaust System Project.

General bids shall be addressed to the Town Manager, Westford Town Hall, 55 Main Street, Westford, MA 01886 and endorsed "Bid for WILLIAM E. FROST SCHOOL ROOF REPLACEMENT" (Project) will be received at the Office of the Town Manager until **11:00 a.m.** prevailing time, on **Tuesday, August 6, 2013** at which time and place said bids will be publicly opened and read aloud.

Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof. Any bid received after the time and date specified will not be considered. The bidder agrees that its bid shall be good and may not be withdrawn for a period of 30 days, Saturdays, Sundays, and legal holidays excluded, after the opening of bids.

2. Location and Work to be Done

The Work consists of the removal of existing roofing, and associated flashings and underlayment down to existing sheathing, removal of ventilation shafts, infill openings created by the removal of said shafts with new framing and sheathing, installation of new finished roof and all work incidental thereto, in accordance with the Specifications and conceptual plans attached hereto, at the William E. Frost School, 73 Main Street, Westford, MA 01886.

Additional drawings showing details in accordance with which the Work is to be done may be furnished by addendum from time to time during the bidding period by the Owner or its Architect/Engineer, and shall then become a part of the Contract Documents.

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

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

3. Preparation of Bid

Each bid must be submitted on the prescribed form. All blank spaces for bid prices must be filled in, in ink or typewritten, in both words and figures.

Each bid must be submitted in a sealed envelope bearing on the outside the name of the bidder, his address, and endorsed with the name of the project as specified in Receipt and Opening of Bids, above. If forwarded by mail, the sealed envelope containing the bid must be enclosed in another envelope addressed as specified in Receipt and Opening of Bids, above.

4. Bid Opening Procedure

The following list of requirements shall apply to each filed bid. Bids not meeting all the requirements for timeliness and security will be rejected; bids not meeting signature and addenda requirements will be rejected prior to checking of bid amounts.

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

Properly executed bid security shall be placed in a sealed envelope and shall be attached to the outside of the envelope containing the bid.

Bid signatures will be checked.

All addenda will be sent certified mail, with return receipt requested, and/or facsimile or e-mail to all prospective bidders. All bidders shall include with their bids the written acknowledgment form provided in Section 00 4100, FORM OF GENERAL BID.

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

5. Modification

Any bidder may modify his bid by written communication at any time prior to the scheduled closing time for receipt of bids. Any telegraphic communication must be received by the Owner prior to the closing time, and, provided further, the Owner must be satisfied that a written confirmation of the telegraphic modification over the signature of the bidder was mailed prior to the closing time. If written confirmation is not received within two days from the closing time, no consideration will be given to a telegraphic communication.

The communication shall not reveal the bid price but shall provide the addition or subtraction or other modification so that the final prices or terms will not be known by the Owner until the sealed bid is opened.

6. Ability and Experience of Bidder

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

The Owner may make such investigations as it deems necessary, and the bidder shall furnish to the Owner, under oath if so required, all such information and data for this purpose as the Owner may request.

7. Conditions of Work

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

8. Addenda and Interpretations

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

Every request for such interpretation should be in writing addressed to Town Manager, Westford Town Hall, 55 Main Street, Westford, MA 01886, and to be given consideration must be received at least seven (7) days prior to the date fixed for the opening of bids. Any and all such interpretations and any supplemental instructions will be in the form of written addenda to the specifications which, when issued, will be mailed by certified mail with return receipt requested to all prospective bidders (at the respective address furnished by them for such purposes), or sent via facsimile or email if time requires. Failure of any bidder to receive any such addendum or interpretation shall not relieve such bidder from any obligation under his bid as submitted. All addenda so issued shall become part of the Contract Documents.

9. Security for Faithful Performance

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

10. Power of Attorney

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

11. Laws and Regulations

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

12. Liquidated Damages for Failure to Enter into Contract

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

13. Obligation of Bidder

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

14. Information Not Guaranteed

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

It is agreed and understood that the Owner does not warrant or guarantee that the subsurface or other conditions, natural phenomena, existing pipes, or other structures encountered during construction will be the same as those indicated in the Contract Documents. It is further agreed and understood that no bidder or Contractor shall use or be entitled to use any of the information made available to him or obtained in any examination made by him in any manner as a basis of or ground for any claim or demand against the Owner or the Architect/Engineer, arising from or by reason of any variance which may exist between the information made available and the actual subsurface or other structures actually encountered during the construction work, except as may otherwise be expressly provided for in the Contract Documents.

15. Bid Security

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

16. Right to Reject Bid

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

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

17. Time for Completion

The successful general bidder must agree to commence work within ten (10) days of the date of the Notice to Proceed and to fully complete the project within the time limit stated in Section 00 4100, FORM OF GENERAL BID.

18. Comparison of Bids

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

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

19. Award of Contract

The Board of Selectmen is the awarding authority for this contract. The Contract will be awarded to "the lowest responsible and eligible bidder" pursuant to General Laws Chapter 149, Section 44A (2), as amended. Such a bidder shall possess the skill, ability and integrity necessary for the faithful performance of the work, shall be able to furnish labor that can work in harmony with all other elements of labor employed, or to be employed, in the work, and shall otherwise comply with all applicable provisions of law. Contract award shall be subject to availability of an appropriation for funding.

20. Statutes Regulating Competitive Bidding

Any bid which does not comply with the provisions of Massachusetts General Laws Chapter 149, Sections 44A through 44H, as amended, need not be accepted and the Owner may reject every such bid.

21. Wage Rates

Prevailing Wage Rates as determined by the Commissioner of Department of Labor and Workforce Development under the provision of the Massachusetts General Laws, Chapter 149, Section 26 to 27G, as amended, apply to this project. It is the responsibility of the bidder, before bid opening, to request any additional information on Prevailing Wage Rates for those trades people who may be employed for the proposed work under this contract.

22. Contractor Records

The Contractor shall comply with the provisions of Massachusetts General Laws, Chapter 30, Section 39R concerning Contractor records.

23. INSURANCE

The Contractor shall carry and continuously maintain until completion of the Contract, insurance as specified in Agreement and in such form as shall protect him performing work covered by this Contract, and the Town of Westford and its employees, agents and officials, from all claims an liability for damages for bodily injury, including accidental death, and for property damage, which may arise from operations under this Contract. The Town shall be named as an additional insured. The Contractor covenants and agrees to hold the Town and its employees, agents and officials harmless from loss or damage due to claims for bodily injury or death and/or property damage arising from, or in connection with, operations under this Contract.

25. PROJECT MANAGER

The Owner may utilize the services of a project manager, whose duties shall be as set forth in an Agreement for Project Manager Services.

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**SECTION 00 4100
FORM OF GENERAL BID**

Bid of _____ (hereinafter called "Bidder")*

- () a corporation, organized and existing under the laws of the state of _____
- () a partnership
- () a joint venture
- () an individual
doing business as _____

To the City/Town of _____, Massachusetts (hereinafter called "Owner").

Gentlemen:

A) The undersigned Bidder, in compliance with your invitation for bids for the project known as _____, having examined the plans and specifications and related documents and the site of the proposed work, and being familiar with all of the conditions surrounding the construction of the proposed project including the availability of materials and labor, hereby proposes to furnish all labor, materials, and supplies, and to construct the project in accordance with the contract documents and the plans and specifications within the time set forth below, and at the prices stated below. These prices are to cover all expenses incurred in performing the work required under the contract documents, of which this bid is a part.

The Bidder hereby agrees to commence work on or before the date to be specified in written "Notice to Proceed" of the Owner, and to fully complete the project within _____ consecutive calendar days thereafter. The Bidder further agrees to pay as liquidated damages the sum of (\$) Dollars for each consecutive calendar day thereafter that the work is not complete as provided in the contract.

*Specify corporation, partnership or individual as applicable.

B) Bidder acknowledges receipt of and this bid includes the following addenda:

No. _____ Dated: _____

No. _____ Dated: _____

No. _____ Dated: _____

No. _____ Dated: _____

C) The Bidder agrees to perform the bid work described in the specifications and shown on the plans for the following contract price: \$ _____ .

The above unit prices shall include all labor, materials, bailing, shoring, removal, overhead, profit, insurance, etc., to cover the finished work of the several kinds called for.

The Bidder understands that all bids for this project are subject to the applicable bidding laws of the Commonwealth of Massachusetts, including General Laws Chapter 149 and Chapter 30, Section 39M, as amended.

The Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informalities in the bidding.

The Bidder agrees that this bid shall be good and may not be withdrawn for a period of 30 days, Saturdays, Sundays and legal holidays excluded, after the opening of bids.

Within 10 days of receipt of the written notice of acceptance of this bid, the Bidder will execute the formal Agreement set forth in Section 00 5200 AGREEMENT.

Bid security is attached in the sum of five percent (5%) of the total bid in accordance with the conditions of Section 00 2113 INSTRUCTIONS TO BIDDERS. The bid security may become the property of the Owner in the event the contract and bond are not executed within the time set forth above.

The selected Contractor shall furnish a performance bond and a payment bond in an amount at least equal to one hundred percent (100%) of the contract price in accordance with Section 00 6113 PERFORMANCE BOND, Section 00 6114 PAYMENT BOND, and as stipulated in the contract.

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

1. Have been in business under present name for ____ years.
2. The names and addresses of all persons interested in the bid (if made by a partnership or corporation) as principals, are as follows:

(attach supplementary list if necessary)

3. The bidder is requested to state below what work of a similar character to that included in the proposed contract he has done, and give references that will enable the Owner to judge his experience, skill and business standing (add supplementary page if necessary).

<u>Completion Date</u>	<u>Project Name</u>	<u>Contract Amount</u>	<u>Design Engineer</u>	<u>Reference Name</u>	<u>Telephone No.</u>
a.					
b.					
c.					
d.					
e.					
f.					

Bank reference _____
(Name)

(Bank)

(Address)

(Telephone No.)

Pursuant to M.G.L. CH. 62C, Sec. 49A, I certify hereby in writing, under penalties of perjury, that the within named Bidder/Contractor has complied with all laws of the commonwealth relating to taxes, reporting of employees and contractors, and withholding and remitting of child support.

The undersigned Bidder hereby certifies under penalties of perjury, as follows: (1) that he/she is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work; (2) that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; and (3) that all employees to be employed in the work subject to this bid 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.

The undersigned certifies under 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 paragraph the word "person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity.

The undersigned bidder hereby certifies, under pains and penalties of perjury, that the foregoing bid is based upon the payment to laborers to be employed on the project of wages in an amount no less than the applicable prevailing wage rates established for the project by the Massachusetts Department of Labor and Workforce Development. The undersigned bidder agrees to indemnify the awarding authority for, from and against any loss, expense, damages, actions or claims, including any expense incurred in connection with any delay or stoppage of the project work arising out of or as a result of (1) the failure of the said bid to be based upon the payment of the said applicable prevailing wage rates or (2) the failure of the bidder, if selected as the contractor, to pay laborers employed on the project the said applicable prevailing wage rates.

Respectfully submitted:

Date: _____

By: _____

(Signature)

(Type Name of Bidder)

(Title)

(Business Address)

(City and State)

(Telephone Number)

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**SECTION 00 4536
GENERAL CONTRACTOR'S
EQUAL EMPLOYMENT OPPORTUNITY CERTIFICATION**

This form must be submitted by the selected general bidder at or prior to the execution of the contract. A contractor will not be eligible for award of a contract unless such contractor has submitted this certification, which shall be deemed a part of the resulting contract.

_____ certifies that it
[Name of Contractor]

1. intends to use the following listed construction trades in the work under the contract:

2. will comply with the minority manpower ratio and specific affirmative action steps contained herein; and
3. will obtain from each of its subcontractors and submit to the Owner prior to the award of any subcontract under this contract, the Subcontractor's Equal Employment Certification.

(Signature of authorized representative of Contractor)

(date)

(name and title)

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**SECTION 00 4543
CERTIFICATE OF VOTE**

(to be filed if Contractor is a Corporation)

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

and acting Secretary of _____ and I further certify that a meeting of the

(Name of Corporation)

Directors of said Company, duly called and held on _____, at which
(Date of Meeting)

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

VOTED: To authorize and empower

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

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

By: _____
(Secretary of Corporation)

A True Copy:

Attest: _____
(Notary Public)

My Commission Expires: _____
(Date)

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**SECTION 00 4545
CERTIFICATIONS**

**CERTIFICATIONS REQUIRED BY LAW
FOR PUBLIC CONSTRUCTION CONTRACTS**

You must COMPLETE and SIGN the following certifications. You must also print, at the bottom of this page, the name of the contractor for whom these certifications are submitted.

TAX COMPLIANCE

Pursuant to Chapter 62C of the Massachusetts General Laws, Section 49A(b), I, the undersigned, authorized signatory for the below named contractor, do hereby certify under the pains and penalties of perjury that said contractor has complied with all laws of the Commonwealth of Massachusetts relating to taxes, reporting of employees and contractors, and withholding and remitting child support.

NON-COLLUSION

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

PUBLIC CONTRACTOR DEBARMENT

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

OSHA TRAINING

Pursuant to G.L. c. 30, §39S, the Contractor hereby certifies under penalties of perjury as follows:

- (1) Contractor is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work;
- (2) 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 they shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; and
- (3) All employees to be employed in the work subject to this contract 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.

COMPLETE AND SIGN BELOW:

Authorized Person's Signature

Date

Print Name & Title of Signatory

Name of Contractor

**SECTION 00 5200
OWNER-CONTRACTOR AGREEMENT**

THIS AGREEMENT made this _____ day of _____
in the year Two Thousand and _____, between _____, with a usual place of
business at _____, hereinafter called the CONTRACTOR, and the
Town of Westford, acting by its Town Manager, with a usual place of business at 55 Main Street, Westford, MA
01886, 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 the Center Fire Station Source Capture Vehicle Exhaust System Project, in strict accordance with the Contract Documents and all related Drawings and Specifications. 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 _____.

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 and prosecute the work under this Agreement upon execution hereof and shall complete the work on or before _____.

- 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 be _____ per day.

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.

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.
- 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. Affirmative Action/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

If a project architect/engineer is used for this Project, 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 27G, 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 proper and satisfactory 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 to Bid
- Instructions to Bidders
- This Contract Form
- Bid Form
- Performance Bond
- Labor & Materials Payment Bond
- Non-Collusion Certificate
- Tax Compliance Certificate
- Clerk's Certificate of Corporate Vote
- Certificate of Insurance
- General Conditions
- Supplementary General Conditions
- General Requirements
- Specifications and Addenda
- Contract Drawings
- Schedule of Prevailing Wages
- (Strike out any inapplicable item)

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 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 therefor; 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 under Article 13

The limits of liability for coverage required under the preceding paragraph shall be as Specified in the Supplemental Conditions.

Except for Workmen's Compensation, all liability coverage shall name the Town of _____ Town of Westford 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.

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.

AGREED:

TOWN OF WESTFORD, MASSACHUSETTS
(Owner)

By its Town Manager

Jodi Ross

CONTRACTOR: _____

By _____

(Name)

(Title)

(Address)

(City and State)

Approved as to Form:

By _____
(Owner's Counsel)

In accordance with M.G.L. C.44, Section 31C, this is to certify that an appropriation in the amount of this contract is available therefor and that the _____ has been authorized to execute the contract and approve all requisitions and change orders.

By _____
(Owner's Accountant)

(Name)

SECTION 00 6113

PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: That we _____
(Name of Contractor)

a _____ hereinafter called "Principal" and
(Corporation, Partnership, Joint Venture or Individual)

_____ of _____, State of _____
(Surety) (City & State)

_____ hereinafter called the "Surety" and licensed by the State Division of Insurance to do business under the laws of the Commonwealth of Massachusetts, are held and firmly bound to the City/Town of _____, Massachusetts, hereinafter called "Owner", in the penal sum of _____ Dollars

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

THE CONDITION OF THIS OBLIGATION is such that Whereas, the Principal entered into a certain contract with the Owner, dated the _____ day of _____, 20____ (the "Construction Contract"), for the construction described as follows: _____
_____.

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

PROVIDED, FURTHER, that the Surety's obligation under this Bond shall arise after (1) the Owner has declared the Principal in default of the Construction Contract or any provision thereof or (2) has declared that the Principal has failed, or is otherwise unable or unwilling, to execute the work consistent with, and in conformance to, the Construction Contract (collectively referred to as a "Contractor Default"). The determination of a Contractor Default shall be made solely by the Owner. The Owner need not terminate the Construction Contract to declare a Contractor Default or to invoke its rights under this Bond.

When the Surety's obligation under this Bond arises, the Surety, at its sole expense and at the consent and election of the Owner, shall promptly take one of the following steps: (1) arrange for the Principal to perform and complete the work of the Construction Contract; (2) arrange for a contractor other than the Principal to perform and complete the work of the Construction Contract; (3) reimburse the Owner, in a manner and at such time as the Owner shall decide, for all costs and expenses incurred by the Owner in performing and completing the work of the Construction Contract. Surety will keep Owner reasonably informed of the progress, status and results of any investigation of any claim of the Owner.

If the Surety does not proceed as provided in this Bond with due diligence and all deliberate speed, the Surety shall be deemed to be in default of this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner.

After the Surety's obligation under this Bond arises, the Surety is obligated, to the limit of the amounts of this Bond, for (1) the correction of defective work and completion of the Construction Contract; (2) additional design, professional services, and legal costs, including attorneys' fees, resulting from the Contractor Default or from the default of the Surety under this Bond; (3) any additional work beyond the Construction Contract made necessary by the Contractor Default or default of the Surety under this Bond; (4) indemnification obligation of the Principal, if any, as provided in the Construction Contract; and (5) liquidated damages as provided in the Construction Contract, or if none are so specified, actual and foreseeable consequential damages resulting from the Contractor Default or default of the Surety under this Bond.

Any proceeding, legal or equitable, under this Bond shall be instituted in any court of competent jurisdiction in the Commonwealth of Massachusetts.

The Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Construction Contract or to the work to be performed thereunder or the specifications accompanying the same shall in any way affect its obligation on this Bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Construction Contract or to the work or to the specifications.

IN WITNESS WHEREOF, this instrument is executed in ____ () counterparts, each one of which shall be deemed an original, this the _____ day of _____, 20__.

ATTEST:

_____		_____
(Principal Secretary)	By	Principal

		(Address-Zip Code)

_____ (SEAL)
 Witness as to Principal

 (Address-Zip Code)

ATTEST:

_____		_____
	By	Surety
		(Attorney-in-Fact)

		(Address-Zip Code)

_____ (SEAL)
 Witness as to Surety

 (Address-Zip Code)

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

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SECTION 00 6114

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: That we _____

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

hereinafter called "Principal" and _____ of _____,
(Surety)

State of _____ hereinafter called the "Surety" and licensed by the State
(City and State)

Division of Insurance to do business under the laws of the Commonwealth of Massachusetts, are held and firmly bound to the City/Town of _____, Massachusetts, hereinafter called "Owner", in the penal sum of _____ Dollars (\$_____) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that Whereas, the Principal entered into a certain contract with the Owner, dated the _____ day of _____, 20____, for the construction described as follows:

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

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

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

IN WITNESS WHEREOF, this instrument is executed in ____ () counterparts, each one of which shall be deemed an original, this the _____ day of _____, 20__.

ATTEST:

Surety

By

(Attorney-in-Fact)

(Address-Zip Code)

_____ (SEAL)
Witness as to Surety

(Address-Zip Code)

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

**SECTION 00 7300
SUPPLEMENTAL CONDITIONS**

1. Introduction
2. Prevailing Wage Rates
3. Insurance Requirements

SECTION 00 8500 Incorporation of Applicable Provisions of the Massachusetts General Laws

Attachment A - Wage Rates and Certificate of Compliance

§ SC 1.1 INTRODUCTION

The following provisions modify, change, delete from or add to Section 00 5200 Owner-Contractor Agreement. Where any Subsection of the Agreement is modified or any Article Paragraph, Subparagraph or Clause thereof is modified or deleted by these Supplemental Conditions, the unaltered provisions of that Article, Paragraph, Subparagraph or Clause shall remain in effect.

§ SC 2.1 PREVAILING WAGE

In accordance with General Laws Chapter 149, Section 26 through 27D, the Contractor is obligated to comply with the prevailing wage rates established by the Commissioner of the Department of Labor and Workforce Development for mechanics, apprentices, chauffeurs, teamsters and laborers employed on the Project. The schedule of applicable prevailing wage rates for the Project, together with a Certificate of Compliance therewith, are set forth in Attachment A herein.

§ SC 3.1 CONTRACTOR'S LIABILITY INSURANCE

In no case shall the limits of liability be less than the following:

1. Contractor's Liability Insurance
 - a. Workers' Compensation:

Part A. State: Statutory

Part B. Employer Liability:

\$ 500,000 Bodily Injury by Accident
\$ 500,000 Bodily Injury by Disease - policy limit
\$ 500,000 Bodily Injury by Disease - each
 - b. Comprehensive General Liability (including Premises-Operations; Independent Contractor's Protective; Products and Completed Operations; Broad Form Property Damage):
 1. Bodily Injury:
\$ 1,000,000 Each Occurrence
\$ 3,000,000 Aggregate
 2. Products and Completed Operations
\$ 1,000,000 Each Occurrence (bodily injury and property damage)
\$ 3,000,000 Aggregate

Products and Completed
\$ 3,000,000 Operations Aggregate
 3. Property Damage Liability (including coverage for XCU hazards).
\$ 1,000,000 Each Occurrence
\$ 3,000,000 Aggregate
 4. Products and Completed Operations insurance shall be maintained for a minimum period of 3 years after final payment and Contractor shall continue to provide evidence of such coverage to Owner on an annual basis during the aforementioned.

- 5. Contractual Liability (Hold Harmless Coverage):
 - \$__1,000,000_____ Bodily Injury Each Occurrence
 - \$__3,000,000_____ Bodily Insure Aggregate
 - \$__1,000,000_____ Property Damage Each Occurrence
 - \$__3,000,000_____ Property Damage Aggregate

- c. Comprehensive Automobile Liability (owned, non-owned, hired):
 - 1. Bodily Injury and Property Damaged Combined Single Limit
 - \$_1,000,000_____ Each Person
 - \$_1,000,000_____ Each Accident

- d. Property Insurance / Builders Risk: the full Contact sum

- e. Umbrella Liability Coverage
 - \$_2,000,000 All lines of liability coverage naming Town as additional insured

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SECTION 00 8500

Incorporation of Applicable Provisions of the
Massachusetts General Laws

Certain provisions of the Massachusetts General Laws are applicable to Construction contracts including, but not limited to, those contained in Chapter 30 and Chapter 149. All applicable provisions of the Massachusetts General Laws are incorporated into the Contract as if fully set forth herein, and shall prevail over any conflicting provisions of the General or Supplemental General Conditions.

"ATTACHMENT A"
[Wage Rates]



DEVAL L. PATRICK
Governor
TIMOTHY P. MURRAY
Lt. Governor

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

JOANNE F. GOLDSTEIN
Secretary
HEATHER E. ROWE
Director

Awarding Authority: Town of Westford
Contract Number: FROST ROOF **City/Town:** WESTFORD
Description of Work: Replacement of an existing slate roof and related repairs for the Frost School Building located at 73 Main Street in Westford, MA.
Job Location: 73 Main Street, Westford 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.
- Awarding authorities 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.
- 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. Once a contractor has been selected by the awarding authority, the wage schedule shall be made a part of the contract for that project. The wage schedule must be posted in a conspicuous place at the work site during 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 regardless of 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 Division of Apprentice Training (DAT). Apprentices must keep his/her apprentice identification card on his/her person during all work hours on the project. If an apprentice rate is listed on the prevailing wage schedule for the trade in which an apprentice is registered with the DAT, the apprentice may be paid the lower apprentice wage rate at the applicable step as provided on the prevailing wage schedule. **If an apprentice rate is not listed on the prevailing wage schedule for the trade in which an apprentice is registered with the DAT, the apprentice 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. 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 directly to the awarding authority and keep them on file for three years. Each weekly payroll report must contain: the employee’s name, address, occupational classification, hours worked, and wages paid. Do not submit weekly payroll reports to DLS. A sample of a payroll reporting form may be obtained at <http://www.mass.gov/dols/pw>.
- Contractors with questions about the wage rates or classifications included on the wage schedule have an affirmative obligation to inquire with DLS at (617) 626-6953.
- Employees not receiving the prevailing wage rate set forth on the wage schedule may report the violation to the Fair Labor Division of the office of the Attorney General at (617) 727-3465.
- Failure of a contractor or subcontractor to pay the prevailing wage rates listed on the wage schedule to all employees who perform construction work on the project is a violation of the law and subjects the contractor or subcontractor to civil and criminal penalties.

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>	12/01/2012	\$30.45	\$8.91	\$8.00	\$0.00	\$47.36
(3 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2012	\$30.52	\$8.91	\$8.00	\$0.00	\$47.43
(4 & 5 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2012	\$30.64	\$9.07	\$8.00	\$0.00	\$47.71
ADS/SUBMERSIBLE PILOT <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2012	\$82.32	\$9.80	\$17.67	\$0.00	\$109.79
	08/01/2013	\$85.47	\$9.80	\$17.67	\$0.00	\$112.94
	08/01/2014	\$88.62	\$9.80	\$17.67	\$0.00	\$116.09
	08/01/2015	\$91.77	\$9.80	\$17.67	\$0.00	\$119.24
AIR TRACK OPERATOR <i>LABORERS - ZONE 2</i>	06/01/2013	\$30.60	\$7.10	\$11.80	\$0.00	\$49.50
	12/01/2013	\$31.10	\$7.10	\$11.80	\$0.00	\$50.00
	06/01/2014	\$31.60	\$7.10	\$11.80	\$0.00	\$50.50
	12/01/2014	\$32.10	\$7.10	\$11.80	\$0.00	\$51.00
	06/01/2015	\$32.60	\$7.10	\$11.80	\$0.00	\$51.50
	12/01/2015	\$33.10	\$7.10	\$11.80	\$0.00	\$52.00
	06/01/2016	\$33.60	\$7.10	\$11.80	\$0.00	\$52.50
	12/01/2016	\$34.35	\$7.10	\$11.80	\$0.00	\$53.25
For apprentice rates see "Apprentice- LABORER"						
ASBESTOS REMOVER - PIPE / MECH. EQUIPT. <i>HEAT & FROST INSULATORS LOCAL 6 (BOSTON)</i>	06/01/2013	\$29.88	\$10.40	\$5.95	\$0.00	\$46.23
	12/01/2013	\$30.68	\$10.40	\$5.95	\$0.00	\$47.03
	06/01/2014	\$31.58	\$10.40	\$5.95	\$0.00	\$47.93
	12/01/2014	\$32.48	\$10.40	\$5.95	\$0.00	\$48.83
	06/01/2015	\$33.43	\$10.40	\$5.95	\$0.00	\$49.78
	12/01/2015	\$34.38	\$10.40	\$5.95	\$0.00	\$50.73
ASPHALT RAKER <i>LABORERS - ZONE 2</i>	06/01/2013	\$30.10	\$7.10	\$11.80	\$0.00	\$49.00
	12/01/2013	\$30.60	\$7.10	\$11.80	\$0.00	\$49.50
	06/01/2014	\$31.10	\$7.10	\$11.80	\$0.00	\$50.00
	12/01/2014	\$31.60	\$7.10	\$11.80	\$0.00	\$50.50
	06/01/2015	\$32.10	\$7.10	\$11.80	\$0.00	\$51.00
	12/01/2015	\$32.60	\$7.10	\$11.80	\$0.00	\$51.50
	06/01/2016	\$33.10	\$7.10	\$11.80	\$0.00	\$52.00
	12/01/2016	\$33.85	\$7.10	\$11.80	\$0.00	\$52.75
For apprentice rates see "Apprentice- LABORER"						
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2013	\$40.34	\$10.00	\$13.55	\$0.00	\$63.89
	12/01/2013	\$41.12	\$10.00	\$13.55	\$0.00	\$64.67
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BACKHOE/FRONT-END LOADER <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2013	\$40.34	\$10.00	\$13.55	\$0.00	\$63.89
	12/01/2013	\$41.12	\$10.00	\$13.55	\$0.00	\$64.67
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
BARCO-TYPE JUMPING TAMPER <i>LABORERS - ZONE 2</i>	06/01/2013	\$30.10	\$7.10	\$11.80	\$0.00	\$49.00
	12/01/2013	\$30.60	\$7.10	\$11.80	\$0.00	\$49.50
	06/01/2014	\$31.10	\$7.10	\$11.80	\$0.00	\$50.00
	12/01/2014	\$31.60	\$7.10	\$11.80	\$0.00	\$50.50
	06/01/2015	\$32.10	\$7.10	\$11.80	\$0.00	\$51.00
	12/01/2015	\$32.60	\$7.10	\$11.80	\$0.00	\$51.50
	06/01/2016	\$33.10	\$7.10	\$11.80	\$0.00	\$52.00
	12/01/2016	\$33.85	\$7.10	\$11.80	\$0.00	\$52.75

For apprentice rates see "Apprentice- LABORER"

BLOCK PAVER, RAMMER / CURB SETTER <i>LABORERS - ZONE 2</i>	06/01/2013	\$30.60	\$7.10	\$11.80	\$0.00	\$49.50
	12/01/2013	\$31.10	\$7.10	\$11.80	\$0.00	\$50.00
	06/01/2014	\$31.60	\$7.10	\$11.80	\$0.00	\$50.50
	12/01/2014	\$32.10	\$7.10	\$11.80	\$0.00	\$51.00
	06/01/2015	\$32.60	\$7.10	\$11.80	\$0.00	\$51.50
	12/01/2015	\$33.10	\$7.10	\$11.80	\$0.00	\$52.00
	06/01/2016	\$33.60	\$7.10	\$11.80	\$0.00	\$52.50
	12/01/2016	\$34.35	\$7.10	\$11.80	\$0.00	\$53.25

For apprentice rates see "Apprentice- LABORER"

BOILER MAKER <i>BOILERMAKERS LOCAL 29</i>	01/01/2010	\$37.70	\$6.97	\$11.18	\$0.00	\$55.85
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Apprentice - BOILERMAKER - Local 29

Effective Date - 01/01/2010

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	65	\$24.51	\$6.97	\$11.18	\$0.00	\$42.66
2	65	\$24.51	\$6.97	\$11.18	\$0.00	\$42.66
3	70	\$26.39	\$6.97	\$11.18	\$0.00	\$44.54
4	75	\$28.28	\$6.97	\$11.18	\$0.00	\$46.43
5	80	\$30.16	\$6.97	\$11.18	\$0.00	\$48.31
6	85	\$32.05	\$6.97	\$11.18	\$0.00	\$50.20
7	90	\$33.93	\$6.97	\$11.18	\$0.00	\$52.08
8	95	\$35.82	\$6.97	\$11.18	\$0.00	\$53.97

Notes:

Apprentice to Journeyworker Ratio:1:5

BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING) <i>BRICKLAYERS LOCAL 3 (LOWELL)</i>	03/01/2013	\$45.31	\$10.18	\$17.23	\$0.00	\$72.72
	09/01/2013	\$46.21	\$10.18	\$17.30	\$0.00	\$73.69
	03/01/2014	\$46.77	\$10.18	\$17.30	\$0.00	\$74.25
	09/01/2014	\$47.67	\$10.18	\$17.37	\$0.00	\$75.22
	03/01/2015	\$48.23	\$10.18	\$17.37	\$0.00	\$75.78
	09/01/2015	\$49.13	\$10.18	\$17.44	\$0.00	\$76.75
	03/01/2016	\$49.70	\$10.18	\$17.44	\$0.00	\$77.32
	09/01/2016	\$50.60	\$10.18	\$17.52	\$0.00	\$78.30
	03/01/2017	\$51.17	\$10.18	\$17.52	\$0.00	\$78.87

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

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

Effective Date - 03/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.66	\$10.18	\$17.23	\$0.00	\$50.07
2	60	\$27.19	\$10.18	\$17.23	\$0.00	\$54.60
3	70	\$31.72	\$10.18	\$17.23	\$0.00	\$59.13
4	80	\$36.25	\$10.18	\$17.23	\$0.00	\$63.66
5	90	\$40.78	\$10.18	\$17.23	\$0.00	\$68.19

Effective Date - 09/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.11	\$10.18	\$17.30	\$0.00	\$50.59
2	60	\$27.73	\$10.18	\$17.30	\$0.00	\$55.21
3	70	\$32.35	\$10.18	\$17.30	\$0.00	\$59.83
4	80	\$36.97	\$10.18	\$17.30	\$0.00	\$64.45
5	90	\$41.59	\$10.18	\$17.30	\$0.00	\$69.07

Notes:

Apprentice to Journeyworker Ratio:1:5

BULLDOZER/GRADER/SCRAPER OPERATING ENGINEERS LOCAL 4	06/01/2013	\$39.96	\$10.00	\$13.55	\$0.00	\$63.51
	12/01/2013	\$40.74	\$10.00	\$13.55	\$0.00	\$64.29

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

CAISSON & UNDERPINNING BOTTOM MAN LABORERS - FOUNDATION AND MARINE	06/01/2013	\$34.20	\$7.10	\$12.60	\$0.00	\$53.90
	12/01/2013	\$34.95	\$7.10	\$12.60	\$0.00	\$54.65
	06/01/2014	\$35.70	\$7.10	\$12.60	\$0.00	\$55.40
	12/01/2014	\$36.45	\$7.10	\$12.60	\$0.00	\$56.15
	06/01/2015	\$37.20	\$7.10	\$12.60	\$0.00	\$56.90
	12/01/2015	\$37.95	\$7.10	\$12.60	\$0.00	\$57.65
	06/01/2016	\$38.70	\$7.10	\$12.60	\$0.00	\$58.40
	12/01/2016	\$39.70	\$7.10	\$12.60	\$0.00	\$59.40

For apprentice rates see "Apprentice- LABORER"

CAISSON & UNDERPINNING LABORER LABORERS - FOUNDATION AND MARINE	06/01/2013	\$33.05	\$7.10	\$12.60	\$0.00	\$52.75
	12/01/2013	\$33.80	\$7.10	\$12.60	\$0.00	\$53.50
	06/01/2014	\$34.55	\$7.10	\$12.60	\$0.00	\$54.25
	12/01/2014	\$35.30	\$7.10	\$12.60	\$0.00	\$55.00
	06/01/2015	\$36.05	\$7.10	\$12.60	\$0.00	\$55.75
	12/01/2015	\$36.80	\$7.10	\$12.60	\$0.00	\$56.50
	06/01/2016	\$37.55	\$7.10	\$12.60	\$0.00	\$57.25
	12/01/2016	\$38.55	\$7.10	\$12.60	\$0.00	\$58.25

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CAISSON & UNDERPINNING TOP MAN <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2013	\$33.05	\$7.10	\$12.60	\$0.00	\$52.75
	12/01/2013	\$33.80	\$7.10	\$12.60	\$0.00	\$53.50
	06/01/2014	\$34.55	\$7.10	\$12.60	\$0.00	\$54.25
	12/01/2014	\$35.30	\$7.10	\$12.60	\$0.00	\$55.00
	06/01/2015	\$36.05	\$7.10	\$12.60	\$0.00	\$55.75
	12/01/2015	\$36.80	\$7.10	\$12.60	\$0.00	\$56.50
	06/01/2016	\$37.55	\$7.10	\$12.60	\$0.00	\$57.25
	12/01/2016	\$38.55	\$7.10	\$12.60	\$0.00	\$58.25
For apprentice rates see "Apprentice- LABORER"						
CARBIDE CORE DRILL OPERATOR <i>LABORERS - ZONE 2</i>	06/01/2013	\$30.10	\$7.10	\$11.80	\$0.00	\$49.00
	12/01/2013	\$30.60	\$7.10	\$11.80	\$0.00	\$49.50
	06/01/2014	\$31.10	\$7.10	\$11.80	\$0.00	\$50.00
	12/01/2014	\$31.60	\$7.10	\$11.80	\$0.00	\$50.50
	06/01/2015	\$32.10	\$7.10	\$11.80	\$0.00	\$51.00
	12/01/2015	\$32.60	\$7.10	\$11.80	\$0.00	\$51.50
	06/01/2016	\$33.10	\$7.10	\$11.80	\$0.00	\$52.00
	12/01/2016	\$33.85	\$7.10	\$11.80	\$0.00	\$52.75
For apprentice rates see "Apprentice- LABORER"						
CARPENTER <i>CARPENTERS -ZONE 2 (Eastern Massachusetts)</i>	03/01/2013	\$33.92	\$9.80	\$15.61	\$0.00	\$59.33
	09/01/2013	\$34.53	\$9.80	\$15.61	\$0.00	\$59.94
	03/01/2014	\$35.13	\$9.80	\$15.61	\$0.00	\$60.54
	09/01/2014	\$35.90	\$9.80	\$15.61	\$0.00	\$61.31
	03/01/2015	\$36.67	\$9.80	\$15.61	\$0.00	\$62.08

Apprentice - CARPENTER - Zone 2 Eastern MA

Effective Date - 03/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$16.96	\$9.80	\$1.57	\$0.00	\$28.33
2	60	\$20.35	\$9.80	\$1.57	\$0.00	\$31.72
3	70	\$23.74	\$9.80	\$10.90	\$0.00	\$44.44
4	75	\$25.44	\$9.80	\$10.90	\$0.00	\$46.14
5	80	\$27.14	\$9.80	\$12.47	\$0.00	\$49.41
6	80	\$27.14	\$9.80	\$12.47	\$0.00	\$49.41
7	90	\$30.53	\$9.80	\$14.04	\$0.00	\$54.37
8	90	\$30.53	\$9.80	\$14.04	\$0.00	\$54.37

Effective Date - 09/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$17.27	\$9.80	\$1.57	\$0.00	\$28.64
2	60	\$20.72	\$9.80	\$1.57	\$0.00	\$32.09
3	70	\$24.17	\$9.80	\$10.90	\$0.00	\$44.87
4	75	\$25.90	\$9.80	\$10.90	\$0.00	\$46.60
5	80	\$27.62	\$9.80	\$12.47	\$0.00	\$49.89
6	80	\$27.62	\$9.80	\$12.47	\$0.00	\$49.89
7	90	\$31.08	\$9.80	\$14.04	\$0.00	\$54.92
8	90	\$31.08	\$9.80	\$14.04	\$0.00	\$54.92

Notes:

Apprentice to Journeyworker Ratio:1:5

CEMENT MASONRY/PLASTERING	07/01/2013	\$38.45	\$10.90	\$18.71	\$1.30	\$69.36
BRICKLAYERS LOCAL 3 (LOWELL)	01/01/2014	\$39.29	\$10.90	\$18.71	\$1.30	\$70.20
	07/01/2014	\$39.97	\$10.90	\$18.71	\$1.30	\$70.88
	01/01/2015	\$40.80	\$10.90	\$18.71	\$1.30	\$71.71
	07/01/2015	\$41.48	\$10.90	\$18.71	\$1.30	\$72.39
	01/01/2016	\$42.32	\$10.90	\$18.71	\$1.30	\$73.23

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - CEMENT MASONRY/PLASTERING - Lowell

Effective Date - 07/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.23	\$10.90	\$12.21	\$1.30	\$43.64
2	60	\$23.07	\$10.90	\$13.71	\$1.30	\$48.98
3	65	\$24.99	\$10.90	\$14.71	\$1.30	\$51.90
4	70	\$26.92	\$10.90	\$15.71	\$1.30	\$54.83
5	75	\$28.84	\$10.90	\$16.71	\$1.30	\$57.75
6	80	\$30.76	\$10.90	\$17.71	\$1.30	\$60.67
7	90	\$34.61	\$10.90	\$18.71	\$1.30	\$65.52

Effective Date - 01/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.65	\$10.90	\$12.21	\$1.30	\$44.06
2	60	\$23.57	\$10.90	\$13.71	\$1.30	\$49.48
3	65	\$25.54	\$10.90	\$14.71	\$1.30	\$52.45
4	70	\$27.50	\$10.90	\$15.71	\$1.30	\$55.41
5	75	\$29.47	\$10.90	\$16.71	\$1.30	\$58.38
6	80	\$31.43	\$10.90	\$17.71	\$1.30	\$61.34
7	90	\$35.36	\$10.90	\$18.71	\$1.30	\$66.27

Notes:

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

Apprentice to Journeyworker Ratio:1:3

CHAIN SAW OPERATOR LABORERS - ZONE 2	06/01/2013	\$30.10	\$7.10	\$11.80	\$0.00	\$49.00
	12/01/2013	\$30.60	\$7.10	\$11.80	\$0.00	\$49.50
	06/01/2014	\$31.10	\$7.10	\$11.80	\$0.00	\$50.00
	12/01/2014	\$31.60	\$7.10	\$11.80	\$0.00	\$50.50
	06/01/2015	\$32.10	\$7.10	\$11.80	\$0.00	\$51.00
	12/01/2015	\$32.60	\$7.10	\$11.80	\$0.00	\$51.50
	06/01/2016	\$33.10	\$7.10	\$11.80	\$0.00	\$52.00
	12/01/2016	\$33.85	\$7.10	\$11.80	\$0.00	\$52.75

For apprentice rates see "Apprentice- LABORER"

CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES OPERATING ENGINEERS LOCAL 4	06/01/2013	\$41.34	\$10.00	\$13.55	\$0.00	\$64.89
	12/01/2013	\$42.12	\$10.00	\$13.55	\$0.00	\$65.67

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

COMPRESSOR OPERATOR OPERATING ENGINEERS LOCAL 4	06/01/2013	\$28.19	\$10.00	\$13.55	\$0.00	\$51.74
	12/01/2013	\$28.74	\$10.00	\$13.55	\$0.00	\$52.29

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

DELEADER (BRIDGE) PAINTERS LOCAL 35 - ZONE 2	01/01/2013	\$45.01	\$7.80	\$15.60	\$0.00	\$68.41
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Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER Local 35 - BRIDGES/TANKS

Effective Date - 01/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.51	\$7.80	\$0.00	\$0.00	\$30.31
2	55	\$24.76	\$7.80	\$3.52	\$0.00	\$36.08
3	60	\$27.01	\$7.80	\$3.84	\$0.00	\$38.65
4	65	\$29.26	\$7.80	\$4.16	\$0.00	\$41.22
5	70	\$31.51	\$7.80	\$13.68	\$0.00	\$52.99
6	75	\$33.76	\$7.80	\$14.00	\$0.00	\$55.56
7	80	\$36.01	\$7.80	\$14.32	\$0.00	\$58.13
8	90	\$40.51	\$7.80	\$14.96	\$0.00	\$63.27

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

DEMO: ADZEMAN LABORERS - ZONE 2	12/01/2011	\$31.80	\$7.10	\$12.45	\$0.00	\$51.35
For apprentice rates see "Apprentice- LABORER"						
DEMO: BACKHOE/LOADER/HAMMER OPERATOR LABORERS - ZONE 2	12/01/2011	\$32.80	\$7.10	\$12.45	\$0.00	\$52.35
For apprentice rates see "Apprentice- LABORER"						
DEMO: BURNERS LABORERS - ZONE 2	12/01/2011	\$32.55	\$7.10	\$12.45	\$0.00	\$52.10
For apprentice rates see "Apprentice- LABORER"						
DEMO: CONCRETE CUTTER/SAWYER LABORERS - ZONE 2	12/01/2011	\$32.80	\$7.10	\$12.45	\$0.00	\$52.35
For apprentice rates see "Apprentice- LABORER"						
DEMO: JACKHAMMER OPERATOR LABORERS - ZONE 2	12/01/2011	\$32.55	\$7.10	\$12.45	\$0.00	\$52.10
For apprentice rates see "Apprentice- LABORER"						
DEMO: WRECKING LABORER LABORERS - ZONE 2	12/01/2011	\$31.80	\$7.10	\$12.45	\$0.00	\$51.35
For apprentice rates see "Apprentice- LABORER"						
DIRECTIONAL DRILL MACHINE OPERATOR OPERATING ENGINEERS LOCAL 4	06/01/2013	\$39.96	\$10.00	\$13.55	\$0.00	\$63.51
	12/01/2013	\$40.74	\$10.00	\$13.55	\$0.00	\$64.29
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DIVER PILE DRIVER LOCAL 56 (ZONE 1)	08/01/2012	\$54.88	\$9.80	\$17.67	\$0.00	\$82.35
	08/01/2013	\$56.98	\$9.80	\$17.67	\$0.00	\$84.45
	08/01/2014	\$59.08	\$9.80	\$17.67	\$0.00	\$86.55
	08/01/2015	\$61.18	\$9.80	\$17.67	\$0.00	\$88.65
DIVER TENDER PILE DRIVER LOCAL 56 (ZONE 1)	08/01/2012	\$54.88	\$9.80	\$17.67	\$0.00	\$82.35
	08/01/2013	\$56.98	\$9.80	\$17.67	\$0.00	\$84.45
	08/01/2014	\$59.08	\$9.80	\$17.67	\$0.00	\$86.55
	08/01/2015	\$61.18	\$9.80	\$17.67	\$0.00	\$88.65

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DIVER TENDER (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2012	\$58.80	\$9.80	\$17.67	\$0.00	\$86.27
	08/01/2013	\$61.05	\$9.80	\$17.67	\$0.00	\$88.52
	08/01/2014	\$63.30	\$9.80	\$17.67	\$0.00	\$90.77
	08/01/2015	\$65.55	\$9.80	\$17.67	\$0.00	\$93.02
DIVER/SLURRY (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2012	\$82.32	\$9.80	\$17.67	\$0.00	\$109.79
	08/01/2013	\$85.47	\$9.80	\$17.67	\$0.00	\$112.94
	08/01/2014	\$88.62	\$9.80	\$17.67	\$0.00	\$116.09
	08/01/2015	\$91.77	\$9.80	\$17.67	\$0.00	\$119.24
DRAWBRIDGE OPERATOR (Construction) <i>ELECTRICIANS LOCAL 103</i>	03/01/2013	\$43.52	\$13.00	\$14.16	\$0.00	\$70.68
	09/01/2013	\$44.20	\$13.00	\$14.18	\$0.00	\$71.38
	03/01/2014	\$44.92	\$13.00	\$14.20	\$0.00	\$72.12
	09/01/2014	\$45.60	\$13.00	\$14.22	\$0.00	\$72.82
	03/01/2015	\$46.32	\$13.00	\$14.24	\$0.00	\$73.56
	09/01/2015	\$47.27	\$13.00	\$14.27	\$0.00	\$74.54
	03/01/2016	\$48.23	\$13.00	\$14.30	\$0.00	\$75.53
For apprentice rates see "Apprentice- ELECTRICIAN"						
ELECTRICIAN <i>ELECTRICIANS LOCAL 103</i>	03/01/2013	\$43.52	\$13.00	\$14.16	\$0.00	\$70.68
	09/01/2013	\$44.20	\$13.00	\$14.18	\$0.00	\$71.38
	03/01/2014	\$44.92	\$13.00	\$14.20	\$0.00	\$72.12
	09/01/2014	\$45.60	\$13.00	\$14.22	\$0.00	\$72.82
	03/01/2015	\$46.32	\$13.00	\$14.24	\$0.00	\$73.56
	09/01/2015	\$47.27	\$13.00	\$14.27	\$0.00	\$74.54
	03/01/2016	\$48.23	\$13.00	\$14.30	\$0.00	\$75.53

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - ELECTRICIAN - Local 103

Effective Date - 03/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$17.41	\$13.00	\$0.52	\$0.00	\$30.93
2	40	\$17.41	\$13.00	\$0.52	\$0.00	\$30.93
3	45	\$19.58	\$13.00	\$10.53	\$0.00	\$43.11
4	45	\$19.58	\$13.00	\$10.53	\$0.00	\$43.11
5	50	\$21.76	\$13.00	\$10.85	\$0.00	\$45.61
6	55	\$23.94	\$13.00	\$11.19	\$0.00	\$48.13
7	60	\$26.11	\$13.00	\$11.51	\$0.00	\$50.62
8	65	\$28.29	\$13.00	\$11.85	\$0.00	\$53.14
9	70	\$30.46	\$13.00	\$12.17	\$0.00	\$55.63
10	75	\$32.64	\$13.00	\$12.51	\$0.00	\$58.15

Effective Date - 09/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$17.68	\$13.00	\$0.53	\$0.00	\$31.21
2	40	\$17.68	\$13.00	\$0.53	\$0.00	\$31.21
3	45	\$19.89	\$13.00	\$10.54	\$0.00	\$43.43
4	45	\$19.89	\$13.00	\$10.54	\$0.00	\$43.43
5	50	\$22.10	\$13.00	\$10.86	\$0.00	\$45.96
6	55	\$24.31	\$13.00	\$11.20	\$0.00	\$48.51
7	60	\$26.52	\$13.00	\$11.53	\$0.00	\$51.05
8	65	\$28.73	\$13.00	\$11.86	\$0.00	\$53.59
9	70	\$30.94	\$13.00	\$12.19	\$0.00	\$56.13
10	75	\$33.15	\$13.00	\$12.53	\$0.00	\$58.68

Notes :
 App Prior 1/1/03; 30/35/40/45/50/55/65/70/75/80

Apprentice to Journeyworker Ratio:2:3***

ELEVATOR CONSTRUCTOR ELEVATOR CONSTRUCTORS LOCAL 4	01/01/2012	\$52.45	\$8.78	\$6.96	\$0.00	\$68.19
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Apprentice - ELEVATOR CONSTRUCTOR - Local 4

Effective Date - 01/01/2012

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.23	\$8.78	\$0.00	\$0.00	\$35.01
2	55	\$28.85	\$8.78	\$6.96	\$0.00	\$44.59
3	65	\$34.09	\$8.78	\$6.96	\$0.00	\$49.83
4	70	\$36.72	\$8.78	\$6.96	\$0.00	\$52.46
5	80	\$41.96	\$8.78	\$6.96	\$0.00	\$57.70

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 4</i>	01/01/2012	\$38.59	\$8.78	\$6.96	\$0.00	\$54.33
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FENCE & GUARD RAIL ERECTOR <i>LABORERS - ZONE 2</i>	06/01/2013	\$30.10	\$7.10	\$11.80	\$0.00	\$49.00
	12/01/2013	\$30.60	\$7.10	\$11.80	\$0.00	\$49.50
	06/01/2014	\$31.10	\$7.10	\$11.80	\$0.00	\$50.00
	12/01/2014	\$31.60	\$7.10	\$11.80	\$0.00	\$50.50
	06/01/2015	\$32.10	\$7.10	\$11.80	\$0.00	\$51.00
	12/01/2015	\$32.60	\$7.10	\$11.80	\$0.00	\$51.50
	06/01/2016	\$33.10	\$7.10	\$11.80	\$0.00	\$52.00
	12/01/2016	\$33.85	\$7.10	\$11.80	\$0.00	\$52.75

For apprentice rates see "Apprentice- LABORER"

FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	05/01/2013	\$38.50	\$10.00	\$13.02	\$0.00	\$61.52
	11/01/2013	\$39.26	\$10.00	\$13.02	\$0.00	\$62.28
	05/01/2014	\$40.03	\$10.00	\$13.02	\$0.00	\$63.05

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	05/01/2013	\$39.91	\$10.00	\$13.02	\$0.00	\$62.93
	11/01/2013	\$40.68	\$10.00	\$13.02	\$0.00	\$63.70
	05/01/2014	\$41.45	\$10.00	\$13.02	\$0.00	\$64.47

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	05/01/2013	\$21.17	\$10.00	\$13.02	\$0.00	\$44.19
	11/01/2013	\$21.63	\$10.00	\$13.02	\$0.00	\$44.65
	05/01/2014	\$22.08	\$10.00	\$13.02	\$0.00	\$45.10

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

FIRE ALARM INSTALLER <i>ELECTRICIANS LOCAL 103</i>	03/01/2013	\$43.52	\$13.00	\$14.16	\$0.00	\$70.68
	09/01/2013	\$44.20	\$13.00	\$14.18	\$0.00	\$71.38
	03/01/2014	\$44.92	\$13.00	\$14.20	\$0.00	\$72.12
	09/01/2014	\$45.60	\$13.00	\$14.22	\$0.00	\$72.82
	03/01/2015	\$46.32	\$13.00	\$14.24	\$0.00	\$73.56
	09/01/2015	\$47.27	\$13.00	\$14.27	\$0.00	\$74.54
	03/01/2016	\$48.23	\$13.00	\$14.30	\$0.00	\$75.53

For apprentice rates see "Apprentice- ELECTRICIAN"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FIRE ALARM REPAIR / MAINTENANCE	03/01/2013	\$32.64	\$13.00	\$12.51	\$0.00	\$58.15
LOCAL 103 / COMMISSIONING <i>ELECTRICIANS</i>	09/01/2013	\$33.15	\$13.00	\$12.52	\$0.00	\$58.67
	03/01/2014	\$33.69	\$13.00	\$12.54	\$0.00	\$59.23
	09/01/2014	\$34.20	\$13.00	\$12.56	\$0.00	\$59.76
	03/01/2015	\$34.74	\$13.00	\$12.57	\$0.00	\$60.31
	09/01/2015	\$35.45	\$13.00	\$12.59	\$0.00	\$61.04
	03/01/2016	\$36.17	\$13.00	\$12.62	\$0.00	\$61.79
For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"						
FIREMAN (ASST. ENGINEER)	06/01/2013	\$33.73	\$10.00	\$13.55	\$0.00	\$57.28
OPERATING ENGINEERS LOCAL 4	12/01/2013	\$34.39	\$10.00	\$13.55	\$0.00	\$57.94
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FLAGGER & SIGNALER	06/01/2013	\$20.50	\$7.10	\$11.80	\$0.00	\$39.40
LABORERS - ZONE 2	12/01/2013	\$20.50	\$7.10	\$11.80	\$0.00	\$39.40
	06/01/2014	\$20.50	\$7.10	\$11.80	\$0.00	\$39.40
	12/01/2014	\$20.50	\$7.10	\$11.80	\$0.00	\$39.40
	06/01/2015	\$20.50	\$7.10	\$11.80	\$0.00	\$39.40
	12/01/2015	\$20.50	\$7.10	\$11.80	\$0.00	\$39.40
	06/01/2016	\$20.50	\$7.10	\$11.80	\$0.00	\$39.40
	12/01/2016	\$20.50	\$7.10	\$11.80	\$0.00	\$39.40
For apprentice rates see "Apprentice- LABORER"						
FLOORCOVERER	03/01/2013	\$38.61	\$9.80	\$16.71	\$0.00	\$65.12
FLOORCOVERERS LOCAL 2168 ZONE 1	09/01/2013	\$38.61	\$9.80	\$16.71	\$0.00	\$65.12
	03/01/2014	\$38.61	\$9.80	\$16.71	\$0.00	\$65.12

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - FLOORCOVERER - Local 2168 Zone I

Effective Date - 03/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.31	\$9.80	\$1.79	\$0.00	\$30.90
2	55	\$21.24	\$9.80	\$1.79	\$0.00	\$32.83
3	60	\$23.17	\$9.80	\$11.34	\$0.00	\$44.31
4	65	\$25.10	\$9.80	\$11.34	\$0.00	\$46.24
5	70	\$27.03	\$9.80	\$13.13	\$0.00	\$49.96
6	75	\$28.96	\$9.80	\$13.13	\$0.00	\$51.89
7	80	\$30.89	\$9.80	\$14.92	\$0.00	\$55.61
8	85	\$32.82	\$9.80	\$14.92	\$0.00	\$57.54

Effective Date - 09/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.31	\$9.80	\$1.79	\$0.00	\$30.90
2	55	\$21.24	\$9.80	\$1.79	\$0.00	\$32.83
3	60	\$23.17	\$9.80	\$11.34	\$0.00	\$44.31
4	65	\$25.10	\$9.80	\$11.34	\$0.00	\$46.24
5	70	\$27.03	\$9.80	\$13.13	\$0.00	\$49.96
6	75	\$28.96	\$9.80	\$13.13	\$0.00	\$51.89
7	80	\$30.89	\$9.80	\$14.92	\$0.00	\$55.61
8	85	\$32.82	\$9.80	\$14.92	\$0.00	\$57.54

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

FORK LIFT/CHERRY PICKER <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2013	\$40.34	\$10.00	\$13.55	\$0.00	\$63.89
	12/01/2013	\$41.12	\$10.00	\$13.55	\$0.00	\$64.67
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GENERATOR/LIGHTING PLANT/HEATERS <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2013	\$28.19	\$10.00	\$13.55	\$0.00	\$51.74
	12/01/2013	\$28.74	\$10.00	\$13.55	\$0.00	\$52.29
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS) <i>GLAZIERS LOCAL 35 (ZONE 2)</i>	01/01/2013	\$35.51	\$7.80	\$14.60	\$0.00	\$57.91

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - GLAZIER - Local 35 Zone 2

Effective Date - 01/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$17.76	\$7.80	\$0.00	\$0.00	\$25.56
2	55	\$19.53	\$7.80	\$3.25	\$0.00	\$30.58
3	60	\$21.31	\$7.80	\$3.54	\$0.00	\$32.65
4	65	\$23.08	\$7.80	\$3.84	\$0.00	\$34.72
5	70	\$24.86	\$7.80	\$12.83	\$0.00	\$45.49
6	75	\$26.63	\$7.80	\$13.13	\$0.00	\$47.56
7	80	\$28.41	\$7.80	\$13.42	\$0.00	\$49.63
8	90	\$31.96	\$7.80	\$14.01	\$0.00	\$53.77

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

HOISTING ENGINEER/CRANES/GRADALLS	06/01/2013	\$40.34	\$10.00	\$13.55	\$0.00	\$63.89
OPERATING ENGINEERS LOCAL 4	12/01/2013	\$41.12	\$10.00	\$13.55	\$0.00	\$64.67

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - OPERATING ENGINEERS - Local 4

Effective Date - 06/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$22.19	\$10.00	\$0.00	\$0.00	\$32.19
2	60	\$24.20	\$10.00	\$13.55	\$0.00	\$47.75
3	65	\$26.22	\$10.00	\$13.55	\$0.00	\$49.77
4	70	\$28.24	\$10.00	\$13.55	\$0.00	\$51.79
5	75	\$30.26	\$10.00	\$13.55	\$0.00	\$53.81
6	80	\$32.27	\$10.00	\$13.55	\$0.00	\$55.82
7	85	\$34.29	\$10.00	\$13.55	\$0.00	\$57.84
8	90	\$36.31	\$10.00	\$13.55	\$0.00	\$59.86

Effective Date - 12/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$22.62	\$10.00	\$0.00	\$0.00	\$32.62
2	60	\$24.67	\$10.00	\$13.55	\$0.00	\$48.22
3	65	\$26.73	\$10.00	\$13.55	\$0.00	\$50.28
4	70	\$28.78	\$10.00	\$13.55	\$0.00	\$52.33
5	75	\$30.84	\$10.00	\$13.55	\$0.00	\$54.39
6	80	\$32.90	\$10.00	\$13.55	\$0.00	\$56.45
7	85	\$34.95	\$10.00	\$13.55	\$0.00	\$58.50
8	90	\$37.01	\$10.00	\$13.55	\$0.00	\$60.56

Notes:

Apprentice to Journeyworker Ratio:1:6

HVAC (DUCTWORK) 02/01/2013 \$42.32 \$9.82 \$18.24 \$2.11 \$72.49
 SHEETMETAL WORKERS LOCAL 17 - A

For apprentice rates see "Apprentice- SHEET METAL WORKER"

HVAC (ELECTRICAL CONTROLS) 03/01/2013 \$43.52 \$13.00 \$14.16 \$0.00 \$70.68
 ELECTRICIANS LOCAL 103
 09/01/2013 \$44.20 \$13.00 \$14.18 \$0.00 \$71.38
 03/01/2014 \$44.92 \$13.00 \$14.20 \$0.00 \$72.12
 09/01/2014 \$45.60 \$13.00 \$14.22 \$0.00 \$72.82
 03/01/2015 \$46.32 \$13.00 \$14.24 \$0.00 \$73.56
 09/01/2015 \$47.27 \$13.00 \$14.27 \$0.00 \$74.54
 03/01/2016 \$48.23 \$13.00 \$14.30 \$0.00 \$75.53

For apprentice rates see "Apprentice- ELECTRICIAN"

HVAC (TESTING AND BALANCING - AIR) 02/01/2013 \$42.32 \$9.82 \$18.24 \$2.11 \$72.49
 SHEETMETAL WORKERS LOCAL 17 - A

For apprentice rates see "Apprentice- SHEET METAL WORKER"

HVAC (TESTING AND BALANCING -WATER) 03/01/2013 \$49.34 \$8.75 \$14.39 \$0.00 \$72.48
 PIPEFITTERS LOCAL 537

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

HVAC MECHANIC 03/01/2013 \$49.34 \$8.75 \$14.39 \$0.00 \$72.48
 PIPEFITTERS LOCAL 537

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HYDRAULIC DRILLS LABORERS - ZONE 2	06/01/2013	\$30.60	\$7.10	\$11.80	\$0.00	\$49.50
	12/01/2013	\$31.10	\$7.10	\$11.80	\$0.00	\$50.00
	06/01/2014	\$31.60	\$7.10	\$11.80	\$0.00	\$50.50
	12/01/2014	\$32.10	\$7.10	\$11.80	\$0.00	\$51.00
	06/01/2015	\$32.60	\$7.10	\$11.80	\$0.00	\$51.50
	12/01/2015	\$33.10	\$7.10	\$11.80	\$0.00	\$52.00
	06/01/2016	\$33.60	\$7.10	\$11.80	\$0.00	\$52.50
	12/01/2016	\$34.35	\$7.10	\$11.80	\$0.00	\$53.25

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- LABORER"						
INSULATOR (PIPES & TANKS) HEAT & FROST INSULATORS LOCAL 6 (BOSTON)	09/01/2012	\$41.46	\$10.65	\$11.50	\$0.00	\$63.61
	09/01/2013	\$43.06	\$10.65	\$11.50	\$0.00	\$65.21
	09/01/2014	\$45.06	\$10.65	\$11.50	\$0.00	\$67.21

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

Effective Date - 09/01/2012

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.73	\$10.65	\$8.60	\$0.00	\$39.98
2	60	\$24.88	\$10.65	\$9.18	\$0.00	\$44.71
3	70	\$29.02	\$10.65	\$9.76	\$0.00	\$49.43
4	80	\$33.17	\$10.65	\$10.34	\$0.00	\$54.16

Effective Date - 09/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.53	\$10.65	\$8.60	\$0.00	\$40.78
2	60	\$25.84	\$10.65	\$9.18	\$0.00	\$45.67
3	70	\$30.14	\$10.65	\$9.76	\$0.00	\$50.55
4	80	\$34.45	\$10.65	\$10.34	\$0.00	\$55.44

Notes:

Steps are 1 year

Apprentice to Journeyworker Ratio:1:4

IRONWORKER/WELDER IRONWORKERS LOCAL 7 (LAWRENCE AREA)	03/16/2013	\$35.82	\$7.70	\$18.35	\$0.00	\$61.87
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Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - IRONWORKER - Local 7 Lawrence

Effective Date - 03/16/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$21.49	\$7.70	\$18.35	\$0.00	\$47.54
2	70	\$25.07	\$7.70	\$18.35	\$0.00	\$51.12
3	75	\$26.87	\$7.70	\$18.35	\$0.00	\$52.92
4	80	\$28.66	\$7.70	\$18.35	\$0.00	\$54.71
5	85	\$30.45	\$7.70	\$18.35	\$0.00	\$56.50
6	90	\$32.24	\$7.70	\$18.35	\$0.00	\$58.29

Notes:

Structural 1:6; Ornamental 1:4

Apprentice to Journeyworker Ratio:

JACKHAMMER & PAVING BREAKER OPERATOR LABORERS - ZONE 2	06/01/2013	\$30.10	\$7.10	\$11.80	\$0.00	\$49.00
	12/01/2013	\$30.60	\$7.10	\$11.80	\$0.00	\$49.50
	06/01/2014	\$31.10	\$7.10	\$11.80	\$0.00	\$50.00
	12/01/2014	\$31.60	\$7.10	\$11.80	\$0.00	\$50.50
	06/01/2015	\$32.10	\$7.10	\$11.80	\$0.00	\$51.00
	12/01/2015	\$32.60	\$7.10	\$11.80	\$0.00	\$51.50
	06/01/2016	\$33.10	\$7.10	\$11.80	\$0.00	\$52.00
	12/01/2016	\$33.85	\$7.10	\$11.80	\$0.00	\$52.75

For apprentice rates see "Apprentice- LABORER"

LABORER LABORERS - ZONE 2	06/01/2013	\$29.85	\$7.10	\$11.80	\$0.00	\$48.75
	12/01/2013	\$30.35	\$7.10	\$11.80	\$0.00	\$49.25
	06/01/2014	\$30.85	\$7.10	\$11.80	\$0.00	\$49.75
	12/01/2014	\$31.35	\$7.10	\$11.80	\$0.00	\$50.25
	06/01/2015	\$31.85	\$7.10	\$11.80	\$0.00	\$50.75
	12/01/2015	\$32.35	\$7.10	\$11.80	\$0.00	\$51.25
	06/01/2016	\$32.85	\$7.10	\$11.80	\$0.00	\$51.75
	12/01/2016	\$33.60	\$7.10	\$11.80	\$0.00	\$52.50

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - LABORER - Zone 2

Effective Date - 06/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$17.91	\$7.10	\$11.80	\$0.00	\$36.81
2	70	\$20.90	\$7.10	\$11.80	\$0.00	\$39.80
3	80	\$23.88	\$7.10	\$11.80	\$0.00	\$42.78
4	90	\$26.87	\$7.10	\$11.80	\$0.00	\$45.77

Effective Date - 12/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$18.21	\$7.10	\$11.80	\$0.00	\$37.11
2	70	\$21.25	\$7.10	\$11.80	\$0.00	\$40.15
3	80	\$24.28	\$7.10	\$11.80	\$0.00	\$43.18
4	90	\$27.32	\$7.10	\$11.80	\$0.00	\$46.22

Notes:

Apprentice to Journeyworker Ratio:1:5

LABORER: CARPENTER TENDER LABORERS - ZONE 2	06/01/2013	\$29.85	\$7.10	\$11.80	\$0.00	\$48.75
	12/01/2013	\$30.35	\$7.10	\$11.80	\$0.00	\$49.25
	06/01/2014	\$30.85	\$7.10	\$11.80	\$0.00	\$49.75
	12/01/2014	\$31.35	\$7.10	\$11.80	\$0.00	\$50.25
	06/01/2015	\$31.85	\$7.10	\$11.80	\$0.00	\$50.75
	12/01/2015	\$32.35	\$7.10	\$11.80	\$0.00	\$51.25
	06/01/2016	\$32.85	\$7.10	\$11.80	\$0.00	\$51.75
	12/01/2016	\$33.60	\$7.10	\$11.80	\$0.00	\$52.50

For apprentice rates see "Apprentice- LABORER"

LABORER: CEMENT FINISHER TENDER LABORERS - ZONE 2	06/01/2013	\$29.85	\$7.10	\$11.80	\$0.00	\$48.75
	12/01/2013	\$30.35	\$7.10	\$11.80	\$0.00	\$49.25
	06/01/2014	\$30.85	\$7.10	\$11.80	\$0.00	\$49.75
	12/01/2014	\$31.35	\$7.10	\$11.80	\$0.00	\$50.25
	06/01/2015	\$31.85	\$7.10	\$11.80	\$0.00	\$50.75
	12/01/2015	\$32.35	\$7.10	\$11.80	\$0.00	\$51.25
	06/01/2016	\$32.85	\$7.10	\$11.80	\$0.00	\$51.75
	12/01/2016	\$33.60	\$7.10	\$11.80	\$0.00	\$52.50

For apprentice rates see "Apprentice- LABORER"

LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER LABORERS - ZONE 2	12/01/2011	\$29.35	\$7.10	\$11.55	\$0.00	\$48.00
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For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LABORER: MASON TENDER <i>LABORERS - ZONE 2</i>	06/01/2013	\$30.10	\$7.10	\$11.80	\$0.00	\$49.00
	12/01/2013	\$30.60	\$7.10	\$11.80	\$0.00	\$49.50
	06/01/2014	\$31.10	\$7.10	\$11.80	\$0.00	\$50.00
	12/01/2014	\$31.60	\$7.10	\$11.80	\$0.00	\$50.50
	06/01/2015	\$32.10	\$7.10	\$11.80	\$0.00	\$51.00
	12/01/2015	\$32.60	\$7.10	\$11.80	\$0.00	\$51.50
	06/01/2016	\$33.10	\$7.10	\$11.80	\$0.00	\$52.00
	12/01/2016	\$33.85	\$7.10	\$11.80	\$0.00	\$52.75
For apprentice rates see "Apprentice- LABORER"						
LABORER: MULTI-TRADE TENDER <i>LABORERS - ZONE 2</i>	06/01/2013	\$29.85	\$7.10	\$11.80	\$0.00	\$48.75
	12/01/2013	\$30.35	\$7.10	\$11.80	\$0.00	\$49.25
	06/01/2014	\$30.85	\$7.10	\$11.80	\$0.00	\$49.75
	12/01/2014	\$31.35	\$7.10	\$11.80	\$0.00	\$50.25
	06/01/2015	\$31.85	\$7.10	\$11.80	\$0.00	\$50.75
	12/01/2015	\$32.35	\$7.10	\$11.80	\$0.00	\$51.25
	06/01/2016	\$32.85	\$7.10	\$11.80	\$0.00	\$51.75
	12/01/2016	\$33.60	\$7.10	\$11.80	\$0.00	\$52.50
For apprentice rates see "Apprentice- LABORER"						
LABORER: TREE REMOVER <i>LABORERS - ZONE 2</i>	06/01/2013	\$29.85	\$7.10	\$11.80	\$0.00	\$48.75
	12/01/2013	\$30.35	\$7.10	\$11.80	\$0.00	\$49.25
	06/01/2014	\$30.85	\$7.10	\$11.80	\$0.00	\$49.75
	12/01/2014	\$31.35	\$7.10	\$11.80	\$0.00	\$50.25
	06/01/2015	\$31.85	\$7.10	\$11.80	\$0.00	\$50.75
	12/01/2015	\$32.35	\$7.10	\$11.80	\$0.00	\$51.25
	06/01/2016	\$32.85	\$7.10	\$11.80	\$0.00	\$51.75
	12/01/2016	\$33.60	\$7.10	\$11.80	\$0.00	\$52.50
This classification applies to the wholesale removal of standing trees including all associated trimming of branches and limbs, and applies to the removal of branches at locations not on or around utility lines. For apprentice rates see "Apprentice- LABORER"						
LASER BEAM OPERATOR <i>LABORERS - ZONE 2</i>	06/01/2013	\$30.10	\$7.10	\$11.80	\$0.00	\$49.00
	12/01/2013	\$30.60	\$7.10	\$11.80	\$0.00	\$49.50
	06/01/2014	\$31.10	\$7.10	\$11.80	\$0.00	\$50.00
	12/01/2014	\$31.60	\$7.10	\$11.80	\$0.00	\$50.50
	06/01/2015	\$32.10	\$7.10	\$11.80	\$0.00	\$51.00
	12/01/2015	\$32.60	\$7.10	\$11.80	\$0.00	\$51.50
	06/01/2016	\$33.10	\$7.10	\$11.80	\$0.00	\$52.00
	12/01/2016	\$33.85	\$7.10	\$11.80	\$0.00	\$52.75
For apprentice rates see "Apprentice- LABORER"						
MARBLE & TILE FINISHERS <i>BRICKLAYERS LOCAL 3 - MARBLE & TILE</i>	02/01/2013	\$36.20	\$10.18	\$16.51	\$0.00	\$62.89
	08/01/2013	\$36.66	\$10.18	\$16.83	\$0.00	\$63.67
	02/01/2014	\$37.11	\$10.18	\$16.83	\$0.00	\$64.12
	08/01/2014	\$37.82	\$10.18	\$16.90	\$0.00	\$64.90
	02/01/2015	\$38.27	\$10.18	\$16.90	\$0.00	\$65.35
	08/01/2015	\$38.98	\$10.18	\$16.97	\$0.00	\$66.13
	02/01/2016	\$39.43	\$10.18	\$16.97	\$0.00	\$66.58
	08/01/2016	\$40.13	\$10.18	\$17.05	\$0.00	\$67.36
	02/01/2017	\$40.59	\$10.18	\$17.05	\$0.00	\$67.82

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

Effective Date - 02/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$18.10	\$10.18	\$16.51	\$0.00	\$44.79
2	60	\$21.72	\$10.18	\$16.51	\$0.00	\$48.41
3	70	\$25.34	\$10.18	\$16.51	\$0.00	\$52.03
4	80	\$28.96	\$10.18	\$16.51	\$0.00	\$55.65
5	90	\$32.58	\$10.18	\$16.51	\$0.00	\$59.27

Effective Date - 08/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$18.33	\$10.18	\$16.83	\$0.00	\$45.34
2	60	\$22.00	\$10.18	\$16.83	\$0.00	\$49.01
3	70	\$25.66	\$10.18	\$16.83	\$0.00	\$52.67
4	80	\$29.33	\$10.18	\$16.83	\$0.00	\$56.34
5	90	\$32.99	\$10.18	\$16.83	\$0.00	\$60.00

Notes:

Apprentice to Journeyworker Ratio:1:3

MARBLE MASONS, TILELAYERS & TERRAZZO MECH	02/01/2013	\$47.45	\$10.18	\$17.83	\$0.00	\$75.46
BRICKLAYERS LOCAL 3 - MARBLE & TILE	08/01/2013	\$48.10	\$10.18	\$18.15	\$0.00	\$76.43
	02/01/2014	\$48.66	\$10.18	\$18.15	\$0.00	\$76.99
	08/01/2014	\$49.56	\$10.18	\$18.22	\$0.00	\$77.96
	02/01/2015	\$50.12	\$10.18	\$18.22	\$0.00	\$78.52
	08/01/2015	\$51.02	\$10.18	\$18.29	\$0.00	\$79.49
	02/01/2016	\$51.59	\$10.18	\$18.29	\$0.00	\$80.06
	08/01/2016	\$52.49	\$10.18	\$18.37	\$0.00	\$81.04
	02/01/2017	\$53.06	\$10.18	\$18.37	\$0.00	\$81.61

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

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

Effective Date - 02/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.73	\$10.18	\$17.83	\$0.00	\$51.74
2	60	\$28.47	\$10.18	\$17.83	\$0.00	\$56.48
3	70	\$33.22	\$10.18	\$17.83	\$0.00	\$61.23
4	80	\$37.96	\$10.18	\$17.83	\$0.00	\$65.97
5	90	\$42.71	\$10.18	\$17.83	\$0.00	\$70.72

Effective Date - 08/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.05	\$10.18	\$18.15	\$0.00	\$52.38
2	60	\$28.86	\$10.18	\$18.15	\$0.00	\$57.19
3	70	\$33.67	\$10.18	\$18.15	\$0.00	\$62.00
4	80	\$38.48	\$10.18	\$18.15	\$0.00	\$66.81
5	90	\$43.29	\$10.18	\$18.15	\$0.00	\$71.62

Notes:

Apprentice to Journeyworker Ratio:1:5

MECH. SWEEPER OPERATOR (ON CONST. SITES) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2013	\$39.96	\$10.00	\$13.55	\$0.00	\$63.51
	12/01/2013	\$40.74	\$10.00	\$13.55	\$0.00	\$64.29
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
MECHANICS MAINTENANCE <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2013	\$39.96	\$10.00	\$13.55	\$0.00	\$63.51
	12/01/2013	\$40.74	\$10.00	\$13.55	\$0.00	\$64.29
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
MILLWRIGHT (Zone 2) <i>MILLWRIGHTS LOCAL 1121 - Zone 2</i>	04/01/2013	\$32.47	\$9.80	\$15.76	\$0.00	\$58.03
	10/01/2013	\$33.06	\$9.80	\$15.76	\$0.00	\$58.62
	04/01/2014	\$33.66	\$9.80	\$15.76	\$0.00	\$59.22
	10/01/2014	\$34.42	\$9.80	\$15.76	\$0.00	\$59.98
	04/01/2015	\$35.19	\$9.80	\$15.76	\$0.00	\$60.75

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - MILLWRIGHT - Local 1121 Zone 2

Effective Date - 04/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$17.86	\$9.80	\$4.32	\$0.00	\$31.98
2	65	\$21.11	\$9.80	\$13.01	\$0.00	\$43.92
3	75	\$24.35	\$9.80	\$13.80	\$0.00	\$47.95
4	85	\$27.60	\$9.80	\$14.58	\$0.00	\$51.98

Effective Date - 10/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$18.18	\$9.80	\$4.32	\$0.00	\$32.30
2	65	\$21.49	\$9.80	\$13.01	\$0.00	\$44.30
3	75	\$24.80	\$9.80	\$13.80	\$0.00	\$48.40
4	85	\$28.10	\$9.80	\$14.58	\$0.00	\$52.48

Notes:

Steps are 2,000 hours

Apprentice to Journeyworker Ratio:1:5

MORTAR MIXER LABORERS - ZONE 2	06/01/2013	\$30.10	\$7.10	\$11.80	\$0.00	\$49.00
	12/01/2013	\$30.60	\$7.10	\$11.80	\$0.00	\$49.50
	06/01/2014	\$31.10	\$7.10	\$11.80	\$0.00	\$50.00
	12/01/2014	\$31.60	\$7.10	\$11.80	\$0.00	\$50.50
	06/01/2015	\$32.10	\$7.10	\$11.80	\$0.00	\$51.00
	12/01/2015	\$32.60	\$7.10	\$11.80	\$0.00	\$51.50
	06/01/2016	\$33.10	\$7.10	\$11.80	\$0.00	\$52.00
	12/01/2016	\$33.85	\$7.10	\$11.80	\$0.00	\$52.75
For apprentice rates see "Apprentice- LABORER"						
OILER (OTHER THAN TRUCK CRANES,GRADALLS) OPERATING ENGINEERS LOCAL 4	06/01/2013	\$21.17	\$10.00	\$13.55	\$0.00	\$44.72
	12/01/2013	\$21.59	\$10.00	\$13.55	\$0.00	\$45.14
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OILER (TRUCK CRANES, GRADALLS) OPERATING ENGINEERS LOCAL 4	06/01/2013	\$24.57	\$10.00	\$13.55	\$0.00	\$48.12
	12/01/2013	\$25.06	\$10.00	\$13.55	\$0.00	\$48.61
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OTHER POWER DRIVEN EQUIPMENT - CLASS II OPERATING ENGINEERS LOCAL 4	06/01/2013	\$39.96	\$10.00	\$13.55	\$0.00	\$63.51
	12/01/2013	\$40.74	\$10.00	\$13.55	\$0.00	\$64.29
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PAINTER (BRIDGES/TANKS) PAINTERS LOCAL 35 - ZONE 2	01/01/2013	\$45.01	\$7.80	\$15.60	\$0.00	\$68.41

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER Local 35 - BRIDGES/TANKS

Effective Date - 01/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.51	\$7.80	\$0.00	\$0.00	\$30.31
2	55	\$24.76	\$7.80	\$3.52	\$0.00	\$36.08
3	60	\$27.01	\$7.80	\$3.84	\$0.00	\$38.65
4	65	\$29.26	\$7.80	\$4.16	\$0.00	\$41.22
5	70	\$31.51	\$7.80	\$13.68	\$0.00	\$52.99
6	75	\$33.76	\$7.80	\$14.00	\$0.00	\$55.56
7	80	\$36.01	\$7.80	\$14.32	\$0.00	\$58.13
8	90	\$40.51	\$7.80	\$14.96	\$0.00	\$63.27

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, NEW) *	01/01/2013	\$35.91	\$7.80	\$15.60	\$0.00	\$59.31
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* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. PAINTERS LOCAL 35 - ZONE 2

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

Effective Date - 01/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$17.96	\$7.80	\$0.00	\$0.00	\$25.76
2	55	\$19.75	\$7.80	\$3.52	\$0.00	\$31.07
3	60	\$21.55	\$7.80	\$3.84	\$0.00	\$33.19
4	65	\$23.34	\$7.80	\$4.16	\$0.00	\$35.30
5	70	\$25.14	\$7.80	\$13.68	\$0.00	\$46.62
6	75	\$26.93	\$7.80	\$14.00	\$0.00	\$48.73
7	80	\$28.73	\$7.80	\$14.32	\$0.00	\$50.85
8	90	\$32.32	\$7.80	\$14.96	\$0.00	\$55.08

Notes:

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, REPAINT)	01/01/2013	\$33.97	\$7.80	\$15.60	\$0.00	\$57.37
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PAINTERS LOCAL 35 - ZONE 2

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

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

Effective Date - 01/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$16.99	\$7.80	\$0.00	\$0.00	\$24.79
2	55	\$18.68	\$7.80	\$3.52	\$0.00	\$30.00
3	60	\$20.38	\$7.80	\$3.84	\$0.00	\$32.02
4	65	\$22.08	\$7.80	\$4.16	\$0.00	\$34.04
5	70	\$23.78	\$7.80	\$13.68	\$0.00	\$45.26
6	75	\$25.48	\$7.80	\$14.00	\$0.00	\$47.28
7	80	\$27.18	\$7.80	\$14.32	\$0.00	\$49.30
8	90	\$30.57	\$7.80	\$14.96	\$0.00	\$53.33

Notes:

Apprentice to Journeyworker Ratio:1:1

PAINTER (TRAFFIC MARKINGS) LABORERS - ZONE 2	06/01/2013	\$29.85	\$7.10	\$11.80	\$0.00	\$48.75
	12/01/2013	\$30.35	\$7.10	\$11.80	\$0.00	\$49.25
	06/01/2014	\$30.85	\$7.10	\$11.80	\$0.00	\$49.75
	12/01/2014	\$31.35	\$7.10	\$11.80	\$0.00	\$50.25
	06/01/2015	\$31.85	\$7.10	\$11.80	\$0.00	\$50.75
	12/01/2015	\$32.35	\$7.10	\$11.80	\$0.00	\$51.25
	06/01/2016	\$32.85	\$7.10	\$11.80	\$0.00	\$51.75
	12/01/2016	\$33.60	\$7.10	\$11.80	\$0.00	\$52.50

For Apprentice rates see "Apprentice- LABORER"

PAINTER / TAPER (BRUSH, NEW) *	01/01/2013	\$34.51	\$7.80	\$15.60	\$0.00	\$57.91
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* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. PAINTERS LOCAL 35 - ZONE 2

Apprentice - PAINTER - Local 35 Zone 2 - BRUSH NEW

Effective Date - 01/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$17.26	\$7.80	\$0.00	\$0.00	\$25.06
2	55	\$18.98	\$7.80	\$3.52	\$0.00	\$30.30
3	60	\$20.71	\$7.80	\$3.84	\$0.00	\$32.35
4	65	\$22.43	\$7.80	\$4.16	\$0.00	\$34.39
5	70	\$24.16	\$7.80	\$13.68	\$0.00	\$45.64
6	75	\$25.88	\$7.80	\$14.00	\$0.00	\$47.68
7	80	\$27.61	\$7.80	\$14.32	\$0.00	\$49.73
8	90	\$31.06	\$7.80	\$14.96	\$0.00	\$53.82

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Painter / Taper (BRUSH, REPAINT) <i>PAINTERS LOCAL 35 - ZONE 2</i>	01/01/2013	\$32.57	\$7.80	\$15.60	\$0.00	\$55.97

Apprentice - PAINTER Local 35 Zone 2 - BRUSH REPAINT

Effective Date - 01/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$16.29	\$7.80	\$0.00	\$0.00	\$24.09
2	55	\$17.91	\$7.80	\$3.52	\$0.00	\$29.23
3	60	\$19.54	\$7.80	\$3.84	\$0.00	\$31.18
4	65	\$21.17	\$7.80	\$4.16	\$0.00	\$33.13
5	70	\$22.80	\$7.80	\$13.68	\$0.00	\$44.28
6	75	\$24.43	\$7.80	\$14.00	\$0.00	\$46.23
7	80	\$26.06	\$7.80	\$14.32	\$0.00	\$48.18
8	90	\$29.31	\$7.80	\$14.96	\$0.00	\$52.07

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PANEL & PICKUP TRUCKS DRIVER <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2012	\$30.28	\$9.07	\$8.00	\$0.00	\$47.35
PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK) <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2012	\$39.20	\$9.80	\$17.67	\$0.00	\$66.67
	08/01/2013	\$40.70	\$9.80	\$17.67	\$0.00	\$68.17
	08/01/2014	\$42.20	\$9.80	\$17.67	\$0.00	\$69.67
	08/01/2015	\$43.70	\$9.80	\$17.67	\$0.00	\$71.17
PILE DRIVER <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2012	\$39.20	\$9.80	\$17.67	\$0.00	\$66.67
	08/01/2013	\$40.70	\$9.80	\$17.67	\$0.00	\$68.17
	08/01/2014	\$42.20	\$9.80	\$17.67	\$0.00	\$69.67
	08/01/2015	\$43.70	\$9.80	\$17.67	\$0.00	\$71.17

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PILE DRIVER - Local 56 Zone 1

Effective Date - 08/01/2012

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.60	\$9.80	\$17.67	\$0.00	\$47.07
2	60	\$23.52	\$9.80	\$17.67	\$0.00	\$50.99
3	70	\$27.44	\$9.80	\$17.67	\$0.00	\$54.91
4	75	\$29.40	\$9.80	\$17.67	\$0.00	\$56.87
5	80	\$31.36	\$9.80	\$17.67	\$0.00	\$58.83
6	80	\$31.36	\$9.80	\$17.67	\$0.00	\$58.83
7	90	\$35.28	\$9.80	\$17.67	\$0.00	\$62.75
8	90	\$35.28	\$9.80	\$17.67	\$0.00	\$62.75

Effective Date - 08/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.35	\$9.80	\$17.67	\$0.00	\$47.82
2	60	\$24.42	\$9.80	\$17.67	\$0.00	\$51.89
3	70	\$28.49	\$9.80	\$17.67	\$0.00	\$55.96
4	75	\$30.53	\$9.80	\$17.67	\$0.00	\$58.00
5	80	\$32.56	\$9.80	\$17.67	\$0.00	\$60.03
6	80	\$32.56	\$9.80	\$17.67	\$0.00	\$60.03
7	90	\$36.63	\$9.80	\$17.67	\$0.00	\$64.10
8	90	\$36.63	\$9.80	\$17.67	\$0.00	\$64.10

Notes:

Apprentice to Journeyworker Ratio:1:3

PIPEFITTER & STEAMFITTER PIPEFITTERS LOCAL 537	03/01/2013	\$49.34	\$8.75	\$14.39	\$0.00	\$72.48
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Apprentice - PIPEFITTER - Local 537

Effective Date - 03/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$19.74	\$8.75	\$6.50	\$0.00	\$34.99
2	45	\$22.20	\$8.75	\$14.39	\$0.00	\$45.34
3	60	\$29.60	\$8.75	\$14.39	\$0.00	\$52.74
4	70	\$34.54	\$8.75	\$14.39	\$0.00	\$57.68
5	80	\$39.47	\$8.75	\$14.39	\$0.00	\$62.61

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

Apprentice to Journeyworker Ratio:**

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PIPELAYER <i>LABORERS - ZONE 2</i>	06/01/2013	\$30.10	\$7.10	\$11.80	\$0.00	\$49.00
	12/01/2013	\$30.60	\$7.10	\$11.80	\$0.00	\$49.50
	06/01/2014	\$31.10	\$7.10	\$11.80	\$0.00	\$50.00
	12/01/2014	\$31.60	\$7.10	\$11.80	\$0.00	\$50.50
	06/01/2015	\$32.10	\$7.10	\$11.80	\$0.00	\$51.00
	12/01/2015	\$32.60	\$7.10	\$11.80	\$0.00	\$51.50
	06/01/2016	\$33.10	\$7.10	\$11.80	\$0.00	\$52.00
	12/01/2016	\$33.85	\$7.10	\$11.80	\$0.00	\$52.75

For apprentice rates see "Apprentice- LABORER"

PLUMBERS & GASFITTERS <i>PLUMBERS & GASFITTERS LOCAL 12</i>	03/01/2013	\$49.31	\$9.32	\$13.29	\$0.00	\$71.92
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Apprentice - PLUMBER/GASFITTER - Local 12

Effective Date - 03/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$17.26	\$9.32	\$4.97	\$0.00	\$31.55
2	40	\$19.72	\$9.32	\$5.61	\$0.00	\$34.65
3	55	\$27.12	\$9.32	\$7.53	\$0.00	\$43.97
4	65	\$32.05	\$9.32	\$8.81	\$0.00	\$50.18
5	75	\$36.98	\$9.32	\$10.09	\$0.00	\$56.39

Notes:

** 1:2; 2:6; 3:10; 4:14; 5:19/Steps are 1 yr
Step4 with lic\$53.29 Step5 with lic\$59.49

Apprentice to Journeyworker Ratio:**

PNEUMATIC CONTROLS (TEMP.) <i>PIPEFITTERS LOCAL 537</i>	03/01/2013	\$49.34	\$8.75	\$14.39	\$0.00	\$72.48
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For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"

PNEUMATIC DRILL/TOOL OPERATOR <i>LABORERS - ZONE 2</i>	06/01/2013	\$30.10	\$7.10	\$11.80	\$0.00	\$49.00
	12/01/2013	\$30.60	\$7.10	\$11.80	\$0.00	\$49.50
	06/01/2014	\$31.10	\$7.10	\$11.80	\$0.00	\$50.00
	12/01/2014	\$31.60	\$7.10	\$11.80	\$0.00	\$50.50
	06/01/2015	\$32.10	\$7.10	\$11.80	\$0.00	\$51.00
	12/01/2015	\$32.60	\$7.10	\$11.80	\$0.00	\$51.50
	06/01/2016	\$33.10	\$7.10	\$11.80	\$0.00	\$52.00
	12/01/2016	\$33.85	\$7.10	\$11.80	\$0.00	\$52.75

For apprentice rates see "Apprentice- LABORER"

POWDERMAN & BLASTER <i>LABORERS - ZONE 2</i>	06/01/2013	\$30.85	\$7.10	\$11.80	\$0.00	\$49.75
	12/01/2013	\$31.35	\$7.10	\$11.80	\$0.00	\$50.25
	06/01/2014	\$31.85	\$7.10	\$11.80	\$0.00	\$50.75
	12/01/2014	\$32.35	\$7.10	\$11.80	\$0.00	\$51.25
	06/01/2015	\$32.85	\$7.10	\$11.80	\$0.00	\$51.75
	12/01/2015	\$33.35	\$7.10	\$11.80	\$0.00	\$52.25
	06/01/2016	\$33.85	\$7.10	\$11.80	\$0.00	\$52.75
	12/01/2016	\$34.60	\$7.10	\$11.80	\$0.00	\$53.50

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
POWER SHOVEL/DERRICK/TRENCHING MACHINE <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2013	\$40.34	\$10.00	\$13.55	\$0.00	\$63.89
	12/01/2013	\$41.12	\$10.00	\$13.55	\$0.00	\$64.67
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (CONCRETE) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2013	\$40.34	\$10.00	\$13.55	\$0.00	\$63.89
	12/01/2013	\$41.12	\$10.00	\$13.55	\$0.00	\$64.67
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (DEWATERING, OTHER) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2013	\$28.19	\$10.00	\$13.55	\$0.00	\$51.74
	12/01/2013	\$28.74	\$10.00	\$13.55	\$0.00	\$52.29
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
READY-MIX CONCRETE DRIVER <i>TEAMSTERS LOCAL 49</i>	05/01/2010	\$22.88	\$6.97	\$3.94	\$0.00	\$33.79
RECLAIMERS <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2013	\$39.96	\$10.00	\$13.55	\$0.00	\$63.51
	12/01/2013	\$40.74	\$10.00	\$13.55	\$0.00	\$64.29
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
RESIDENTIAL WOOD FRAME (All Other Work) <i>CARPENTERS -ZONE 2 (Residential Wood)</i>	04/01/2011	\$24.24	\$8.67	\$15.51	\$0.00	\$48.42
RESIDENTIAL WOOD FRAME CARPENTER ** ** The Residential Wood Frame Carpenter classification applies only to the construction of new, wood frame residences that do not exceed four stories including the basement. <i>CARPENTERS -ZONE 2 (Residential Wood)</i>	05/01/2011	\$24.24	\$6.34	\$6.23	\$0.00	\$36.81
As of 9/1/09 Carpentry work on wood-frame residential WEATHERIZATION projects shall be paid the RESIDENTIAL WOOD FRAME CARPENTER rate.						
RIDE-ON MOTORIZED BUGGY OPERATOR <i>LABORERS - ZONE 2</i>	06/01/2013	\$30.10	\$7.10	\$11.80	\$0.00	\$49.00
	12/01/2013	\$30.60	\$7.10	\$11.80	\$0.00	\$49.50
	06/01/2014	\$31.10	\$7.10	\$11.80	\$0.00	\$50.00
	12/01/2014	\$31.60	\$7.10	\$11.80	\$0.00	\$50.50
	06/01/2015	\$32.10	\$7.10	\$11.80	\$0.00	\$51.00
	12/01/2015	\$32.60	\$7.10	\$11.80	\$0.00	\$51.50
	06/01/2016	\$33.10	\$7.10	\$11.80	\$0.00	\$52.00
	12/01/2016	\$33.85	\$7.10	\$11.80	\$0.00	\$52.75
For apprentice rates see "Apprentice- LABORER"						
ROLLER/SPREADER/MULCHING MACHINE <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2013	\$39.96	\$10.00	\$13.55	\$0.00	\$63.51
	12/01/2013	\$40.74	\$10.00	\$13.55	\$0.00	\$64.29
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
ROOFER (Inc.Roofing Waterproofing &Roofing Damproofing) <i>ROOFERS LOCAL 33</i>	02/01/2013	\$37.41	\$10.50	\$10.70	\$0.00	\$58.61

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - ROOFER - Local 33

Effective Date - 02/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$18.71	\$10.50	\$3.38	\$0.00	\$32.59
2	60	\$22.45	\$10.50	\$10.70	\$0.00	\$43.65
3	65	\$24.32	\$10.50	\$10.70	\$0.00	\$45.52
4	75	\$28.06	\$10.50	\$10.70	\$0.00	\$49.26
5	85	\$31.80	\$10.50	\$10.70	\$0.00	\$53.00

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

Apprentice to Journeyworker Ratio:**

ROOFER SLATE / TILE / PRECAST CONCRETE ROOFERS LOCAL 33	02/01/2013	\$37.66	\$10.50	\$10.70	\$0.00	\$58.86
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For apprentice rates see "Apprentice- ROOFER"

SHEETMETAL WORKER SHEETMETAL WORKERS LOCAL 17 - A	02/01/2013	\$42.32	\$9.82	\$18.24	\$2.11	\$72.49
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Apprentice - SHEET METAL WORKER - Local 17-A

Effective Date - 02/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$16.93	\$9.82	\$4.00	\$0.00	\$30.75
2	40	\$16.93	\$9.82	\$4.00	\$0.00	\$30.75
3	45	\$19.04	\$9.82	\$8.00	\$1.11	\$37.97
4	45	\$19.04	\$9.82	\$8.00	\$1.11	\$37.97
5	50	\$21.16	\$9.82	\$8.75	\$1.19	\$40.92
6	50	\$21.16	\$9.82	\$9.00	\$1.20	\$41.18
7	60	\$25.39	\$9.82	\$10.24	\$1.36	\$46.81
8	65	\$27.51	\$9.82	\$10.99	\$1.45	\$49.77
9	75	\$31.74	\$9.82	\$12.49	\$1.62	\$55.67
10	85	\$35.97	\$9.82	\$13.49	\$1.78	\$61.06

Notes:
Steps are 6 mos.

Apprentice to Journeyworker Ratio:1:4

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

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - SIGN ERECTOR - Local 35 Zone 2

Effective Date - 06/01/2013

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

Notes:
Steps are 4 mos.

Apprentice to Journeyworker Ratio:1:1

SPECIALIZED EARTH MOVING EQUIP < 35 TONS <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2012	\$30.74	\$8.91	\$8.00	\$0.00	\$47.65
SPECIALIZED EARTH MOVING EQUIP > 35 TONS <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2012	\$31.03	\$8.91	\$8.00	\$0.00	\$47.94
SPRINKLER FITTER <i>SPRINKLER FITTERS LOCAL 550 - (Section A)</i>	03/01/2013	\$52.58	\$8.42	\$12.60	\$0.00	\$73.60

Apprentice - SPRINKLER FITTER - Local 550

Effective Date - 03/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$18.40	\$8.42	\$8.00	\$0.00	\$34.82
2	40	\$21.03	\$8.42	\$8.00	\$0.00	\$37.45
3	45	\$23.66	\$8.42	\$8.00	\$0.00	\$40.08
4	50	\$26.29	\$8.42	\$8.00	\$0.00	\$42.71
5	55	\$28.92	\$8.42	\$8.00	\$0.00	\$45.34
6	60	\$31.55	\$8.42	\$8.00	\$0.00	\$47.97
7	65	\$34.18	\$8.42	\$8.00	\$0.00	\$50.60
8	70	\$36.81	\$8.42	\$8.00	\$0.00	\$53.23
9	75	\$39.44	\$8.42	\$8.00	\$0.00	\$55.86
10	80	\$42.06	\$8.42	\$8.00	\$0.00	\$58.48

Notes:
Steps are 850 hours

Apprentice to Journeyworker Ratio:1:1

STEAM BOILER OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2013	\$39.96	\$10.00	\$13.55	\$0.00	\$63.51
	12/01/2013	\$40.74	\$10.00	\$13.55	\$0.00	\$64.29

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN OPERATING ENGINEERS LOCAL 4	06/01/2013	\$39.96	\$10.00	\$13.55	\$0.00	\$63.51
	12/01/2013	\$40.74	\$10.00	\$13.55	\$0.00	\$64.29
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TELECOMMUNICATION TECHNICIAN ELECTRICIANS LOCAL 103	03/01/2013	\$32.64	\$13.00	\$12.51	\$0.00	\$58.15
	09/01/2013	\$33.15	\$13.00	\$12.52	\$0.00	\$58.67
	03/01/2014	\$33.69	\$13.00	\$12.54	\$0.00	\$59.23
	09/01/2014	\$34.20	\$13.00	\$12.56	\$0.00	\$59.76
	03/01/2015	\$34.74	\$13.00	\$12.57	\$0.00	\$60.31
	09/01/2015	\$35.45	\$13.00	\$12.59	\$0.00	\$61.04
	03/01/2016	\$36.17	\$13.00	\$12.62	\$0.00	\$61.79

Apprentice - TELECOMMUNICATION TECHNICIAN - Local 103

Effective Date - 03/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$13.06	\$13.00	\$0.39	\$0.00	\$26.45
2	40	\$13.06	\$13.00	\$0.39	\$0.00	\$26.45
3	45	\$14.69	\$13.00	\$10.77	\$0.00	\$38.46
4	45	\$14.69	\$13.00	\$10.77	\$0.00	\$38.46
5	50	\$16.32	\$13.00	\$11.02	\$0.00	\$40.34
6	55	\$17.95	\$13.00	\$11.27	\$0.00	\$42.22
7	60	\$19.58	\$13.00	\$11.52	\$0.00	\$44.10
8	65	\$21.22	\$13.00	\$11.77	\$0.00	\$45.99
9	70	\$22.85	\$13.00	\$12.02	\$0.00	\$47.87
10	75	\$24.48	\$13.00	\$12.26	\$0.00	\$49.74

Effective Date - 09/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$13.26	\$13.00	\$0.40	\$0.00	\$26.66
2	40	\$13.26	\$13.00	\$0.40	\$0.00	\$26.66
3	45	\$14.92	\$13.00	\$9.79	\$0.00	\$37.71
4	45	\$14.92	\$13.00	\$9.79	\$0.00	\$37.71
5	50	\$16.58	\$13.00	\$10.04	\$0.00	\$39.62
6	55	\$18.23	\$13.00	\$10.29	\$0.00	\$41.52
7	60	\$19.89	\$13.00	\$10.54	\$0.00	\$43.43
8	65	\$21.55	\$13.00	\$10.79	\$0.00	\$45.34
9	70	\$23.21	\$13.00	\$11.04	\$0.00	\$47.25
10	75	\$24.86	\$13.00	\$11.29	\$0.00	\$49.15

Notes:

Apprentice to Journeyworker Ratio:1:1

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TERRAZZO FINISHERS BRICKLAYERS LOCAL 3 - MARBLE & TILE	02/01/2013	\$46.35	\$10.18	\$17.83	\$0.00	\$74.36
	08/01/2013	\$47.00	\$10.18	\$18.15	\$0.00	\$75.33
	02/01/2014	\$47.56	\$10.18	\$18.15	\$0.00	\$75.89
	08/01/2014	\$48.46	\$10.18	\$18.22	\$0.00	\$76.86
	02/01/2015	\$49.02	\$10.18	\$18.22	\$0.00	\$77.42
	08/01/2015	\$49.92	\$10.18	\$18.29	\$0.00	\$78.39
	02/01/2016	\$50.49	\$10.18	\$18.29	\$0.00	\$78.96
	08/01/2016	\$51.39	\$10.18	\$18.37	\$0.00	\$79.94
	02/01/2017	\$51.96	\$10.18	\$18.37	\$0.00	\$80.51

Apprentice - TERRAZZO FINISHER - Local 3 Marble & Tile

Effective Date - 02/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.18	\$10.18	\$17.83	\$0.00	\$51.19
2	60	\$27.81	\$10.18	\$17.83	\$0.00	\$55.82
3	70	\$32.45	\$10.18	\$17.83	\$0.00	\$60.46
4	80	\$37.08	\$10.18	\$17.83	\$0.00	\$65.09
5	90	\$41.72	\$10.18	\$17.83	\$0.00	\$69.73

Effective Date - 08/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.50	\$10.18	\$18.15	\$0.00	\$51.83
2	60	\$28.20	\$10.18	\$18.15	\$0.00	\$56.53
3	70	\$32.90	\$10.18	\$18.15	\$0.00	\$61.23
4	80	\$37.60	\$10.18	\$18.15	\$0.00	\$65.93
5	90	\$42.30	\$10.18	\$18.15	\$0.00	\$70.63

Notes:

Apprentice to Journeyworker Ratio:1:3

TEST BORING DRILLER LABORERS - FOUNDATION AND MARINE	06/01/2013	\$34.45	\$7.10	\$12.60	\$0.00	\$54.15
	12/01/2013	\$35.20	\$7.10	\$12.60	\$0.00	\$54.90
	06/01/2014	\$35.95	\$7.10	\$12.60	\$0.00	\$55.65
	12/01/2014	\$36.70	\$7.10	\$12.60	\$0.00	\$56.40
	06/01/2015	\$37.45	\$7.10	\$12.60	\$0.00	\$57.15
	12/01/2015	\$38.20	\$7.10	\$12.60	\$0.00	\$57.90
	06/01/2016	\$38.95	\$7.10	\$12.60	\$0.00	\$58.65
	12/01/2016	\$39.95	\$7.10	\$12.60	\$0.00	\$59.65

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TEST BORING DRILLER HELPER <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2013	\$33.17	\$7.10	\$12.60	\$0.00	\$52.87
	12/01/2013	\$33.92	\$7.10	\$12.60	\$0.00	\$53.62
	06/01/2014	\$34.67	\$7.10	\$12.60	\$0.00	\$54.37
	12/01/2014	\$35.42	\$7.10	\$12.60	\$0.00	\$55.12
	06/01/2015	\$36.17	\$7.10	\$12.60	\$0.00	\$55.87
	12/01/2015	\$36.92	\$7.10	\$12.60	\$0.00	\$56.62
	06/01/2016	\$37.67	\$7.10	\$12.60	\$0.00	\$57.37
	12/01/2016	\$38.67	\$7.10	\$12.60	\$0.00	\$58.37
For apprentice rates see "Apprentice- LABORER"						
TEST BORING LABORER <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2013	\$33.05	\$7.10	\$12.60	\$0.00	\$52.75
	12/01/2013	\$33.80	\$7.10	\$12.60	\$0.00	\$53.50
	06/01/2014	\$34.55	\$7.10	\$12.60	\$0.00	\$54.25
	12/01/2014	\$35.30	\$7.10	\$12.60	\$0.00	\$55.00
	06/01/2015	\$36.05	\$7.10	\$12.60	\$0.00	\$55.75
	12/01/2015	\$36.80	\$7.10	\$12.60	\$0.00	\$56.50
	06/01/2016	\$37.55	\$7.10	\$12.60	\$0.00	\$57.25
	12/01/2016	\$38.55	\$7.10	\$12.60	\$0.00	\$58.25
For apprentice rates see "Apprentice- LABORER"						
TRACTORS/PORTABLE STEAM GENERATORS <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2013	\$39.96	\$10.00	\$13.55	\$0.00	\$63.51
	12/01/2013	\$40.74	\$10.00	\$13.55	\$0.00	\$64.29
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TRAILERS FOR EARTH MOVING EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2012	\$31.32	\$8.91	\$8.00	\$0.00	\$48.23
TUNNEL WORK - COMPRESSED AIR <i>LABORERS (COMPRESSED AIR)</i>	06/01/2013	\$45.33	\$7.10	\$13.00	\$0.00	\$65.43
	12/01/2013	\$46.08	\$7.10	\$13.00	\$0.00	\$66.18
	06/01/2014	\$46.83	\$7.10	\$13.00	\$0.00	\$66.93
	12/01/2014	\$47.58	\$7.10	\$13.00	\$0.00	\$67.68
	06/01/2015	\$48.33	\$7.10	\$13.00	\$0.00	\$68.43
	12/01/2015	\$49.08	\$7.10	\$13.00	\$0.00	\$69.18
	06/01/2016	\$49.83	\$7.10	\$13.00	\$0.00	\$69.93
	12/01/2016	\$50.83	\$7.10	\$13.00	\$0.00	\$70.93
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE) <i>LABORERS (COMPRESSED AIR)</i>	06/01/2013	\$47.33	\$7.10	\$13.00	\$0.00	\$67.43
	12/01/2013	\$48.08	\$7.10	\$13.00	\$0.00	\$68.18
	06/01/2014	\$48.83	\$7.10	\$13.00	\$0.00	\$68.93
	12/01/2014	\$49.58	\$7.10	\$13.00	\$0.00	\$69.68
	06/01/2015	\$50.33	\$7.10	\$13.00	\$0.00	\$70.43
	12/01/2015	\$51.08	\$7.10	\$13.00	\$0.00	\$71.18
	06/01/2016	\$51.83	\$7.10	\$13.00	\$0.00	\$71.93
	12/01/2016	\$52.83	\$7.10	\$13.00	\$0.00	\$72.93
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TUNNEL WORK - FREE AIR <i>LABORERS (FREE AIR TUNNEL)</i>	06/01/2013	\$37.40	\$7.10	\$13.00	\$0.00	\$57.50
	12/01/2013	\$38.15	\$7.10	\$13.00	\$0.00	\$58.25
	06/01/2014	\$38.90	\$7.10	\$13.00	\$0.00	\$59.00
	12/01/2014	\$39.65	\$7.10	\$13.00	\$0.00	\$59.75
	06/01/2015	\$40.40	\$7.10	\$13.00	\$0.00	\$60.50
	12/01/2015	\$41.15	\$7.10	\$13.00	\$0.00	\$61.25
	06/01/2016	\$41.90	\$7.10	\$13.00	\$0.00	\$62.00
	12/01/2016	\$42.90	\$7.10	\$13.00	\$0.00	\$63.00
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR (HAZ. WASTE) <i>LABORERS (FREE AIR TUNNEL)</i>	06/01/2013	\$39.40	\$7.10	\$13.00	\$0.00	\$59.50
	12/01/2013	\$40.15	\$7.10	\$13.00	\$0.00	\$60.25
	06/01/2014	\$40.90	\$7.10	\$13.00	\$0.00	\$61.00
	12/01/2014	\$41.65	\$7.10	\$13.00	\$0.00	\$61.75
	06/01/2015	\$42.40	\$7.10	\$13.00	\$0.00	\$62.50
	12/01/2015	\$43.15	\$7.10	\$13.00	\$0.00	\$63.25
	06/01/2016	\$43.90	\$7.10	\$13.00	\$0.00	\$64.00
	12/01/2016	\$44.90	\$7.10	\$13.00	\$0.00	\$65.00
For apprentice rates see "Apprentice- LABORER"						
VAC-HAUL <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	12/01/2012	\$30.74	\$8.91	\$8.00	\$0.00	\$47.65
WAGON DRILL OPERATOR <i>LABORERS - ZONE 2</i>	06/01/2013	\$30.10	\$7.10	\$11.80	\$0.00	\$49.00
	12/01/2013	\$30.60	\$7.10	\$11.80	\$0.00	\$49.50
	06/01/2014	\$31.10	\$7.10	\$11.80	\$0.00	\$50.00
	12/01/2014	\$31.60	\$7.10	\$11.80	\$0.00	\$50.50
	06/01/2015	\$32.10	\$7.10	\$11.80	\$0.00	\$51.00
	12/01/2015	\$32.60	\$7.10	\$11.80	\$0.00	\$51.50
	06/01/2016	\$33.10	\$7.10	\$11.80	\$0.00	\$52.00
	12/01/2016	\$33.85	\$7.10	\$11.80	\$0.00	\$52.75
For apprentice rates see "Apprentice- LABORER"						
WASTE WATER PUMP OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2013	\$40.34	\$10.00	\$13.55	\$0.00	\$63.89
	12/01/2013	\$41.12	\$10.00	\$13.55	\$0.00	\$64.67
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
WATER METER INSTALLER <i>PLUMBERS & GASFITTERS LOCAL 12</i>	03/01/2013	\$49.31	\$9.32	\$13.29	\$0.00	\$71.92
For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"						

Additional Apprentice Information:

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

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

All steps are six months (1000 hours) unless otherwise specified.

- * Ratios are expressed in allowable number of apprentices to journeymen or fraction thereof.
- ** 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.

PART B Specifications

William E. Frost School
Westford, MA

Roof Replacement

SECTION 01 1000
SUMMARY OF WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Access to site.
4. Work restrictions.
5. Times for completion and liquidated damages.
6. Permits, Inspection and Testing Required by Governing Authorities.
7. Specification and drawing conventions.
8. Miscellaneous provisions.

B. Related Requirements:

1. Section 01 5000 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.3 PROJECT INFORMATION

A. Project Identification: William E. Frost School Re-Roofing

1. Project Location: 73 Main Street, Westford, MA 01886.

B. Owner:

Town of Westford
c/o John Mangiaratti, Assistant Town Manager
Town Hall, 55 Main Street, Westford, MA 01886.

C. Owner's Representative: Awarding Authority, Board of Selectmen, Town of Westford, MA, 01886.

D. Architect:

Gienapp Design Associates, LLC
20 Conant Street
Danvers, MA 01923

Contact Persons: Dale Gienapp AIA, LEED AP BD+C
William L. Ajemian, RA NCARB

1.4 WORK COVERED BY CONTRACT DOCUMENTS

This project is to remove and replace the existing slate and metal roofing at the William E. Frost School Building in Westford, MA. The building is a two and one half story wood frame structure at 73 Main Street. The Town has treated this historic building with careful preservation and restoration and this project shall be conducted accordingly. The building materials may be summarized as follows:

1. Slate roofing shingles to match existing Monson Slate.
2. Copper roofing material.
3. Copper flashings.

The proposed work of this project will include the following:

- A. Removing and salvage of the existing Monson slate roofing. The Owner wishes to retain ownership of a portion of the salvaged slate roofing. See Section 02 4119 SELECTIVE DEMOLITION for quantities.
- B. Removing of copper roofing at eaves.
- C. Removing of associated metal flashing.
- D. Providing a self-sealing waterproofing material under the metal roofing.
- E. Providing new slate roofing.
- F. Providing new copper roofing at the eaves.

1.5 TIMES FOR COMPLETION AND LIQUIDATED DAMAGES

- A. It is hereby understood and mutually agreed, by and between the General Contractor and the Owner, that the date of beginning and the times for completion, as specified in the Contract for the work to be done hereunder are ESSENTIAL CONDITIONS of this Contract, and it is further mutually understood and agreed that the work embraced in this Contract shall be commenced by the date specified therein.
- B. The Work shall commence at the time stated in the Notice to Proceed and shall be Substantially Complete **November 1, 2013**.
 - 1. It is anticipated the Notice to Proceed will be issued approximately on **August 9, 2013**.
- C. The General Contractor agrees that said work shall be prosecuted regularly, diligently, and uninterruptedly at such rate of progress as will insure full completion thereof within the time specified. It is expressly understood and agreed, by and between the General Contractor and the Owner, that the time for completion of the work described herein are adequate but of limited duration for the completion of the same, taking into consideration the average climatic range and usual industrial conditions prevailing in this locality. The General Contractor and all Subcontractors shall be responsible for executing the Work in a manner to meet all requirements of the Contract and completing the Work on time.
- D. If the General Contractor should neglect, fail, or refuse to Substantially Complete the work within the times specified in the Contract, or any proper extension thereof, granted by the Owner, then the General Contractor does hereby agree, as part consideration for the awarding of this Contract, to pay to the Owner the amount specified in the Contract, not as a penalty, but as liquidated damages for such breach of Contract as hereinafter set forth, for each and every calendar day that the General Contractor shall be in default after the time stipulated in the Contract for completion of the work. The Liquidated Damages shall be \$500.00 (Five Hundred dollars) per calendar day.
- E. The said amounts are fixed and agreed upon by and between the General Contractor and the Owner because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the Owner would in such event sustain, and said amount is agreed to be in the amount of damages which the Owner would sustain and said amount shall be retained from time to time by the Owner from current periodical estimates.
- F. It is further agreed that time is of the essence of each and every portion of the Contract and 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 an additional time is allowed for the completion of any work, the new time limit is fixed by such extension shall be of the essence for this Contract. Provided, that the General Contractor shall not be charged with liquidated damages or any excess cost when the delay in completion of the work is due:
 - 1. To any preference, priority, or allocation order duly issued by the Government;
 - 2. To unforeseeable causes beyond the control and without fault or negligence of the General Contractor, including but not restricted to, Acts of God, or of the public enemy, acts of the Owner, acts of another Contractor in the performance of a contract with the Owner, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and unusual weather; and

3. To any delay of Subcontractors or suppliers occasioned by any of the causes specified in subparagraphs 1. and 2. of this Paragraph. Provided, further, that the General Contractor shall, within ten days from the beginning of such delay, unless the Owner shall grant a further period of time prior to the date of final settlement of the Contract, notify the Owner, in writing, of the causes of the delay and to notify the General Contractor within a reasonable time of its decision in the matter.
- G. Each and every provision of the laws and clause required by law to be inserted in this Contract shall be deemed to be inserted herein and the Contract shall be read and enforced as though it were included herein, and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon application of either party the Contract shall forthwith be physically amended to make such insertion or correction.

1.6 ACCESS AND USE OF SITE

- A. General: Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.
- B. Use of Site: Limit use of Project site to areas within the Contract limits indicated on Drawings. Do not disturb portions of Project site beyond areas in which the Work is indicated.
 1. Limits: Confine construction operations on the site as designated on the drawings.
 2. Owner Occupancy: Allow for Owner access to portions of Project site, including utilities as required to maintain Owner operations.
 3. Full Owner Occupancy: Owner will occupy the buildings during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing street and site access at all times, unless otherwise indicated.
 - a. The Owner utilizes the site from approximately 7:00 am – 6:00 pm, Monday through Friday. Saturday work is encouraged. Coordinate with Owner Maintain clear access as designated for safe access and use of the building and site at all times open for employee and public use.
 4. Driveways, Walkways and Entrances: Keep driveways, loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
 - a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
 - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
- C. Limit construction staging area, construction personnel/parking and other use of the Owner's site as indicated on drawings and contract documents.
- D. Condition of Existing Building: Maintain building in a weather tight condition throughout construction period. Repair damage caused by construction operations.

1.7 COORDINATION WITH OCCUPANTS

- A. Full Owner Occupancy: Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing exits unless otherwise indicated.
 1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and approval of authorities having jurisdiction.
 2. Notify Owner not less than 72 hours in advance of activities that will affect Owner's operations.
- B. Owner Limited Occupancy of Completed Areas of Construction: Owner reserves the right to occupy and to place and install equipment in completed portions of the Work, prior to Substantial

Completion of the Work, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and limited occupancy shall not constitute acceptance of the total Work.

1.8 PERMITS, INSPECTION AND TESTING REQUIRED BY GOVERNING AUTHORITIES

- A. Apply for and obtain all permits, approvals and inspections required by governing authorities.
- B. Permit fees paid to the Town of Westford are waived. All others are to be paid by General Contractor.
 - 1. This waiver of fees amends the requirements of the General Conditions and Supplementary General Conditions.
- C. If the Contract Documents, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any portion of the Work to be inspected, tested, or approved, the General Contractor shall give the Designer and such Authority timely notice of its readiness so the Designer may observe such inspection and testing.

1.9 WORK RESTRICTIONS

- A. Work Restrictions, General: Comply with restrictions on construction operations.
 - 1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.
- B. On-Site Work Hours: Limit work in the existing building to normal business working hours of 7:00 a.m. to 4:00 p.m., Monday through Friday, unless otherwise indicated.
 - 1. Work at alternate times, including holidays, may occur only with advance approval of the Town of Westford and the Westford Police Department.
 - 2. Occasional extended weekday hours may be required to maintain schedule.
 - 3. Due to the occupancy of the building, Saturday work is encouraged.
 - 4. The hours of exterior or structural construction is confined to the hours of 7:00 AM -6:00 PM Monday through Friday and 8:00 AM to 5:00 PM on Saturday.
- C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:
 - 1. Notify Owner not less than three days in advance of proposed utility interruptions.
 - 2. Obtain Owner's written permission before proceeding with utility interruptions.
- D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.
 - 1. Notify Owner not less than three days in advance of proposed disruptive operations.
 - 2. Obtain Owner's written permission before proceeding with disruptive operations.
- E. Nonsmoking Building: Smoking is not permitted anywhere on the project site.
- F. Controlled Substances: Use of tobacco products and other controlled substances on site is not permitted.
- G. Employee Identification: Provide identification tags for Contractor personnel working on Project site. Require personnel to use identification tags at all times.

1.10 TENANT CONSIDERATIONS

The Owner's Tenant provides day care services for children. The following accommodations shall be made:

- A. The Tenant shall have consistent written communications from the contractor if there was to be any disruption to the entering/exiting of children including fire exits.
- B. The Tenant shall have regular updates from the contractor that they can share with concerned parents, and also so the Tenant may plan outdoor activities.
- C. The Tenant requires at least 48 hour notice of any work being performed inside the building.

- D. All persons entering the building shall require a chaperone.
- E. All building material will need to be safely stored away from children's access / play areas.
- F. If the contractor knows of any employee who should not be around children, that contractor shall exclude the person from the job.

1.11 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
 - 1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
 - 2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.
- C. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:
 - 1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
 - 2. Abbreviations: Materials and products are identified by abbreviations scheduled on Drawings.
 - 3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

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**SECTION 01 2300
ALTERNATES**

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for alternates.

1.3 DEFINITIONS

- A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
 - 1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
 - 2. **The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.**

1.4 PROCEDURES

- A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
 - 1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.
- B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated revisions to alternates.
- C. Execute accepted alternates under the same conditions as other work of the Contract.
- D. Schedule: A schedule of alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

The Schedule of Alternates is continued on the next page.

3.1 SCHEDULE OF ALTERNATES

A. Alternate No. 1: ADD Substitution of batten seam copper roofing with slate roofing

1. **The base bid includes** limited removal and replacement of batten seam copper roofing at the eaves.
2. **The alternate deletes** replacing the copper roofing with copper batten seam roofing, and **adds** the replacement of copper roofing with slate roofing, and the lining of existing wood gutters with copper as indicated in the Contract Drawings.

END OF SECTION

**SECTION 01 2600
CONTRACT MODIFICATION PROCEDURES**

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for handling and processing Contract modifications.

1.3 MINOR CHANGES IN THE WORK

- A. Architect will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710, "Architect's Supplemental Instructions."

1.4 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Proposal Requests issued by Architect or the Construction Manager are not instructions either to stop work in progress or to execute the proposed change.
 - 2. Within time specified in Proposal Request or 20 days, when not otherwise specified, after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include costs of labor and supervision directly attributable to the change.
 - d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
 - e. Quotation Form: Use forms acceptable to Architect.
- B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Architect.
 - 1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
 - 2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.

3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.
5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
6. Comply with requirements in Division 01 Section "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
7. Proposal Request Form: Use form acceptable to Architect.

1.5 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on AIA Document G701.

1.6 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
 1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material where Time and Material are the basis of payment of work required by the Construction Change Directive.
 1. All time and material included in the work must be observed by the Clerk of the Works, or other representative designated by the Owner, with material and time slips for each worker signed by the Clerk on the day in which the work occurred.
 2. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01 2900
PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Sections:
 - 1. Division 01 Section "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
 - 2. Division 01 Section "Construction Progress Documentation" for administrative requirements governing the preparation and submittal of the Contractor's construction schedule.
 - 3. Division 01 Section "Submittal Procedures" for administrative requirements governing the preparation and submittal of the submittal schedule.

1.3 DEFINITIONS

- A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.4 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.
 - 1. Correlate line items in the schedule of values with other required administrative forms and schedules, including the following:
 - a. Application for Payment forms with continuation sheets.
 - b. Submittal schedule.
 - c. Project Phasing
 - d. Items required to be indicated as separate activities in Contractor's construction schedule.
 - 2. Submit the schedule of values to Architect at earliest possible date but no later than 15 (fifteen) days before the date scheduled for submittal of initial Applications for Payment.
 - 3. Subschedules for Phased Work: Provide subschedules showing values correlated with each phase of payment.
- B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the schedule of values. Provide multiple line items for each Specification Section representing the categories and sequence of work (e.g. rough plumbing, finish plumbing, water supply piping, waste piping, etc)
 - 1. Identification: Include the following Project identification on the schedule of values:
 - a. Project name and location.
 - b. Name of Architect.
 - c. Contractor's name and address.
 - d. Date of submittal.
 - 2. Arrange schedule of values consistent with format of AIA Document G703.
 - 3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project

- Manual table of contents. Provide multiple line items for principal subcontract amounts in excess of five percent of Contract Sum.
4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
 5. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 - a. Differentiate between items stored on-site and items stored off-site. Include evidence of insurance for stored items.
 6. Provide separate line items in the schedule of values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
 7. Each item in the schedule of values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
 - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place shall be shown as separate line items in the schedule of values.
 8. Schedule Updating: Update, via additional line items, and resubmit the schedule of values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.5 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.
 1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.
- C. Application for Payment Forms: Use AIA Document G702 and AIA Document G703 as form for Applications for Payment.
- D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.
 1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
 2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
 3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
 4. Indicate separate amounts for work being carried out under Owner-requested project acceleration.
- E. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.
 1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment, for stored materials.
 2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
 3. Provide summary documentation for stored materials indicating the following:
 - a. Materials previously stored and included in previous Applications for Payment.
 - b. Work completed for this Application utilizing previously stored materials.
 - c. Additional materials stored with this Application.
 - d. Total materials remaining stored, including materials with this Application.

- F. Transmittal: Submit three signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt. One copy shall include original waivers of lien and similar attachments if required; additional copies shall include copies of required waivers of lien and similar attachments.
1. Transmit with a transmittal form listing attachments and recording appropriate information about application.
- G. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from entities lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.
1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
 2. When an application shows completion of an item, submit conditional final or full waivers.
 3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
 4. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to Owner.
- H. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors.
 2. Schedule of values.
 3. Contractor's construction schedule (preliminary if not final).
 4. Submittal schedule (preliminary if not final).
 5. List of Contractor's staff assignments.
 6. Copies of building permits.
 7. Certificates of insurance and insurance policies.
 8. Performance and payment bonds.
 9. Data needed to acquire Owner's insurance.
- I. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 95 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
 2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- J. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
 2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
 3. Updated final statement, accounting for final changes to the Contract Sum.
 4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
 5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
 6. AIA Document G707, "Consent of Surety to Final Payment."
 7. Evidence that claims have been settled.
 8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
 9. Final liquidated damages settlement statement.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01 3100
PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. General project coordination procedures.
 - 2. Administrative and supervisory personnel.
 - 3. Requests for Information (RFIs).
 - 4. Project meetings.
- B. Related Sections:
 - 1. Division 01 Section "Construction Progress Documentation" for preparing and submitting Contractor's construction schedule.
 - 2. Division 01 Section "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
 - 3. Division 01 Section "Closeout Procedures" for coordinating closeout of the Contract.

1.3 DEFINITIONS

- A. RFI: Request from Owner, Owner's Project Administrator, Architect, or Contractor seeking information from each other during construction.

1.4 COORDINATION

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.
 - 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 - 2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
 - 3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
 - 1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
 - 1. Preparation of Contractor's construction schedule.
 - 2. Preparation of the Schedule of Values.
 - 3. Installation and removal of temporary facilities and controls.
 - 4. Delivery and processing of submittals.
 - 5. Progress meetings.

6. Preinstallation conferences.
 7. Project closeout activities.
 8. Startup and adjustment of systems.
 9. Project closeout activities.
- D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.
1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. Refer to other Sections for disposition of salvaged materials that are designated as Owner's property.

1.5 KEY PERSONNEL

- A. Key Personnel Names: Within 15 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home, office, and cellular telephone numbers and email addresses. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project.
1. Post copies of list in project meeting room, in temporary field office, and by each temporary telephone. Keep list current at all times.
 2. Distribute copies to Architect, Clerk of the Works, Owner, and Owner's Project Administrator.

1.6 REQUESTS FOR INFORMATION (RFIs)

- A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
1. Architect will return RFIs submitted to Architect by other entities other than the General Contractor (but controlled by Contractor) with no response.
 2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
- B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
1. Project name.
 2. Project number.
 3. Date.
 4. Name of Contractor.
 5. Name of Architect.
 6. RFI number, numbered sequentially.
 7. RFI subject.
 8. Specification Section number and title and related paragraphs, as appropriate.
 9. Drawing number and detail references, as appropriate.
 10. Field dimensions and conditions, as appropriate.
 11. Contractor's suggested resolution. If Contractor's solution(s) impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
 12. Contractor's signature.
 13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
 - a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.
- C. RFI Forms: AIA Document G716 or as approved by architect.

- D. Architect's Action: Architect and Owner's Project Administrator will review each RFI, determine action required, and respond. Allow seven working days for Architect's response for each RFI. The following RFIs will be returned without action:
- a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.
 - c. Requests for coordination information already indicated in the Contract Documents.
 - d. Requests for adjustments in the Contract Time or the Contract Sum.
 - e. Requests for interpretation of Architect's actions on submittals.
 - f. Incomplete RFIs or inaccurately prepared RFIs.
2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt of additional information.
3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Division 01 Section "Contract Modification Procedures."
- a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 10 days of receipt of the RFI response.
- E. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within seven days if Contractor disagrees with response.
- F. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly with not less than the following information:
1. Project name.
 2. Name and address of Contractor.
 3. Name and address of Architect.
 4. RFI number including RFIs that were dropped and not submitted.
 5. RFI description.
 6. Date the RFI was submitted.
 7. Date Architect's response was received.
 8. Form of Architect's response.
 9. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.

1.7 PROJECT MEETINGS

- A. General: Schedule periodic (typically weekly) meetings and conferences at Project site at times approved by the Architect and Owner.
1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
 2. Architect shall chair meetings.
 3. Minutes: Distribute the meeting minutes to everyone concerned, including Owner, Owner's Project Administrator, and Architect, within three days of the meeting.
- B. Preconstruction Conference: Schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after execution of the Agreement.
1. Conduct the conference to review responsibilities and personnel assignments.
 2. Attendees: Authorized representatives of Owner, Owner's Project Administrator, Architect, and their consultants; Contractor and its superintendent; major subcontractors; all filed sub-bid contractors, major suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 3. Agenda: Discuss items of significance that could affect progress, including the following:

- a. Tentative construction schedule.
 - b. Phasing.
 - c. Critical work sequencing and long-lead items.
 - d. Designation of key personnel and their duties.
 - e. Lines of communications.
 - f. Procedures for processing field decisions and Change Orders.
 - g. Procedures for RFIs.
 - h. Procedures for testing and inspecting.
 - i. Procedures for processing Applications for Payment.
 - j. Submittal procedures.
 - k. Preparation of record documents.
 - l. Use of the premises and existing building.
 - m. Work restrictions.
 - n. Working hours.
 - o. Owner's occupancy requirements.
 - p. Responsibility for temporary facilities and controls.
 - q. Procedures for moisture and mold control.
 - r. Procedures for disruptions and shutdowns.
 - s. Parking availability.
 - t. Office, work, and storage areas.
 - u. Equipment deliveries and priorities.
 - v. Security.
 - w. Progress cleaning.
4. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.
- C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.
1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect, Owner's Project Administrator of scheduled meeting dates.
 2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
 - a. Contract Documents.
 - b. Related RFIs.
 - c. Related Change Orders.
 - d. Submittals.
 - e. Review of mockups.
 - f. Possible conflicts.
 - g. Compatibility problems.
 - h. Time schedules.
 - i. Weather limitations.
 - j. Manufacturer's written recommendations.
 - k. Warranty requirements.
 - l. Compatibility of materials.
 - m. Acceptability of substrates.
 - n. Regulations of authorities having jurisdiction.
 - o. Testing and inspecting requirements.
 - p. Coordination with other work.
 - q. Required performance results.
 - r. Protection of adjacent work.
 3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
 4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.

5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
- D. Project Closeout Conference: Schedule a Project closeout conference, at a time convenient to Owner and Architect, but no later than 90 days prior to the scheduled date of Substantial Completion. Architect shall chair meeting.
1. The conference shall be conducted to review requirements and responsibilities related to Project closeout.
 2. Attendees: Authorized representatives of Owner, Owner's Project Administrator, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
 3. Agenda: Discuss items of significance that could affect or delay Project closeout, including the following:
 - a. Preparation of record documents.
 - b. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.
 - c. Submittal of written warranties.
 - d. Requirements for preparing operations and maintenance data.
 - e. Requirements for demonstration and training.
 - f. Preparation of Contractor's punch list.
 - g. Procedures for processing Applications for Payment at Substantial Completion and for final payment.
 - h. Installation of Owner's furniture, fixtures, and equipment.
 - i. Responsibility for removing temporary facilities and controls.
 4. Minutes: Entity conducting meeting will record and distribute meeting minutes.
- E. Progress Meetings: Arrange for, and attend progress meetings at weekly intervals. Meetings shall be chaired by the Architect.
1. Coordinate dates of meetings with preparation of payment requests.
 2. Attendees: In addition to representatives of Owner, Owner's Project Administrator, and Architect, 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.
 3. 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.
 - a. 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.
 - 1) Review schedule for next period.
 - b. Review present and future needs of each entity present, including the following:
 - 1) Sequence of operations.
 - 2) Status of submittals.
 - 3) Temporary facilities and controls.
 - 4) Progress cleaning.
 - 5) Quality and work standards.
 - 6) Status of correction of deficient items.
 - 7) Field observations.

- 8) Status of RFIs.
 - 9) Status of proposal requests.
 - 10) Pending changes.
 - 11) Status of Change Orders.
 - 12) Pending claims and disputes.
4. Minutes: The Architect will record and distribute the meeting minutes to the Owner, Owner's Project Administrator and General Contractor for Contractor to distribute to other attendees and to parties requiring information.
- a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01 3300
SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
- B. Related Sections:
 - 1. Division 01 Section "Payment Procedures" for submitting Applications for Payment and the schedule of values.
 - 2. Division 01 Section "Construction Progress Documentation" for submitting schedules and reports, including Contractor's construction schedule.
 - 3. Division 01 Section "Operation and Maintenance Data" for submitting operation and maintenance manuals.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as submittals.
- B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as informational submittals.
- C. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

1.4 ACTION SUBMITTALS

- A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or modifications to submittals noted by the Architect and additional time for handling and reviewing submittals required by those corrections.
 - 1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
 - 2. Initial Submittal: Submit concurrently with start-up construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
 - 3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.
 - a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.
 - 4. Format: Arrange the following information in a tabular format:
 - a. Scheduled date for first submittal.

- b. Specification Section number and title.
- c. Submittal category: Action, informational.
- d. Name of subcontractor.
- e. Description of the Work covered.

1.5 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

- A. Architect's Digital Data Files: Electronic copies of CAD Drawings of the Contract Drawings may be made available by Architect for Contractor's use in preparing submittals.
 - 1. Architect may, subject to receipt of required waivers, furnish Contractor one set of digital data drawing files of the Contract Drawings for use in preparing Shop Drawings.
 - a. Architect makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.
 - b. Digital Drawing Software Program: The Contract Drawings are available in the form utilized by the Architect.
 - c. Contractor shall execute a data licensing agreement in the form of AIA Document C106, Digital Data Licensing Agreement.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 - 2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
 - 3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
 - 4. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
 - 1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
 - 2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
 - 3. Resubmittal Review: Allow 15 days for review of each resubmittal.
 - 4. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow 21 days for initial review of each submittal.
- D. Identification and Information: Place a permanent label or title block on each paper copy submittal item for identification.
 - 1. Indicate name of firm or entity that prepared each submittal on label or title block.
 - 2. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
 - 3. Include the following information for processing and recording action taken:
 - a. Project name.
 - b. Date.
 - c. Name of Contractor.

- d. Name of subcontractor.
 - e. Name of supplier.
 - f. Name of manufacturer.
 - g. Submittal number or other unique identifier, including revision identifier.
 - 1) Submittal number shall use Specification Section, article and paragraph where product is specified and then a sequential number for multiple items under the same paragraph.
 - h. Number and title of appropriate Specification Section.
 - i. Drawing number and detail references, as appropriate.
 - j. Location(s) where product is to be installed, as appropriate.
 - k. Other necessary identification.
- E. Identification and Information: Identify and incorporate information in each electronic submittal file as follows:
- 1. Assemble complete submittal package into a single indexed file with links enabling navigation to each item.
 - 2. Name file with submittal number or other unique identifier, including revision identifier.
 - a. File name shall use project identifier as specified for paper submittals.
 - 3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Architect.
 - 4. Include the equivalent of a Transmittal on an inserted cover sheet:
 - 5. Include the following information as keywords in the electronic file metadata:
 - a. Project name.
 - b. Number and title of appropriate Specification Section.
 - c. Manufacturer name.
 - d. Product name.
- F. Options: Identify options requiring selection by the Architect.
- G. Deviations: Identify deviations from the Contract Documents on submittals.
- H. Additional Paper Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
- I. Transmittal: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will discard submittals received from sources other than Contractor.
- 1. Transmittal Form: Use AIA Document G810 or as acceptable to Architect.
 - 2. Transmittal Form: Provide locations on form for the following information:
 - a. Project name.
 - b. Date.
 - c. Destination (To:).
 - d. Source (From:).
 - e. Names of subcontractor, manufacturer, and supplier.
 - f. Category and type of submittal.
 - g. Submittal purpose and description.
 - h. Specification Section number and title.
 - i. Indication of full or partial submittal.
 - j. Drawing number and detail references, as appropriate.
 - k. Transmittal number.
 - l. Submittal and transmittal distribution record.
 - m. Remarks.

- n. Signature of transmitter.
- 3. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.
- J. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
 - 1. Note date and content of previous submittal.
 - 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
 - 3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.
- K. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- L. Use for Construction: Use only final submittals that are marked with approval notation from Architect's action stamp.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

- A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
 - 1. Submit electronic submittals via email as PDF electronic files.
 - a. Architect will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.
 - 2. Action Submittals: Submit six paper copies of each submittal, unless otherwise indicated. Architect will return two copies.
 - 3. Informational Submittals: Submit six paper copies of each submittal, unless otherwise indicated. Architect will not return copies.
 - 4. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Division 01 Section "Closeout Procedures."
 - 5. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
 - 6. Test and Inspection Reports Submittals: Comply with requirements specified in Division 01 Section "Quality Requirements."
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
 - 1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
 - 2. Mark each copy of each submittal to show which products and options are applicable.
 - 3. Include the following information, as applicable:
 - a. Manufacturer's catalog cuts.
 - b. Manufacturer's product specifications.
 - c. Standard color charts.
 - d. Statement of compliance with specified referenced standards.
 - e. Testing by recognized testing agency.

- f. Application of testing agency labels and seals.
- g. Notation of coordination requirements.
- h. Availability and delivery time information.
4. For equipment, include the following in addition to the above, as applicable:
 - a. Wiring diagrams showing factory-installed wiring.
 - b. Printed performance curves.
 - c. Operational range diagrams.
 - d. Acoustical data for all exterior mechanical equipment.
5. Submit Product Data before or concurrent with Samples.
6. Submit Product Data in the following format:
 - a. Six paper copies of Product Data, unless otherwise indicated. Architect will return two copies.
 - b. When specifically agreed by the Architect as part of review of submittal schedule Product Data may be submitted in PDF electronic file.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data, unless submittal based upon Architect's digital data drawing files is otherwise permitted.
 1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Identification of products.
 - b. Schedules.
 - c. Compliance with specified standards.
 - d. Notation of coordination requirements.
 - e. Notation of dimensions established by field measurement.
 - f. Relationship and attachment to adjoining construction clearly indicated.
 2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 24 by 36 inches.
 3. Submit Shop Drawings in the following format:
 - a. Six opaque copies of each submittal. Architect will return two copies.
- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
 1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 2. Identification: Attach label on unexposed side of Samples that includes the following:
 - a. Generic description of Sample.
 - b. Product name and name of manufacturer.
 - c. Sample source.
 - d. Number and title of applicable Specification Section.
 3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.

- a. Number of Samples: Submit two full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.
5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
 - a. Number of Samples: Submit two sets of Samples, or the quantity specified individual sections. Architect will retain one, and provide one to the Clerk. Approval will be documented by Transmittal.
 - 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
 - 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit samples of adequate size and/or quantity to show approximate limits of variations.
- E. Contractor's Construction Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."
- F. Application for Payment: Comply with requirements specified in Division 01 Section "Payment Procedures."
- G. Schedule of Values: Comply with requirements specified in Division 01 Section "Payment Procedures."
- H. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
 1. Name, address, and telephone number of entity performing subcontract or supplying products.
 2. Number and title of related Specification Section(s) covered by subcontract.
 3. Drawing number and detail references, as appropriate, covered by subcontract.
 4. Submit subcontract list in the following format:
 - a. PDF electronic file.
 - b. Number of Copies: Three paper copies of subcontractor list, unless otherwise indicated.
- I. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.
- J. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on American Welding Society (AWS) forms. Include names of firms and personnel certified.
- K. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- L. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- M. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

- N. Product Test Reports: Submit written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- O. Maintenance Data: Comply with requirements specified in Division 01 Section "Operation and Maintenance Data."
- P. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

2.2 DELEGATED-DESIGN SERVICES

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 - 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.
- B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit three paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
 - 1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
- B. Project Closeout and Maintenance/Material Submittals: Refer to requirements in Division 01 Section "Closeout Procedures."
- C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S ACTION

- A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Action Submittals: Architect and Owner's Project Manager will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.
- C. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- D. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect.
- E. Incomplete submittals are not acceptable, will be considered nonresponsive, and will be returned without review.
- F. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION

SECTION 01 4100

REGULATORY REQUIREMENTS

PART 1 - GENERAL

1.1 DEFINITIONS

- A. Regulations include 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, whether lawfully imposed by authorities having jurisdiction or not.

1.2 APPLICABLE CODES AND REGULATIONS

- A. All work shall be performed in accordance with the latest version, by DATE OF ISSUE for Contract Documents, current on date of Owner-Contractor Agreement, except as indicated otherwise, of all applicable codes including the following:
 - 1. Massachusetts State Building Code, Eighth edition, as amended.
 - 2. Town of Westford Zoning Regulations / Ordinance, as amended.
 - 3. Massachusetts Fire Prevention Regulations (527 CMR).
 - 4. National Fire Protection Association: NFPA 241 – *Safeguarding Building Construction And Demolition Operations*.
 - 5. United States Occupational Safety and Health Administration (OSHA): Standard N°. 29-CFR-1926.59 - *Hazard Communication Standard*.
- B. Publication Dates: Where the date of issue of a code or regulation is not specified comply with the standard in effect as of date of Contract Documents, or as otherwise required by authorities having jurisdiction.

1.3 TRADE UNION JURISDICTIONS

- A. Maintain current information on jurisdictional matters, regulations, actions and pending actions; and administer/supervise performance of Work in a manner which will minimize possibility of disputes, conflicts, delays, claims or losses.

1.4 WAGE RATE COMPLIANCE

- A. The General Contractor is responsible to ensure that the rate per hour to be paid to mechanics, apprentices, teamsters, laborers and other workers employed on the Work shall not be less than the approved wage rates applicable to this project. A legible copy of the approved rates, along with equal opportunity requirements, shall be posted on a weatherproof bulletin board outside the field office and be clearly visible for review by all workers.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

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SECTION 01 4200

REFERENCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.
- C. "Basis-of-Design": Product Specification: A specification in which a specific manufacturer's product is named and described as "basis-of-design" including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification.
- D. "Comparable Product": Product that is demonstrated and approved through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- E. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."
- F. "Dispose": Transport removed items from their designated holding area to disposal containers and legally dispose of them off site.
- G. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- H. "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."
- I. "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.
- J. "Or Equal": For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product
- K. "Provide": Furnish and install, complete and ready for the intended use.
- L. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.
- M. "Match": To blend with adjacent construction and manifest no apparent difference in material type, species, cut, form, detail, color, grain, texture, or finish; as approved by the Architect.
- N. "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.
- O. "Reconstruct": To remove existing item, replicate damaged or missing components, and reinstall in original position.
- P. "Refinish": To remove existing finishes to base material and apply new finish to match original, or as otherwise indicated.

- Q. "Reinstall": To protect removed or dismantled item, repair and clean it as indicated for reuse, and reinstall it in original position, or where indicated.
- R. "Remove": Detach building components, materials, equipment, etc, and place on the floor or an immediate adjacent holding area as designated by the General Contractor.
- S. "Repair": To correct damage and defects, retaining existing materials, features, and finishes while employing as little new material as possible. Includes patching, piecing-in, splicing, consolidating, refurbishing or otherwise reinforcing or upgrading materials.
- T. "Replace": To remove, duplicate, and reinstall entire item with new material. The original item is the pattern for creating duplicates unless otherwise indicated.
- U. "Replicate": To reproduce in exact detail, materials, and finish, unless otherwise indicated.
- V. "Reproduce": To fabricate a new item, accurate in detail to the original, and in either the same or a similar material as the original, unless otherwise indicated.
- W. "Restore": To consolidate, replicate, reproduce, repair, and refinish as required to achieve the indicated results.
- X. "Retain": To keep existing items that are not to be removed or dismantled.
- Y. "Reversible": New construction work, treatments, or processes that can be removed or undone in the future without damaging historic materials, unless otherwise indicated.
- Z. "Salvage": To protect removed or dismantled items and retain for incorporation into the work or to deliver them to Owner.
- AA. "Stabilize": To provide structural reinforcement of unsafe or deteriorated items while maintaining the essential form as it exists at present; also, to reestablish a weather-resistant enclosure.
- BB. "Strip": To remove existing finish down to base material, unless otherwise indicated.

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.

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 Thomson Gale's "Encyclopedia of Associations" or in Columbia Books' "National Trade & Professional Associations of the U.S."
- B. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations as generally known in the construction industry in the local of the work.
- C. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities as generally known in the construction industry in the local of the work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

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SECTION 01 5000

TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Sections:
 - 1. Division 01 Section "Summary" for work restrictions and limitations on utility interruptions.

1.3 USE CHARGES

- A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, Architect, occupants of Project, testing agencies, and authorities having jurisdiction.
- B. Water and Sewer Service from Existing System: Water from Owner's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

1.4 INFORMATIONAL SUBMITTALS

- A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.
- B. Moisture-Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage, including delivery, handling, and storage provisions for materials subject to water absorption or water damage, discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and replacing water damaged Work.
- C. Dust-Control Plan: Submit coordination drawing and narrative that indicates the dust-control measures proposed for use, proposed locations, and proposed time frame for their operation. Identify further options if proposed measures are later determined to be inadequate. Include the following:
 - 1. Locations of dust-control partitions at each phase of the work.
 - 2. Other dust-control measures.
 - 3. Waste management plan.
- D. Fire-Prevention Plan: Prepare a written plan for preventing fires during the Work, including placement of fire extinguishers, fire blankets, rag buckets, and other fire-prevention devices during each phase or process. Coordinate plan with Owner's fire-protection equipment and requirements. Include each fire watch's training, duties, and authority to enforce fire safety.

1.5 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

- C. Accessible Temporary Egress: Comply with applicable provisions of the Massachusetts State Building Code, Massachusetts Architectural Access Board, ICC/ANSI A117.1 and other regulations.

1.6 PROJECT CONDITIONS

- A. Temporary Use of Permanent Facilities: Engage installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Polyethylene Sheet: Reinforced, fire-resistive sheet, 10 mils minimum thickness, with flame-spread rating of 15 or less per ASTM E 84.
- B. Dust Control Adhesive-Surface Walk-off Mats: Provide mats minimum 36 by 60 inches.

2.2 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

2.3 TEMPORARY HOISTING AND RIGGING EQUIPMENT AND MACHINERY

- A. All hoisting and rigging equipment and machinery required for the proper and expeditious prosecution and progress of the work shall be furnished, installed, operated and maintained in safe condition by the General Contractor for the use of all Subcontractors' material and/or equipment delivered to a designated hoisting area, which shall abutt the building, except that which is specifically required to be provided by the Subcontractors themselves and is so stated in each appropriately related Section of the Specifications. All costs for hoisting operating services shall be borne by the General Contractor unless specified otherwise in the Contract Documents relative to specific work. A licensed equipment manufacturer's representative shall be present at all times, to witness the erection and dismantling of all hoisting and rigging equipment and machinery, whenever such equipment is being erected or dismantled. No such work will be performed without the presence of such representative.
 - 1. Hoisting and rigging equipment and machinery erection and dismantling shall be performed only by trained, certified, and experienced riggers qualified to perform such work.
 - 2. Copies of such licenses and/or certifications, clearly indicating qualifications, shall be provided to the Architect prior to commencement of such erecting and dismantling work.
- B. Review Drawings for hoisting requirements and openness of traffic access routes to installed destinations of specified equipment and furnishings.

2.4 STAGING

- A. All staging, exterior and interior, required to be over eight feet in height, shall be furnished and erected by the General Contractor and maintained in safe condition by him without charge to and for the use of all trades as needed by them for proper execution of their work, except where specified to the contrary in any filed sub-bid Section of the Specification.
 - 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 Architect prior to commencement of such erecting and dismantling work.
- B. Any staging that is up to eight (8) feet in height shall be furnished and erected by the applicable Subcontractor.

2.5 WEATHER PROTECTION

- A. It is the intent of these Specifications to require the General contractor to provide temporary enclosures and heat to permit construction work to be carried out during the months of November through March in compliance with Chapter 497 of Mass. General Laws of 1970. These Specifications are not to be construed as requiring enclosures or heat for operations that are economically unfeasible to protect in the judgment of the Architect. Included in this category, without limitation, are such items as Site Work, Excavation, Steel Erection, and similar operations.
- B. "Weather Protection" shall mean the temporary protection of that work adversely affected by moisture, wind and cold, by covering, enclosing and/or heating. This protection shall provide adequate working areas during the months of November through March as determined by the Architect and consistent with the approved construction schedule to permit the continuous progress of all work necessary to maintain an orderly and efficient sequence of construction operations. The General Contractor shall furnish and install all "weather protection" material and be responsible for all costs, including heating required to maintain a minimum temperature of 40 degrees F. at the working surface. This provision does not supersede any specific requirements for methods of construction, curing of materials or the applicable general conditions set forth in the CONDITIONS OF THE CONTRACT with added regard to performance obligations of the General Contractor.
- C. Within fourteen calendar days after his award of contract, the General Contractor shall submit in writing to the Architect for approval, three copies of his proposed methods for "Weather Protection"
- D. Installation of weather protection and heating devices shall comply with all safety regulations including provisions for adequate ventilation and fire protection devices.
- E. Determination of extent of work to be performed during winter months shall be by the General Contractor, provided that the work shall proceed at such a rate as to insure Substantial Completion on or before the stipulated date in accordance with the progress schedule.
- F. The entire responsibility for weather protection during construction until Substantial Completion, shall be assumed by the General Contractor, who shall be liable for any damage to any work caused by his failure to supply proper weather protection and proper ventilation as required.
- G. Any work damaged by frost shall be removed and replaced by the General Contractor at his own expense and as directed by the Architect.
- H. It is to be specifically understood that the contractor shall do no work at any time under any conditions which he deems unsuited to the perfect execution of the Work. This provision shall not be interpreted as constituting any waiver, release or lessening of the Contractor's obligation to bring the Work to Substantial Completion within the period of time set forth in the Agreement.
- I. Additional weather protection requirements: The General Contractor is responsible to ensure that the protection is provided by for the building interior and all materials and equipment from weather at all times (year round).
 - 1. Where removal of existing roofing, roof sheathing, windows, doors, and other items is necessary to accomplish work, have materials and workmen ready to provide adequate and approve temporary covering of exposed areas.
 - 2. Temporary coverings shall be attended as necessary to insure effectiveness and to prevent displacement.
 - 3. Contractor shall repair or replace all elements of the building damaged by failure to properly protect them from the weather to the satisfaction of the Architect at no additional cost to the Owner.

2.6 PROJECT SIGN

- A. Project Signs: Provide Project sign as instructed by the Town of Westford and the Massachusetts Historic Commission..
 - 1. Unauthorized signs are not permitted.

2. Temporary Signs: Provide signs as indicated and as required to inform public and individuals seeking entrance to Project or safe paths to travel.
 3. Maintain and touchup signs so they are legible at all times.
- B. Furnish and erect, at an on-site location designated by the Architect, one (1) project sign, 4 feet by 8 feet in size, with three 4-inch by 4-inch post supports. Sign shall be fabricated from 3/4-inch thick PVC panel. All surfaces of posts, and surfaces of panel where designated shall be given two coats of exterior latex paint as specified in Division 09 for painting of PVC. Sign shall be lettered by a professional sign painter and include the following:
1. Name of Project
 2. Name of Owner
 3. Name of General Contractor
 4. Name of Architect and Consulting Engineers
 5. Up to 15 word narrative on purpose of project.
- C. City will provide design of sign, text and lettering style, sizes, colors after award of contract.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY ELECTRICITY AND LIGHTING

- A. The existing, and new permanent, power source in the building, may be utilized by the Contractor at no charge. However, if temporary power is required, the General contractor shall make arrangements for temporary electric service, pay expenses in connection with installation, operation, and removal thereof.
- B. The Contractor is advised the project is in a residential neighborhood and all temporary lighting shall be erected to avoid lighting off of the site and visual disturbance to neighbors.
- C. The General Contractor and Subcontractors individually shall furnish extension cords, sockets, lamps, motors and accessories required for their work and shall pay for temporary wiring of construction offices and structures used by them, except as provided in the preceding paragraph.
- D. Temporary electrical work shall meet requirements of Massachusetts Electrical Code Article 305 Temporary Wiring, Local Utility Company, and Federal Standards and Laws. Use only copper wire.
- E. Where existing power sources, and power required as part of the Work, is not adequate for construction purposes, the General Contractor shall pay for cost of electric energy consumed by his forces and by all other trades, including cost of lamp replacement.
- F. Provide temporary lighting and power required above during normal working hours of project or total of ten hours per normal working day, Saturdays, Sundays and legal holidays excluded. Ten hours include manning temporary power and lighting 1/2 hour before and 1/2 hour after normal 8 hour working day. In addition, provide and maintain, to the satisfaction of local authorities having jurisdiction, temporary lighting and power that may be required for safety purposes. The General Contractor shall pay for all additional standby time, materials or equipment required by the General Contractor or other Subcontractors beyond normal working hours, as defined above.
- G. When permanent electrical power and lighting systems are in operating condition, they may be used for temporary power and lighting for construction purposes, provided the General Contractor obtains written approval of Architect and Owner. If permanent lighting fixtures are used for temporary light, provide new lamps before final acceptance of the work.
- H. Electrical Power And Lighting Of Owner's Occupied Areas
 1. Maintain electrical power to the Owner's occupied areas at all times.

2. Coordinate and schedule the work to maintain operation of existing, or new permanent, electrical service and distribution at all times to any portion of the building occupied by the Owner.

3.3 SUPPORT FACILITIES INSTALLATION

- A. Parking: Use designated areas of Owner's off-site existing parking areas for construction personnel.
- B. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with Division 01 Section "Execution" for progress cleaning requirements.
- C. Existing Stair Usage: Use of Owner's existing stairs will be permitted for the occasional use by contractor's supervisory personnel only.
 1. No materials or equipment shall be transported on the Owner's existing stairs. Both existing stairs must remain useable as a means of egress at all times.
 2. The Contractor and Subcontractors shall provide lifts, hoisting and other means as necessary to bring materials and equipment into the building without the use of existing stairs.
 3. At Substantial Completion, restore stairs to condition existing before initial use.
 4. Provide protective coverings, barriers, devices, signs, or other procedures to protect stairs and to maintain means of egress. If stairs become damaged, restore damaged areas so no evidence remains of correction work.
 5. It is the intent of this restriction for the Contractor to provide exterior staging, scaffolding and hoisting for the transport of materials, equipment and personnel in order to minimize the disruption of the Owner's operations.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION AND PROCEDURES

- A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
 1. Comply with work restrictions specified in Division 01 Section "Summary."
- B. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.
- C. Pest Control: Engage pest-control service to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals so Project will be free of pests and their residues at Substantial Completion. Obtain extended warranty for Owner. Perform control operations lawfully, using environmentally safe materials.
- D. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- E. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.
- F. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
- G. Temporary Fire Protection:
 1. Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.
 - a. Prohibit smoking in construction areas.
 - b. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.

- c. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
 - d. Provide temporary hoses connected to fire protection system. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.
 - e. Provide hoses connected to domestic water supply during any period fire protection system is shut down for change-over.
 - f. Do not permit welding, soldering or other operations that heat materials above ignition temperatures at any time fire protection systems are not active.
2. Fire Extinguishers, Fire Blankets, and Rag Buckets: Maintain fire extinguishers, fire blankets, and rag buckets for disposal of rags with combustible liquids. Maintain each as suitable for the type of fire risk in each work area. Ensure that nearby personnel and fire watch personnel are trained in fire-extinguisher and blanket operation.

3.5 MOISTURE AND MOLD CONTROL

- A. Contractor's Moisture-Protection Plan: Avoid trapping water in finished work. Document visible signs of mold that may appear during construction.
- B. Exposed Construction Phase: Before installation of weather barriers, when materials are subject to wetting and exposure and to airborne mold spores, protect as follows:
 1. Protect porous materials from water damage.
 2. Protect stored and installed material from flowing or standing water.
 3. Keep porous and organic materials from coming into prolonged contact with concrete.
 4. Remove standing water from decks.
 5. Keep deck openings covered or dammed.
- C. Partially Enclosed Construction Phase: After installation of weather barriers but before full enclosure and conditioning of building, when installed materials are still subject to infiltration of moisture and ambient mold spores, protect as follows:
 1. Do not load or install drywall or other porous materials or components, or items with high organic content, into partially enclosed building.
 2. Keep interior spaces reasonably clean and protected from water damage.
 3. Periodically collect and remove waste containing cellulose or other organic matter.
 4. Discard or replace water-damaged material.
 5. Do not install material that is wet.
 6. Discard, replace or clean stored or installed material that begins to grow mold.
 7. Perform work in a sequence that allows any wet materials adequate time to dry before enclosing the material in drywall or other interior finishes.
 8. Fire Watch: Before working with heat-generating equipment or highly combustible materials, station personnel to serve as a fire watch at each location where such work is performed. Fire watch personnel shall have the authority to enforce fire safety. Station fire watch according to NFPA 51B, NFPA 241, and as follows.
 - a. Train each fire watch in the proper operation of fire-control equipment and alarms.
 - b. Prohibit fire-watch personnel from other work that would be a distraction from fire-watch duties.
 - c. Cease work with heat-generating equipment whenever fire-watch personnel are not present.
 - d. Have fire watch perform final fire-safety inspection each day beginning no sooner than 30 minutes after conclusion of work at each area of the Project site to detect hidden or smoldering fires and to ensure that proper fire-prevention is maintained.
 - e. Maintain fire-watch personnel at each area of the Project site until 30 minutes after conclusion of daily work.

3.6 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
- C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion of project phase, or overall project, as applicable.
- D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
 - 1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
 - 2. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Division 01 Section "Closeout Procedures."

3.7 CONDITIONS REGARDING LEAD BASED PAINT

- 1. The Contractor performing work of this Section that disturbs surfaces coated with lead-containing paint, shall comply with Massachusetts Department of Labor and Workforce Development Regulations at 454 CMR 22.00 and Federal OSHA regulations at 29 CFR 1926.62.

END OF SECTION

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SECTION 01 6000
PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.
- B. Related Sections:
 - 1. Division 01 Section "References" for applicable industry standards for products specified.

1.3 DEFINITIONS

- A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
 - 2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
 - 3. Comparable Product: Product that is demonstrated and approved through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Basis-of-Design Product Specification: A specification in which a specific manufacturer's product is named and accompanied by the words "basis-of-design" including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification.

1.4 ACTION SUBMITTALS

- A. Comparable Product Requests: Submit request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
 - 2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product in accordance with review of Submittals.
- B. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 01 Section "Submittal Procedures." Show compliance with requirements.

1.5 QUALITY ASSURANCE

- A. Compatibility of Options:

1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.
- B. Delivery and Handling:
 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.
- C. Storage:
 1. Store products to allow for inspection and measurement of quantity or counting of units.
 2. Store materials in a manner that will not endanger Project structure.
 3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
 4. Store foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
 5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
 6. Protect stored products from damage and liquids from freezing.
 7. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.7 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
 1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
 2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.
 1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
 2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
 3. Refer to Divisions 02 through 49. Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.
1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
 2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
 3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
 4. Where products are accompanied by the term "as selected," Architect will make selection.
 5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
 6. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.
- B. Product Selection Procedures:
1. Product: Where Specifications name a single manufacturer and product and identified as "NO SUBSTITUTIONS", provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
 2. Products:
 - a. Nonrestricted List: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product.
 3. Manufacturers:
 - a. Nonrestricted List: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed manufacturer's product.
 4. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.
- C. Visual Matching Specification: Where Specifications require "match Architect's sample", provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.
1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Division 01 Section "Substitution Procedures" for proposal of product.
- D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

- A. Conditions for Consideration: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with these requirements:
1. Evidence that the proposed product does not require revisions to the Contract Documents. That it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
 2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
 3. Evidence that proposed product provides specified warranty.
 4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
 5. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01 7300
EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
 - 1. Installation of the Work.
 - 2. Cutting and patching.
 - 3. Progress cleaning.
 - 4. Starting and adjusting.
 - 5. Protection of installed construction.
 - 6. Conduct regarding lead-based paint.
 - 7. Correction of the Work.
- B. Related Sections:
 - 1. Division 01 Section "Submittal Procedures" for submitting surveys.
 - 2. Division 02 Section "Selective Demolition" for demolition and removal of selected portions of the building.

1.3 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of other work.
- B. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.

1.4 INFORMATIONAL SUBMITTALS

- A. Cutting and Patching Plan: Submit plan describing procedures at least 10 days prior to the time cutting and patching will be performed. Include the following information:
 - 1. Extent: Describe reason for and extent of each occurrence of cutting and patching.
 - 2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.
 - 3. Products: List products to be used for patching and firms or entities that will perform patching work.
 - 4. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be relocated and those that will be temporarily out of service. Indicate how long services and systems will be disrupted.
- B. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

1.5 QUALITY ASSURANCE

- A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
 - 1. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from the Architect before proceeding.

- Shore, brace, and support structural element during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection
2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operational elements include the following:
 - a. Primary operational systems and equipment.
 - b. Fire separation assemblies.
 - c. Air or smoke barriers.
 - d. Fire-suppression systems.
 - e. Mechanical systems piping and ducts.
 - f. Control systems.
 - g. Communication systems.
 - h. Conveying systems.
 - i. Electrical wiring systems.
 - j. Operating systems of special construction.
 3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or results in increased maintenance or decreased operational life or safety. Other construction elements include but are not limited to the following:
 - a. Water, moisture, or vapor barriers.
 - b. Membranes and flashings.
 - c. Equipment supports.
 - d. Piping, ductwork, vessels, and equipment.
 4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
- B. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.
- B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to the Architect for the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.

- B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
 - 1. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
 - 2. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
 - 3. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
 - 4. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- B. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- C. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of the Contractor, submit a request for information to Architect according to requirements in Division 01 Section "Project Management and Coordination."

3.3 CONSTRUCTION LAYOUT

- A. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.

3.4 CONDITIONS REGARDING LEAD BASED PAINT

- A. Lead-based paint inspections at the site indicate that components requiring the work of this Section are coated with hazardous levels of LEAD. Proper work area and environmental controls, worker protection and disposal requirements shall be implemented for performance of the work as stated in this Section.
- B. The Contractor performing work of this Section that disturbs surfaces coated with lead-containing paint, shall comply with Massachusetts Department of Labor and Workforce Development Regulations at 454 CMR 22.00 and Federal OSHA regulations at 29 CFR 1926.62.

3.5 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
 - 1. Make vertical work plumb and make horizontal work level.
 - 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
 - 3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

- E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- G. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
 - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
 - 2. Allow for building movement, including thermal expansion and contraction.
 - 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.6 CUTTING AND PATCHING

- A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
 - 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Temporary Support: Provide temporary support of work to be cut.
- C. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- D. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching in accordance with requirements of Division 01 Section "Summary."
- E. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
 - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 - 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 - 3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
 - 4. Proceed with patching after construction operations requiring cutting are complete.
- F. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.
 - 1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.

2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.
 - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
 - b. Restore damaged pipe covering to its original condition.
 3. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.
- G. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.7 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
 - a. Utilize containers intended for holding waste materials of type to be stored.
 4. Coordinate progress cleaning for joint-use areas where more than one installer has worked.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
1. Remove liquid spills promptly.
 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways.
- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.8 PROTECTION OF INSTALLED CONSTRUCTION

PROVIDE FINAL PROTECTION AND MAINTAIN CONDITIONS THAT ENSURE INSTALLED WORK IS WITHOUT DAMAGE OR DETERIORATION AT TIME OF SUBSTANTIAL COMPLETION.

- A. Comply with manufacturer's written instructions for temperature and relative humidity.

3.9 CORRECTION OF THE WORK

- A. Repair or remove and replace defective construction. Restore damaged substrates and finishes.
 - 1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.
- B. Restore permanent facilities used during construction to their specified condition.
- C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.
- D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.
- E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION

**SECTION 01 7700
CLOSEOUT PROCEDURES**

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Substantial Completion procedures.
 - 2. Final completion procedures.
 - 3. Warranties.
 - 4. Final cleaning.
- B. Related Sections:
 - 1. Division 01 Section "Execution" for progress cleaning of Project site.
 - 2. Division 01 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
 - 3. Divisions 02 through 49 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

1.3 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete with request.
 - 1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
 - 2. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 - 3. Prepare and submit Project Record Documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.
 - 4. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
 - 5. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
 - 6. Complete startup testing of systems.
 - 7. Submit test/adjust/balance records.
 - 8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 - 9. Complete final cleaning requirements, including touchup painting.
 - 10. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.
 - 1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
 - 2. Results of completed inspection will form the basis of requirements for final completion.

1.4 FINAL COMPLETION

- A. Preliminary Procedures: Before requesting final inspection for determining final completion, complete the following:
 - 1. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
 - 2. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
- B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
 - 1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.5 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
 - 1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
 - 2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
 - 3. Include the following information at the top of each page:
 - a. Project name.
 - b. Date.
 - c. Name of Contractor.
 - d. Page number.
 - 4. Submit list of incomplete items in the following format:
 - a. Three paper copies of product schedule or list, unless otherwise indicated. Architect will return one copy.

1.6 WARRANTIES

- A. Submittal Time: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.
- B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.
- C. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
 - 1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
 - 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
 - 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.

4. Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide table of contents at beginning of document.
- D. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
 - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - d. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 - e. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - f. Sweep concrete floors broom clean in unoccupied spaces.
 - g. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
 - h. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
 - i. Remove labels that are not permanent.
 - j. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
 - 1) Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates.
 - k. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
 - l. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.

- m. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
- n. Clean ducts, blowers, and coils if units were operated without filters during construction or that display contamination with particulate matter upon inspection.
- o. Leave Project clean and ready for occupancy.

END OF SECTION

SECTION 01 7839

PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for project record documents, including the following:
 - 1. Record Drawings.
 - 2. Record Specifications.
 - 3. Record Product Data.
 - 4. Miscellaneous record submittals.
- B. Related Sections:
 - 1. Division 01 Section "Closeout Procedures" for general closeout procedures.
 - 2. Divisions 02 through 49 Sections for specific requirements for project record documents of the Work in those Sections.

1.3 CLOSEOUT SUBMITTALS

- A. Record Drawings: Comply with the following:
 - 1. Number of Copies: Submit one set(s) of marked-up record prints.
 - 2. Number of Copies: Submit copies of record Drawings as follows:
 - a. Initial Submittal: Submit one paper copy set and one set PDF electronic files of marked-up record prints and one set(s) of plots from corrected record digital data files. Architect will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.
 - b. Final Submittal: Submit one paper copy set and one set PDF electronic files of marked-up record prints. Print each Drawing, whether or not changes and additional information were recorded.
- B. Record Specifications: Submit one copy of annotated PDF electronic files of Project's Specifications, including addenda and contract modifications.
- C. Miscellaneous Record Submittals: Refer to other Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Submit one paper copy and one copy annotated PDF electronic files and directories of each submittal.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

- A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings.
 - 1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.
 - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.

- b. Accurately record information in an acceptable drawing technique.
 - c. Record data as soon as possible after obtaining it.
 - d. Record and check the markup before enclosing concealed installations.
 - e. Cross-reference record prints to corresponding archive photographic documentation.
2. Content: Types of items requiring marking include, but are not limited to, the following:
- a. Dimensional changes to Drawings.
 - b. Revisions to details shown on Drawings.
 - c. Revisions to electrical circuitry.
 - d. Actual equipment locations.
 - e. Locations of concealed internal utilities.
 - f. Changes made by Change Order or Construction Change Directive.
 - g. Changes made following Architect's written orders.
 - h. Details not on the original Contract Drawings.
 - i. Field records for variable and concealed conditions.
 - j. Record information on the Work that is shown only schematically.
3. Mark the Contract Drawings and Shop Drawings completely and accurately. Utilize personnel proficient at recording graphic information in production of marked-up record prints.
4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
5. Mark important additional information that was either shown schematically or omitted from original Drawings.
6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with Architect. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:
1. Format: Annotated PDF electronic file with comment function enabled.
 2. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.
 3. Refer instances of uncertainty to Architect for resolution.
- C. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
1. Record Prints: Organize record prints and newly prepared record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
 2. Format: Annotated PDF electronic file with comment function enabled.
 3. Identification: As follows:
 - a. Project name.
 - b. Date.
 - c. Designation "PROJECT RECORD DRAWINGS."
 - d. Name of Architect.
 - e. Name of Contractor.

2.2 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.

2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
 3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
 4. For each principal product, indicate whether record Product Data has been submitted in operation and maintenance manuals instead of submitted as record Product Data.
 5. Note related Change Orders and record Drawings where applicable.
- B. Format: Submit record Specifications scanned PDF electronic file(s) of marked up paper copy of Specifications.

2.3 RECORD PRODUCT DATA

- A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
 3. Note related Change Orders, record Specifications, and record Drawings where applicable.
- B. Format: Submit record Product Data as scanned PDF electronic file(s) of marked up paper copy of Product Data.
1. Include record Product Data directory organized by specification section number and title, electronically linked to each item of record Product Data.

2.4 MISCELLANEOUS RECORD SUBMITTALS

- A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.
- B. Format: Submit miscellaneous record submittals as scanned PDF electronic file(s) of marked up miscellaneous record submittals.
1. Include miscellaneous record submittals directory organized by specification section number and title, electronically linked to each item of miscellaneous record submittals.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

- A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and modifications to project record documents as they occur; do not wait until the end of Project.
- B. Maintenance of Record Documents and Samples: Store record documents and Samples in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Architect's reference during normal working hours.

END OF SECTION

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SECTION 02 4119
SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
 - 1. Removal of selected portions of building elements not specified to be by another SECTION. Including metal roofing, underlayment associated materials, abandoned ventilation units, and wood shingles.
 - 2. Remove metal flashings not removed by other Sections.
 - 3. Disposal of all building components and material as shown on drawings by any trades.
 - 4. Salvage of existing items indicated to be reused and provide to Section designated for storage and reinstallation.
 - 5. Salvage material items listed to be removed and delivered to Owner:
 - a. Items noted on the drawings as being 'salvaged' for Owner.
 - 6. Removal and disposal of any building component and material shown on drawings as by Section 02 4119 or not shown to be the work of any other section.
 - 7. Disposal of demolition waste and construction waste of existing building components or materials shown to be removed by any other SECTION unless specifically indicated to be salvaged or disposed by another SECTION.
- B. Related Requirements:
 - 1. Section 01 1000 "Summary of the Work" for restrictions on the use of the premises, Owner-occupancy requirements, and phasing requirements.

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: Carefully detach from existing construction, in a manner to prevent damage, and to allow deliver to Owner for reuse.
- C. Remove and Reinstall: Detach items from existing construction, prepare for reuse, and reinstall where indicated.
- D. Existing to Remain: Existing items of construction that are not to be permanently removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.
- E. "Dispose": Transport removed items from their designated holding area to disposal containers and legally dispose of them off site.

1.4 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, demolition waste becomes property of Contractor.
- B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.

1.5 PREINSTALLATION MEETINGS

- A. Pre-demolition Conference: Conduct conference at Project site.
 - 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.

1.6 INFORMATIONAL SUBMITTALS

- A. Proposed Protection Measures: Submit report, including drawings, that indicates the measures proposed for protecting individuals and property. Indicate proposed locations and construction of barriers.
- B. Schedule of Selective Demolition Activities: Indicate the following:
 - 1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.
 - 2. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.

1.7 CLOSEOUT SUBMITTALS

- A. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

1.8 FIELD CONDITIONS

- A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
- B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
- C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- D. Storage or sale of removed items or materials on-site is not permitted.
- E. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

1.9 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. Notify warrantor before proceeding.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ANSI/ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Review record documents of existing construction provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in record documents.
- B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

3.2 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 01 5000 "Temporary Facilities and Controls."
- B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
 - 1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
 - 2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
 - 3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
 - 4. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Section 01 5000 "Temporary Facilities and Conditions."
- C. 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. Sequencing of the dismantling and reconstruction shall be done in such a way that minimizes the risk to the structure and the potential for structural instability. Sequencing shall account for prevailing weather patterns, removal and storage of other materials, and for other operations. It shall be the responsibility of the General Contractor to determine how large the sequential sections can be and the requirements of the scheduling.

3.3 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.
 - 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. At concealed spaces, such as duct and pipe interiors, verify condition and contents.
 - 5. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.

6. Remove materials and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
 7. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 8. Dispose of demolished items and materials promptly.
- B. Removed and Reinstalled Items:
1. Clean and repair items to functional condition adequate for intended reuse.
 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.
- C. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

3.4 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

- A. General: Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site.
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 hoist, or other device that will convey debris to grade level in a controlled descent.
- B. Burning: Do not burn demolished materials.

3.5 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION

**SECTION 06 1000
ROUGH CARPENTRY**

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:

- 1. Wood framing and sheathing at former ventilation units.
- 2. Wood framing, sheathing and blocking at cricket.
- 3. Wood blocking, cants, and nailers.
- 4. Wood furring and grounds.
- 5. Wood sleepers.

- B. Related Requirements:

- 1. Section 06 2113 "Exterior Finish Carpentry" for exterior construction made of wood.

1.3 DEFINITIONS

- A. Exposed Framing: Framing not concealed by other construction.
- B. Dimension Lumber: Lumber of 2 inches nominal or greater.
- C. Lumber grading agencies, and the abbreviations used to reference them, include the following:
 - 1. NeLMA: Northeastern Lumber Manufacturers' Association.
 - 2. NLGA: National Lumber Grades Authority.
 - 3. RIS: Redwood Inspection Service.
 - 4. SPIB: The Southern Pine Inspection Bureau.
 - 5. WCLIB: West Coast Lumber Inspection Bureau.
 - 6. WWPA: Western Wood Products Association.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
 - 1. Include data for wood-preserved treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.

1.5 INFORMATIONAL SUBMITTALS

- A. Material Certificates: For dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the ALSC Board of Review.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

- A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency

certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

1. Factory mark each piece of lumber with grade stamp of grading agency.
 2. Provide dressed lumber, S4S, unless otherwise indicated.
- B. Maximum Moisture Content of Lumber: 19 percent unless otherwise indicated.

2.2 WOOD-PRESERVATIVE-TREATED LUMBER

- A. Preservative Treatment by Pressure Process: AWWPA U1; Use Category UC3b for exterior construction not in contact with the ground.
1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium
- B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or that does not comply with requirements for untreated material.
- C. Application: Treat all rough carpentry unless otherwise indicated.

2.3 MISCELLANEOUS LUMBER

- A. General: Provide wood-preservative treated miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
1. Blocking.
 2. Nailers.
 3. Miscellaneous wood items as shown on drawings.
- B. Provide lumber with 19 percent maximum moisture content and any of the following species and grades:
1. Mixed southern pine; No. 2 grade; SPIB.
 2. Hem-fir or hem-fir (north); Construction or No. 2 Common grade; NLGA, WCLIB, or WWPA.
 3. Spruce-pine-fir (south) or spruce-pine-fir; Construction or No. 2 Common grade; NeLMA, NLGA, WCLIB, or WWPA.
 4. Eastern softwoods; No. 2 Common grade; NeLMA.
 5. Northern species; No. 2 Common grade; NLGA.
 6. Western woods; Construction or No. 2 Common grade; WCLIB or WWPA.
- C. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.
- D. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture. Provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M and meeting the following:
1. Nails, Brads, and Staples: ASTM F 1667.
 2. Power-Driven Fasteners: NES NER-272.
 3. Wood Screws: ASME B18.6.1.
 4. Lag Bolts: ASME B18.2.1
 5. Bolts: Steel bolts complying with ASTM A 307, Grade A; hex nuts and, at all wood members, flat washers.
 6. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry assemblies and equal to four times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.
 - a. Material: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.

2.4 DIMENSION LUMBER FRAMING

- A. Provide: No. 2 Construction or No. 2 grade.
 - 1. Species, provide one of the following or approved equal:
 - a. Hem-fir (north); NLGA.
 - b. Southern pine; SPIB.
 - c. Douglas fir-larch; WCLIB or WWPA.
 - d. Douglas fir-south; WWPA.
 - e. Douglas fir-larch (north); NLGA.
 - f. Spruce-pine-fir (south); NeLMA, WCLIB, or WWPA

2.5 PLYWOOD SHEATHING

- A. Provide new plywood sheathing to match existing at repairs and replacement areas.

2.6 MISCELLANEOUS MATERIALS

- A. Flexible Flashing: Composite, self-adhesive, flashing product consisting of a pliable, butyl rubber compound, bonded to a high-density polyethylene film. Provide material complying with requirements for self-adhering, high temperature sheet (Ice and Water Barrier) as specified in Sheet Metal Flashing and Trim.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.
- B. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.
- C. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.
- D. Sort and select lumber so that natural characteristics will not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
- E. Comply with AWWA M4 for applying field treatment to cut surfaces of preservative-treated lumber. Use copper naphthenate.
- F. Securely attach rough carpentry work to substrate by anchoring and fastening.
- G. Use hot dipped galvanized steel common nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood. Drive nails snug but do not countersink nail heads unless otherwise indicated.

3.2 WOOD GROUND BLOCKING, AND NAILER INSTALLATION

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

- B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.
- C. Provide permanent grounds of dressed, pressure-preservative-treated, key-beveled lumber not less than 1-1/2 inches wide and of thickness required to bring face of ground to exact thickness of finish material. Remove temporary grounds when no longer required.

END OF SECTION

**SECTION 06 2013
EXTERIOR FINISH CARPENTRY**

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
 - 1. Wood shingle siding.
- B. Related Sections include the following:
 - 1. Division 06 Section "Rough Carpentry" for furring, blocking, and other carpentry work not exposed to view and for structural framing exposed to view.
 - 2. Division 09 Section "Painting" for primer and finish coats to work of this section.

1.3 SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials, dimensions, profiles, textures, and colors and include construction and application details.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Protect materials against weather and contact with damp or wet surfaces. Stack bundles, plywood, and other panels flat with spacers between each bundle to provide air circulation. Provide for air circulation within and around stacks and under temporary coverings.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Approved by CSSB.
- B. Grading Agency Qualifications: An independent testing and inspecting agency recognized by authorities having jurisdiction as qualified to label siding for compliance with referenced grading rules.
- C. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.
 - 1. Build mockups for siding including accessories.
 - a. Size: 48 inches long by 48 inches wide.
 - 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 - 3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.6 PROJECT CONDITIONS

- A. Do not install finish carpentry materials that are wet, moisture damaged, or mold damaged.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. Smooth-Sawn Cedar Shingles: Western red cedar shingles.
 - 1. Grade: No. 1.
 - 2. Size: 18 inches long; 0.45 inch thick at butt.
 - 3. Finish: Unfinished

2.2 MISCELLANEOUS MATERIALS

- A. Fasteners for Exterior Finish Carpentry: Provide galvanized steel nails or screws, in sufficient length to penetrate not less than 1-1/2 inches into wood substrate.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance.
- B. Examine finish carpentry materials before installation. Reject materials that are wet, moisture damaged, and mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean substrates of projections and substances detrimental to application.
- B. Prime shingles to be painted, including both faces and edges. Cut to required lengths and prime ends. Comply with requirements in Division 09 Section "Exterior Painting."

3.3 INSTALLATION, GENERAL

- A. Do not use materials that are unsound, warped, improperly treated or finished, inadequately seasoned, or too small to fabricate with proper jointing arrangements.
 - 1. Do not use manufactured units with defective surfaces, sizes, or patterns.
- B. Install exterior finish carpentry level, plumb, true, and aligned with adjacent materials. Use concealed shims where necessary for alignment.
 - 1. Scribe and cut exterior finish carpentry to fit adjoining work. Refinish and seal cuts as recommended by manufacturer.
- C. Install true and straight with no distortions. Shim as required with concealed shims.
- D. Scribe and cut work to fit adjoining work, and refinish cut surfaces or repair damaged finish at cuts.
- E. Fit exterior joints to exclude water. Cope at returns and miter at corners to produce tight-fitting joints with full-surface contact throughout length of joint. Plane edges of shingles to provide uniform thickness across joints, where necessary for alignment.
- F. Weather exposure: 8".

3.4 ADJUSTING

- A. Replace exterior finish carpentry that is damaged or does not comply with requirements. Exterior finish carpentry may be repaired or refinished if work complies with requirements and shows no evidence of repair or refinishing. Adjust joinery for uniform appearance.

3.5 CLEANING

- A. Clean exterior finish carpentry on exposed and semiexposed surfaces. Touch up factory-applied finishes to restore damaged or soiled areas.

3.6 PROTECTION

- A. Protect installed products from damage from weather and other causes during construction.
- B. Remove and replace finish carpentry materials that are wet, moisture damaged, and mold damaged.
 - 1. Indications that materials are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 - 2. Indications that materials are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION

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**SECTION 07 3126
SLATE ROOFING**

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
1. Natural slate shingle roofing assemblies including areas of:
 - a. Removal of existing slate and replacement with new slate.
 2. Moisture shedding underlayment.
 3. Ice dam protection membrane.
 4. Metal flashing and flexible flashings installed within slate roof assembly.
 5. Roofing cant and nailing strips.
 6. Roofing nails.
 7. Hip and ridge shingles.
 8. Removal of slate roofing to be replaced under this Section.
 9. Provide new slate for the areas indicated.
 10. Snow guards where indicated on drawings.
 11. Copper cricket.
- B. Items to be furnished only: Furnish the following items for installation by the designated Sections:
1. Not used.
- C. Items to be installed only: Install the following items as furnished by the designated Sections:
1. Copper Ridge caps, valleys and flashings at chimney's, transitions and penetrations: Section 07 6100 Sheet Metal Roofing and Flashing.
 2. Ice and water protection barrier, furnished by Section 07 6100 Sheet metal Roofing and Flashing.
- D. Related Sections include the following:
1. Copper ridges, valleys, edge flashing. Section 07 6100 Sheet Metal Roofing and Flashing.

1.3 REFERENCES

- A. ASTM B 370 – Specification for Copper Sheet and Strip for Building Construction.
- B. ASTM C 406 – Specification for Roofing Slate.
- C. ASTM C 920 – Specification for Elastomeric Joint Sealants.
- D. ASTM D 1079 – Standard Terminology Relating to Roofing, Waterproofing, and Bituminous Materials.

- E. "Copper and Common Sense: Sheet Copper Design Principles and Construction Techniques" by Revere Copper Products, Inc.

1.4 SUBMITTALS

- A. Product Data for each type of product indicated.
- B. Shop Drawings: Details for specially configured metal flashing, jointing methods and locations for flashing, and other roofing system details
- C. Selection Samples:
 - 1. Pieces of actual slate shingles, illustrating complete range of colors available, for Architect's selection.
 - 2. 12" x 12" samples of copper for flashings.
 - 3. Actual snow guard, full size.
- D. Verification Samples:
 - 1. Actual slate shingles in color selected, illustrating full range of color variation to be expected in finished work.
 - 2. Underlayment 12 inches (300 mm) square.
 - 3. Two nails and other fasteners of each type.
 - 4. Mockups as specified herein and as shown on drawings.
- E. Material Test Reports: For each slate type, performed by a qualified testing laboratory as approved by manufacturer, per ASTM C406.
- F. Certificate:
 - 1. The Slate Manufacturer shall furnish a certificate stating that materials used for the Project strictly adhere to the provisions of these specifications. The certificate shall also state that any required roof repairs resulting solely from defective materials furnished under this contract shall be made without cost to the owner for a period of two years.
- G. Certificate of Country of Origin: For each type of slate, identifying the country in which the slate shingles were quarried and fabricated.
- H. Distributor's Warranties: Distributors warranty for slate shingles specified.
- I. Installer's Warranties: Installers warranty for work specified.
- J. Submit resumes for all slate roofing supervisor and installers demonstrating the minimum experience required under the Article 'Quality Assurance' other specification requirements and as required to complete the work in accordance with the Contract Documents. Obtain Owner's approval of assigned personnel. Where submitted personnel is not satisfactory to the Owner, resubmit new resumes and assign personnel meeting requirements and satisfactory to the Owner.
- K. Mockups: Provide not less than the following mockups, and additional mockups as required to assure performance of the work in accordance with Contract Documents.
 - 1. Ten foot length of replacement of slate roofing.
 - 2. Ten feet by ten feet area of new slate installation.
 - 3. Installation of 4 snow guards.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Company experienced in installing natural slate roofing of the type and scope specified in this section and employing personnel thoroughly trained and experienced in the necessary crafts of natural slate roof systems; knowledgeable with this specification, and knowledgeable in the methods and requirements for a warrantable roof.
 - 1. Contractor shall assign and maintain an experienced full-time supervisor experienced in slate roofing, similar to the work of this project, on the job site and actively supervising the work during times that the work of this section and related sub-section Sheet Metal Flashing and Trim is in progress.
 - a. Submit resume of Field Supervisor as required under 'Submittals': Field Supervisor shall have not less than 15-years experience in slate roofing; not less than 8-years experience in the supervision of slate roofing restoration; and not less than five recent and successfully completed projects of slate roofing. Supervisors shall not be changed during Project except for causes beyond the control of the slate roofing contractor. Any replacement Supervisors shall be subject to the same submission and Owner's approval requirements as initial Supervisor.
 - b. Submit resume of slate workers as required under 'Submittals': Roofers removing and installing the work of this section shall have not less than 8 years experience in slate roofing repairs and/or new slate installation, and not less than five recent and successfully completed projects where they were responsible for the removal and installation of slate roofing (other non-slate roofing experience not acceptable in meeting this criteria). Approved roofers shall not be changed during Project except for causes beyond the control of the slate roofing contractor. Replacement roofers shall be subject to the same submission and Owner's approval requirements as initial personnel.
- B. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups, unless such deviations are specifically approved by Architect in writing.
 - 2. Install in area and of size designated by Architect.
 - 3. Do not proceed with remaining work until finish color, texture, pattern, joint sizes, and installation workmanship are approved by Architect.
 - 4. Correct mock-up area as required to produce acceptable work.
 - 5. Mock-up may be incorporated into final construction upon Owners approval.
 - 6. Prepare mock-up for review by Architect not less than 45 days before scheduled commencement of the work.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver shingles to project site in distributor's crates/pallets, labeled with data indicating source. Deliver enough shingles for extra attic stock of not more than 100 shingles and stored at a location as directed by the Owner.
- B. Handle shingles to prevent chipping, breakage, soiling, or other damage. Protect edges with wood or other rigid material.
- C. Place and stack crates/pallets to distribute weight evenly and to prevent breakage or cracking.
- D. Store underlayment rolls on end, on pallets or other raised surfaces. Do not double stack rolls.

- E. Protect unused underlayment from weather, sunlight and moisture when left overnight or when roofing work is not in progress.
- F. Stage roofing materials on the building in a manner to avoid significant or permanent damage to the roof deck or structural supporting members.

1.7 WARRANTY

- A. Slate Shingle Distributors Warranty: Submit slate shingle distributors warranty, signed by the distributor and covering the slate shingles described in this section, in which the distributor agrees to replace slate shingles that fail in materials. The duration of this warranty shall be established by ASTM C406 and grade indicated in this specification.
- B. Contractor Warranty:
 - 1. Contractor shall warranty his work, covering both material and labor for defects that may occur, for a period of ten (10) years. Repairs or replacement of defective slates or flashing during the warranty period shall be at no cost to the Owner.
 - 2. Approximately one year after completion of the Work, Contractor shall, at no cost to the Owner, inspect the Work and replace all broken, cracked, displaced, or otherwise deteriorated roofing slates in all areas of the new slate roofing.
 - 3. Upon completion, Contractor shall submit a notarized letter to Owner indicating Contractor's warranty terms.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with requirements, provide slate as furnished by:
Vermont Structural Slate Company ("VSS")
3 Prospect Street
Fair Haven, Vermont, USA
Telephone 1 800 343 1900 or 802 265-4933
Email: info@vermontstructuralslate.com
Website: www.vermontstructuralslate.com

2.2 SHINGLES

- A. Slate Shingles: Hard, dense, sound rock, with chamfered edges, punched or drilled for two nails each. Slate shingles shall be punched or drilled back to front, and on the thinner end when there is variation in thickness along the length of the shingle.
- B. No slate shingles with broken corners shall be installed when either the base or leg of the right triangle piece broken off is greater than 1-1/2 inches (38 mm). No broken corners on covered ends which sacrifice nailing strength or laying a watertight roof. Broken corners are acceptable for cutting stock. Not more than 1 percent of broken slates, including those having cracks materially precluding riving when sounded, shall be accepted.
- C. Slate shall be free of any visible inclusions of oxidizable iron pyrite.
- D. Curvature or twist in slate shingles shall not exceed 1/8 inch in 12 inches (3 mm in 100 mm). Curved slate shingles shall be trimmed and punched to permit them to be laid with convex side up. Knots, knurls and cramps are acceptable on the exposed slate shingle face. Knots, knurls and cramps on the back or covered portion of slate shingles, which prevent close contact of slate shingles or the laying of a watertight roof, will not be accepted.

- E. Slate shingles shall be trimmed with 90-degree square corners. Face dimensions of slate shingles shall not differ from those specified by more than 1/8 inch (3 mm).
 - 1. Source: Obtain slate required for the project from a single quarry, with consistent color range, physical properties and texture throughout.
 - 2. Grade: ASTM C 406 Grade S1: Expected service life in excess of 75 years.
 - 3. Thickness and Size: Refer to drawings for diagram of slate shingle size and thickness.
 - 4. Color of slate shall be selected to match existing color range.
 - 5. Starter Slate Size: Length of starter slates to be the exposure of the field slates plus the specified headlap and rounded up to the nearest full inch. Starter slates are to be front-side punched and installed chamfered edge down.
 - 6. Slates with a strong grain must be produced "on the grain", meaning the direction of the grain of the stone must be parallel to the long dimension of the shingle. The Owner may elect to take random samples of slate for testing for grain direction.

2.3 UNDERLAYMENT MATERIALS

- A. Polyethylene Sheet: 6-mil thick polyethylene sheet complying with ASTM D 4397.
- B. Felts: ASTM D 226, 30 lb, asphalt-saturated organic felts.
- C. Self-Adhering, High-Temperature Sheet (Ice and Water Barrier): Provide ice and water barrier on all roof areas to be covered by copper roofing or flashing. Minimum 30 to 40 mils thick, consisting of slip-resisting polyethylene-film top surface laminated to layer of butyl or SBS-modified asphalt adhesive, with release-paper backing; cold applied. Provide primer when recommended by underlayment manufacturer.
 - 1. Thermal Stability: ASTM D 1970; stable after testing at 240 deg. F.
 - 2. Low Temperature Flexibility: ASTM D 1970; passes after testing at minus 20 deg F.
 - 3. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Carlisle Coatings & Waterproofing Inc.; CCW WIP 300HT.
 - b. Grace Construction Products, a unit of W. R. Grace & Co.; Ultra
 - c. Owens Corning; WeatherLock Metal High-Temperature Underlayment.
- D. Rosin Slip Sheet: Building paper, 3-lb/100 sq. ft.. Minimum, rosin sized.

2.4 ACCESSORIES

- A. Snow Guards: Fabricated from copper, designed to be installed without penetrating slate shingles, and complete with predrilled holes or hooks for anchoring.
 - 1. As a Basis of Design, Snow guards are based products as manufactured by Alpine SnowGuards as (www.alpinesnowguards.com; 888-766-4273).
 - 2. Snow guards shall be fabricated of 16 oz. copper in style #10 and #10R in 2.5" width and custom length to be compatible with project slate.
 - 3. Fasteners shall be copper or stainless steel.
- B. Slating Nails for Non-Preservative Treated Plank or Plywood Deck and Nailers: Slater's copper ring shank nails, 0.120 inch (3mm) or No. 11 gauge Stubs, not less than twice the nominal slate thickness plus 1 inch (25.4 mm) in length, with 3/8 inch minimum head. Point shall penetrate 1 1/2" or full thickness, whichever is less. Nails shall not penetrate deck greater than 1/2".

- C. Felt Underlayment Nails: Stainless-steel wire nails with low-profile capped heads or disc caps, 1 inch (25 mm) minimum diameter.
- D. Butyl Rubber Sealant: ASTM C 1311, single-component, solvent-release; polyisobutylene plasticized; heavy bodied.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that roofing penetrations and plumbing stacks are in place and properly flashed to deck surface.
- B. Verify that roof openings are correctly framed.
- C. Verify that deck surfaces are sound, smooth, properly secured; and free of ridges, depressions and voids; properly sloped and dry.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Comply with slate shingle distributor's recommendations on preparation of acceptable roof deck.
- B. Broom clean deck surfaces prior to installation of underlayment.

3.3 INSTALLATION

- A. Proceed with installation only after written approval and acceptance of all materials and accessories has been issued by the architect.
- B. Underlayment:
 - 1. Install a minimum of one layer of asphalt-saturated felt.
 - 2. Install underlayment over entire deck surface. At hips, valleys, ridges and edges, install 36 inch (915 mm) width of Ice and Water Shield, centered on the valley or ridge.
 - 3. Ice Dam Protection:
 - a. Install self-adhering sheet underlayment wrinkle free. Apply from roof edge to a line that when projected to the horizontal is not less than 24 inches (610 mm) beyond the transition from metal roofing to slate roofing. Install lapped in direction to shed water. Lap sides not less than 3 1/2" (89 mm). Lap ends not less than 6 inches (150 mm), staggered 24 inches (600 mm) between courses. Roll laps with roller. Proceed with installation only within the range of ambient and substrate temperatures recommended by manufacturer.
 - b. Provide Ice and Water Shield at all hips, ridges, valleys, edges and other areas indicated on drawings.
- C. Sheet Metal Flashing: Install as indicated and in compliance with details and recommendations as published in referenced documents.
 - 1. Install flashing at all locations where roof intersects other roofs, sidewall or parapet walls, chimneys, ventilators, and similar projections, and at gable edges. Ensure that dissimilar sheet and fastener metals are galvanically separated.
- D. Wood Nailer and Cant Strips:
 - 1. Cant Strip: Install 2 inch (50 mm) wide by 48 inch (1220 mm) long preservative treated wood cant strips directly over underlayment at edge of slate roof, spacing 1 inch (25 mm) apart for drainage. Nominal thickness of cant strip shall be equal to the slate thickness specified. Attach with Type 304 or 316 stainless steel nails.

2. Nailers: Install 2 inch (50 mm) wide by 48 inch (1220 mm) long preservative treated wood nailers as detailed at ridge and hips, directly over underlayment. Nominal thickness of ridge nailer shall be equal to two times the slate thickness specified. Nominal thickness of hip nailers shall be three times the slate thickness specified. Attach with Type 304 or 316 stainless steel nails. Protect with additional layer of underlayment before installing hip and ridge accessory.
- E. Slate Blending:
1. Blend slates from all crates/pallets together to achieve a uniform color and texture to the roof.
- F. Head Lap:
1. Slate to be installed at special 4 inches headlap.
- G. Shingles: Install as indicated and in compliance with details and recommendations as published in referenced documents.
1. Double shingles at eaves and cornice line. Beginning at eaves, project shingle 2 inches (50 mm) beyond perimeter with no gutters or troughs, or 1 inch (25 mm) beyond perimeter with gutters or troughs. Lay shingles in horizontal courses. Provide 1 inch (25 mm) to 2 inches (50mm) projection of shingles at gable and rake edges.
 2. Joint spacing: Slate shingles in each course to be installed with 1/16 – 1/8" (1.6 – 3.2mm) joint spacing.
 3. Cut and fit shingles neatly around vents, pipes, ventilators, and other roof projections.
 4. Slate shingles overlapping sheet metal shall have nails placed so as to avoid penetrating the sheet metal.
 5. Nail slate shingles so nail heads touch shingle lightly, without producing strain on the slate.
- H. Hips:
1. Install slate shingles at hips in mitered pattern. Lay hip shingles in plastic cement spread generously over unexposed portions of lower courses and nail in place. Only where heads of nails are exposed, cover with plastic cement.
- I. Ridges:
1. Install approved metal ridge caps as per manufacturer's installation instructions.
- J. Snow Guard Installation: Install snow guards in rows at locations indicated according to manufacturers written installation instructions.
1. Snow guards shall be installed in not less than three rows in all areas indicated. Rows shall be spaced 2' vertically on the roof and 24" horizontally, except with middle row offset horizontally 12".
 2. Install snow guards with vertical cap of guard between 3/4" and 1.5" from lower edge of slate above; but not less than three times the thickness of the slate.
 3. Install snow guards with integral hook on leading edge of snow guard to hook on slate above and not require nailing.
- K. Adjusting and Clean Up:
1. Remove and replace damaged or broken slates using slate repair hooks or nail and bib repair procedure where standard nailing is not possible.
 2. Remove excess materials and debris from the Project sit.

3.4 PROTECTION

- A. Lay out progression of work to prevent other trades from working on or above completed roofing.
- B. Minimize traffic over finished roof surface. If necessary, wear soft-soled shoes and walk on the "butt" of the shingles in order to avoid breakage.

END OF SECTION

SECTION 07 6100
SHEET METAL ROOFING, AND FLASHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
1. Low-sloped metal roofing, including all flashings, clips, fasteners, and other components for a complete roofing system.
 2. Copper flashings, for hips, ridges, valleys, drip edges, and other conditions associated with low-slope metal roofing. Ventilators and all other equipment for building assemblies that penetrate or abut the roof.
 3. Ice and water barrier at all hips, valleys and penetrations 3'-0" wide minimum, or as shown on drawings.
 4. Ice and water barrier from edge of roof to 3'-0" beyond transition to slate at the perimeter of all roofing.
 5. Rosin paper and all building felt installed under copper flashings. Provide two layers rosin paper at all locations, soldering will occur in overlaid copper panels.
 6. Removal of existing roofing in locations indicated to receive materials installed as part of the work of this Section.
- B. Items to be Furnished Only: Furnish the following items for installation by the designated Sections:
1. Copper flashings, for valleys, drip edges, flashing at vents, chimney, mechanical ventilators and all other equipment or building assemblies that penetrate or abut the roof area with slate shingles: Installed by Division 07 Section Slate Roofing.
 2. Copper for exposed stepped counter flashing built into masonry. Installed by Division 7 Section Slate Roofing.
 3. Ice and water barrier material. Installed by Division 7 Section Slate Roofing.

1.3 RELATED SECTIONS

- A. The following items of work are not included in this Section and are specified under the designated Sections.
1. Division 02 Section "Demolition" for the removal for existing metal roofing materials.
 2. Division 07 Section "Slate Roofing" for providing slate shingle roofing.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each manufactured product and accessory.
- B. Shop Drawings: Show fabrication and installation layouts of sheet metal roofing, including plans, elevations, expansion joint locations, and keyed details. Distinguish between shop- and field-assembled work. Include the following:
1. Details for forming sheet metal roofing, including seams and dimensions.
 2. Details for joining and securing sheet metal roofing, including layout of fasteners, cleats, clips, and other attachments. Include pattern of seams.

3. Details of termination points and assemblies, including fixed points.
 4. Details of expansion joints, including showing direction of expansion and contraction.
 5. Details of roof penetrations.
 6. Details of edge conditions, including eaves, ridges, valleys, rakes, crickets, and counterflashings.
 7. Details of special conditions.
 8. Details of connections to adjoining work.
- C. Samples: For each type of exposed finish required, prepared on Samples of size indicated below:
1. Sheet Metal Roofing: 12 inches long by actual width of unit, including finished seam and in required profile. Include fasteners, cleats, clips, and other attachments.
 2. Other Accessories: 12-inch-long Samples for each type of other accessory.
- D. Qualification Data: For qualified Installer.
- E. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for each product.
- F. Maintenance Data: For roofing sheet metals and accessories to include in maintenance manuals.
- G. Warranties: Sample of special warranties.

1.5 QUALITY ASSURANCE

- A. Custom-Fabricated Sheet Metal Roofing Fabricator Qualifications: Shop that employs skilled workers who custom fabricate sheet metal roofing similar to that required for this Project and whose products have a record of successful in-service performance.
- B. Roll-Formed Sheet Metal Roofing Fabricator Qualifications: Fabricator authorized by portable roll-forming equipment manufacturer to fabricate and install sheet metal roofing units required for this Project, and who maintains current UL certification of its portable roll-forming equipment.
- C. Sheet Metal Roofing Standard: Comply with SMACNA's "Architectural Sheet Metal Manual" unless more stringent requirements are specified or shown on Drawings.
- D. Copper Roofing Standard: Comply with CDA's "Copper in Architecture Handbook." Conform to dimensions and profiles shown unless more stringent requirements are indicated.
- E. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.
 1. Build in-place mockup of typical roof area and eave as shown on Drawings; depth of existing metal roof and including attachments, underlayment, and accessories.
 2. Obtain approval of mock-up before continuing with remaining work. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 3. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Do not store sheet metal roofing materials in contact with other materials that might cause staining, denting, or other surface damage. Store sheet metal roofing materials away from uncured concrete and masonry.
- B. Protect strippable protective covering on sheet metal roofing from exposure to sunlight and high humidity, except to the extent necessary for the period of sheet metal roofing installation.

1.7 COORDINATION

- A. Coordinate installation of roof curbs, equipment supports, and roof penetrations, which are specified in other Sections.
- B. Coordinate sheet metal roofing with rain drainage work, flashing, trim, and construction of sheathing, parapets, walls, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

1.8 WARRANTY

- A. Special Warranty: Warranty form at the end of this Section in which Installer agrees to repair or replace components of sheet metal roofing that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Structural failures, including but not limited to rupturing, cracking, or puncturing.
 - b. Wrinkling or buckling.
 - c. Loose parts.
 - d. Failure to remain weathertight, including uncontrolled water leakage.
 - e. Deterioration of metals, metal finishes, and other materials beyond normal weathering, including non-uniformity of color or finish.
 - f. Galvanic action between sheet metal roofing and dissimilar materials.
 - 2. Warranty Period: Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 ROOFING AND FLASHING SHEET METALS

- A. Copper Sheet: ASTM B 370, cold-rolled copper sheet, H00 temper, 20 oz./sq. ft. unless otherwise indicated.
 - 1. Non-Patinated Exposed Finish: Mill

2.2 UNDERLAYMENT MATERIALS

- A. Polyethylene Sheet: 6-mil- thick polyethylene sheet complying with ASTM D 4397.
- B. Felts: ASTM D 226, 30 lb, asphalt-saturated organic felts.
- C. Self-Adhering, High-Temperature Sheet (Ice and Water Barrier): Provide ice and water barrier on all roof areas to be covered by copper roofing or flashing. Minimum 30 to 40 mils thick, consisting of slip-resisting polyethylene-film top surface laminated to layer of butyl or SBS-modified asphalt adhesive, with release-paper backing; cold applied. Provide primer when recommended by underlayment manufacturer.
 - 1. Thermal Stability: ASTM D 1970; stable after testing at 240 deg F.
 - 2. Low-Temperature Flexibility: ASTM D 1970; passes after testing at minus 20 deg F.
 - 3. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Carlisle Coatings & Waterproofing Inc.; CCW WIP 300HT.
 - b. Grace Construction Products, a unit of W. R. Grace & Co.; Ultra.
 - c. Owens Corning; WeatherLock Metal High-Temperature Underlayment.
- D. Rosin Slip Sheet: Building paper, 3-lb/100 sq. ft. minimum, rosin sized.

2.3 MISCELLANEOUS MATERIALS

- A. General: Provide materials and types of fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required for a complete roofing system and as recommended by fabricator for sheet metal roofing.
- B. Fasteners: Wood screws, annular-threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads.
 - 1. Fasteners for Copper: Copper, hardware bronze, or Series 300 stainless steel.
- C. Solder:
 - 1. For Copper: ASTM B 32, Grade Sn50, 50 percent tin and 50 percent lead.
- D. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch wide and 1/8 inch thick.
- E. Elastomeric Sealant: ASTM C 920, elastomeric polyurethane polymer sealant as recommended by portable roll-forming equipment manufacturer for installation indicated; low modulus; of type, grade, class, and use classifications required to seal joints in sheet metal roofing and remain watertight.
- F. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for hooked-type expansion joints with limited movement.
- G. Bituminous Coating: Cold-applied asphalt emulsion complying with ASTM D 1187.

2.4 ACCESSORIES

- A. Sheet Metal Accessories: Provide components required for a complete sheet metal roofing assembly including trim, copings, fasciae, corner units, clips, flashings, sealants, gaskets, fillers, metal closures, closure strips, and similar items. Match material and finish of sheet metal roofing unless otherwise indicated.
 - 1. Provide accessories as recommended by portable roll-forming equipment manufacturer to produce sheet metal roofing assemblies that comply with UL 580 for wind-uplift resistance classification specified in "Quality Assurance" Article.
 - 2. Cleats: For mechanically seaming into joints and formed from the following materials:
 - a. 16-oz./sq. ft. copper sheet.
 - 3. Clips: Minimum 0.0625-inch- thick, stainless-steel panel clips designed to withstand negative-load requirements.
 - 4. Backing Plates: Plates at roofing splices, fabricated from material recommended by SMACNA.
 - 5. Flashing and Trim: Formed from same material and thickness with same finish as sheet metal roofing.
- B. Pipe Flashing: Premolded, EPDM pipe collar with flexible aluminum ring bonded to base.
- C. Roof Curbs: Fabricated from same material and finish as sheet metal roofing, minimum thickness matching the sheet metal roofing; with weatherproof top box and integral full-length cricket. Fabricate curb subframing of nominal 0.062-inch- thick, angle-, C-, or Z-shaped galvanized steel or stainless-steel sheet. Fabricate curb and subframing to withstand indicated loads of size and height indicated. Coordinate dimensions with rough-in information or Shop Drawings of equipment to be supported.

2.5 FABRICATION

- A. General: Custom fabricate sheet metal roofing and flashings to comply with details shown and recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to the design, dimensions (panel width and seam height), geometry, metal thickness, and other characteristics of installation indicated. Fabricate sheet metal roofing and accessories at the shop to greatest extent possible.
- B. General: Fabricate roll-formed sheet metal roofing panels with UL-certified, portable roll-forming equipment capable of producing roofing panels for sheet metal roofing assemblies that comply with UL 580 for wind-uplift resistance classification specified in "Quality Assurance" Article. Fabricate roll-formed sheet metal according to equipment manufacturer's written instructions and to comply with details shown.
- C. Fabrication Tolerances: Fabricate sheet metal roofing that is capable of installation to a tolerance of 1/4 inch in 20 feet on slope and location lines as indicated and within 1/8-inch offset of adjoining faces and of alignment of matching profiles. Also fabricate sheet metal roofing that is capable of installation to tolerances specified in MCA's "Guide Specification for Residential Metal Roofing."
- D. Form exposed sheet metal work to fit substrates without excessive oil canning, buckling, and tool marks; true to line and levels indicated; and with exposed edges folded back to form hems.
 - 1. Lay out sheet metal roofing so transverse seams, if required, are made in direction of flow with higher panels overlapping lower panels.
 - 2. Offset transverse seams from each other 12 inches minimum.
 - 3. Fold and cleat eaves and transverse seams in the shop.
 - 4. Form and fabricate sheets, seams, strips, cleats, valleys, ridges, edge treatments, integral flashings, and other components of metal roofing to profiles, patterns, and drainage arrangements shown on Drawings and as required for leakproof construction.
- E. Expansion Provisions: Fabricate sheet metal roofing to allow for expansion in running work sufficient to prevent leakage, damage, and deterioration of the Work. Where lapped expansion provisions cannot be used, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with butyl sealant concealed within joints.
- F. Sealant Joints: Where movable, nonexpansion-type joints are indicated or required to produce weathertight seams, form metal to provide for proper installation of elastomeric sealant in compliance with SMACNA standards.
- G. Metal Protection: Where dissimilar metals will contact each other, protect against galvanic action by painting contact surfaces with bituminous coating, by applying self-adhering sheet underlayment to each contact surface, or by other permanent separation as recommended by fabricator of sheet metal roofing or manufacturers of the metals in contact.
- H. Sheet Metal Accessories: Custom fabricate flashings and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item indicated. Obtain field measurements for accurate fit before shop fabrication.
 - 1. Form exposed sheet metal accessories without excessive oil canning, buckling, and tool marks and true to line and levels indicated, with exposed edges folded back to form hems.
 - 2. Retain applicable subparagraphs below and revise to suit Project.
 - 3. Retain one of first two subparagraphs below. Retain first subparagraph for metals being soldered. Soldering requires removal of painted, coated, or lacquered finishes. Retain second subparagraph for aluminum, titanium, and metals with painted, coated, or lacquered finishes. If required, retain rivet option for aluminum and zinc sheets.
 - 4. Sealed Joints: Form nonexpansion but movable joints in metal to accommodate elastomeric sealant.

5. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of accessories exposed to view.
6. Fabricate cleats and attachment devices of sizes as recommended by SMACNA's "Architectural Sheet Metal Manual" for application, but not less than thickness of metal being secured.

2.6 FLASHING FABRICATION

1. General: Custom fabricate sheet metal flashings to comply with details shown and recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to the design, dimensions (panel width and seam height), geometry, metal thickness, and other characteristics of installation indicated. Fabricate sheet metal roofing and accessories at the shop to greatest extent possible.
2. Form flashing to profiles indicated on drawings and as required to protect roofing materials from physical damage and shed water.
3. Form sections square and accurate in profile, in maximum possible lengths, free from distortion or defects detrimental to appearance or performance.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, substrate, and other conditions affecting performance of the Work.
 1. Examine solid roof sheathing to verify that sheathing joints are supported by framing or blocking, that tops of fasteners are flush with surface, and that installation is within flatness tolerances required for finished roofing installation.
 2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and completely anchored, and that provision has been made for drainage, flashings, and penetrations through sheet metal roofing.
- B. Examine roughing-in for components and systems penetrating sheet metal roofing to verify actual locations of penetrations relative to seam locations of sheet metal roofing before installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Lay out roof area before beginning installation of sheet metal roofing.
 1. Space fasteners not more than 16 inches o.c.

3.3 UNDERLAYMENT INSTALLATION

- A. Felt Underlayment: Install felt underlayment on roof sheathing under sheet metal roofing. Use adhesive for temporary anchorage to minimize use of mechanical fasteners under sheet metal roofing. Apply at locations indicated, in shingle fashion to shed water, with lapped joints of not less than 2 inches.
 1. Apply on roof not covered by self-adhering sheet underlayment. Lap edges of self-adhering sheet underlayment not less than 3 inches, in shingle fashion to shed water.
 2. After applying Self-Adhering Sheet Underlayment install felt underlayment over Self-Adhering Sheet Underlayment.
- B. Self-Adhering Sheet Underlayment: Install self-adhering sheet underlayment, wrinkle free, on roof sheathing under sheet metal roofing. Apply primer if required by underlayment manufacturer. Comply with temperature restrictions of underlayment manufacturer for installation; use primer rather than nails for installing underlayment at low temperatures. Apply at locations indicated, in shingle fashion to shed water, with end laps of not less than 6 inches

staggered 24 inches between courses. Overlap side edges not less than 3-1/2 inches. Roll laps with roller. Cover underlayment within 14 days.

1. Roof perimeter for a distance up from eaves of 36 inches beyond the transition from metal roofing to slate roofing.
 2. Valleys, from lowest to highest point, for a distance on each side of 18 inches. Overlap ends of sheets not less than 6 inches.
 3. Rake edges for a distance of 18 inches or more, as indicated on drawings.
 4. Hips and ridges for a distance on each side of 18 inches.
 5. Around dormers, chimneys, skylights, and other penetrating elements for a distance from element of 18 inches.
- C. Apply two layers of Rosin slip sheet before installing sheet metal roofing.

3.4 INSTALLATION, GENERAL

- A. General: Anchor sheet metal roofing and other components of the Work securely in place, with provisions for thermal and structural movement. Install fasteners, solder, protective coatings, separators, sealants, and other miscellaneous items as required for a complete roofing system and as recommended by fabricator for sheet metal roofing.
1. Field cutting of sheet metal roofing by torch is not permitted.
 2. Flash and seal sheet metal roofing with closure strips at eaves, rakes, and perimeter of all openings. Fasten with self-tapping screws.
 3. Lap metal flashing over sheet metal roofing to allow moisture to run over and off the material.
- B. Fasteners: Use fasteners of sizes that will penetrate wood sheathing not less than 1-1/4 inches for nails and not less than 3/4 inch for wood screws.
- C. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating, by applying self-adhering sheet underlayment to each contact surface, or by other permanent separation as recommended by SMACNA.
- D. Conceal fasteners and expansion provisions where possible in exposed work and locate to minimize possibility of leakage. Cover and seal fasteners and anchors as required for a tight installation.

3.5 CUSTOM-FABRICATED SHEET METAL ROOFING INSTALLATION

- A. Fabricate and install work with lines and corners of exposed units true and accurate. Form exposed faces flat and free of buckles, excessive waves, and avoidable tool marks, considering temper and reflectivity of metal. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant. Fold back sheet metal to form a hem on concealed side of exposed edges unless otherwise indicated.
1. Install cleats to hold sheet metal panels in position. Attach each cleat with two fasteners to prevent rotation.
 2. Fasten cleats not more than 12 inches o.c. Bend tabs over fastener head.
- B. Seal joints as shown and as required for watertight construction. For roofing with 3:12 slopes or less, use cleats at transverse seams.
1. Where sealant-filled joints are used, embed hooked flanges of joint members not less than 1 inch into sealant. Form joints to completely conceal sealant. When ambient temperature at time of installation is moderate, between 40 and 70 deg F, set joint members for 50 percent movement each way. Adjust setting proportionately for installation at higher ambient temperatures. Do not install sealant-type joints at temperatures below 40 deg F.
 2. Prepare joints and apply sealants to comply with requirements in Division 07 Section "Joint Sealants."

- C. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pre-tin edges of sheets to be soldered to a width of 1-1/2 inches, except reduce pre-tinning where pre-tinned surface would show in completed Work.
 - 1. Do not pre-tin zinc-tin alloy-coated copper.
 - 2. Do not use torches for soldering. Heat surfaces to receive solder and flow solder into joint. Fill joint completely. Completely remove flux and spatter from exposed surfaces.
 - 3. Copper Roofing: Tin edges of uncoated copper sheets, using solder for copper.
- D. Batten-Seam Roofing: Attach batten-seam metal panels to substrate with cleats, starting at eave and working upward toward ridge. After panels are in place, mallet seams and solder.
 - 1. Attach roofing panels with cleats spaced not more than 24 inches o.c. Lock and solder panels to base flashing.
 - 2. Attach edge flashing to face of roof edge with continuous cleat fastened to roof substrate at 12 inches o.c. Lock panels to edge flashing and solder.

3.6 ACCESSORY INSTALLATION

- A. General: Install accessories with positive anchorage to building and weathertight mounting and provide for thermal expansion. Coordinate installation with flashings and other components.
 - 1. Install components required for a complete sheet metal roofing assembly including trim, copings, seam covers, flashings, sealants, gaskets, fillers, and similar items.
 - 2. Install accessories integral to sheet metal roofing.
- B. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.
 - 1. Install flashing and trim as required to seal against weather and to provide finished appearance.
 - 2. Install continuous strip of self-adhering underlayment at edge of continuous flashing overlapping self-adhering underlayment, where "continuous seal strip" is indicated in SMACNA's "Architectural Sheet Metal Manual," and where indicated on Drawings.
 - 3. Install exposed flashing and trim without excessive oil canning, buckling, and tool marks and true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance.
 - 4. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Where lapped expansion provisions cannot be used or would not be sufficiently weather resistant and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, and filled with butyl sealant concealed within joints.
 - 5. Valley Flashing: Valley flashings shall be of 16 ounce cold rolled copper in lengths not to exceed 10 feet. Copper shall extend not less than 6 inches under roof covering on each side of valley. Side edges shall be folded 1/2 inch for cleating. Sheets shall be lapped at least 6 inches in direction of flow. Upper end of each sheet shall be nailed to roofing construction with copper and bronze nails, 3 inches apart. Side edges shall be secured with copper cleats spaced 24 inches apart. Open portion of valley shall be at least 5 inches in width at top and increase in width 1/8 inch per foot toward eaves. Where intersecting roofs are on different slopes, inverted V, 1 inch high, shall be formed in metal along center line of valley, lap of valley sheets shall be increased to 8 inches (unless otherwise shown).

3.7 ERECTION TOLERANCES

- A. Installation Tolerances: Shim and align sheet metal roofing within installed tolerances specified in MCA's "Guide Specification for Residential Metal Roofing."

3.8 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.
- B. Clean and neutralize flux materials. Clean off excess solder.
- C. Clean off excess sealants.
- D. Remove temporary protective coverings and strippable films as sheet metal roofing is installed unless otherwise indicated in manufacturer's written installation instructions. On completion of sheet metal roofing installation, clean finished surfaces as recommended by sheet metal roofing manufacturer. Maintain sheet metal roofing in a clean condition during construction.
- E. Replace sheet metal roofing components that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION

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**SECTION 09 9101
EXTERIOR PAINTING**

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:
1. Apply specified finish coats to all pre-primed work, and new unprimed work to be painted or finished, including but not limited to new cedar shingles.
 2. Finishing coats of existing surfaces disrupted by the work of this Contract and are exposed to view in the finished Work.
 3. Surface preparation of substrates as required for acceptance of paint, including cleaning, small crack repair, patching, caulking, and making good surfaces and areas to the extent specified herein.
 4. Finishing of all items indicated on the drawings as 'painted', 'PTD', '09 9901' or 'by 09 9901', or other similar references.
 5. The following items do not require painting unless otherwise indicated:
 - a. Pre-finished items
 - b. Prefinished aluminum, stainless steel, copper and surfaces of finished hardware.
 - c. Glass, unless otherwise indicated.
 - d. Concrete, stone and other masonry units
 - e. Roofing shingles and built-up roofing systems
 6. Furnishing, installing, maintaining and removing all staging required for the work of this SECTION.
- B. Related Sections include the following:
1. Division 06 Sections for exterior finish carpentry.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples for Verification: For each type of paint system and each color and gloss of topcoat indicated.
1. Submit Samples on rigid backing, 8 inches square.
 2. Step coats on Samples to show each coat required for system.
 3. Label each coat of each Sample.
 4. Label each Sample for location and application area.
 5. Specified paint finish system on samples of actual wood products for use, on samples of wood furnished to this Section by Division 06 sections.
- C. Product List: For each product indicated, include the following:
1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
 2. Printout of current "MPI Approved Products List" for each product category specified in Part 2, with the proposed product highlighted.

- D. Provide written statement certifying confirmation that materials for use within each paint system are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
 - 1. Include confirmation of field applied finish systems with factory and shop applied primers.
- E. Submit two sets of Material Safety Data Sheets (MSDS) prior to commencement of work for review and for posting at job site as required.

1.4 QUALITY ASSURANCE

- A. MPI Standards:
 - 1. All materials, preparation and workmanship shall conform to requirements of the latest edition of the Architectural Painting Specification Manual by the Master Painters Institute (MPI) (hereafter referred to as the MPI Painting Manual) as issued by the local MPI Accredited Quality Assurance Association having jurisdiction.
 - 2. All paint manufacturers and products used shall be as listed under the Approved Product List section of the MPI Painting Manual.
 - 3. Preparation and Workmanship: Comply with requirements in "MPI Architectural Painting Specification Manual" for products and paint systems indicated.
- B. Mockups: Apply benchmark samples of each paint system indicated and each color and finish selected to verify preliminary selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Architect will select and identify up to two areas on the building, approximately 10 feet by 10 feet for mock-up. Such areas will be selected to demonstrate as many conditions, colors and materials as possible within the area. Where necessary in order to display all colors and materials, mock-ups may include temporary attachment of finished materials, adjacent to, or within mockup area.
 - a. The Architect reserves the right to require finishes of each mock-up component to be changed twice, to adjust the final color or sheen of approved materials.
 - 2. Final approval of color selections will be based on benchmark samples.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.
 - 1. Maintain containers in clean condition, free of foreign materials and residue.
 - 2. Remove rags and waste from storage areas daily.

1.6 PROJECT CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F or as required by manufacturer. .
- B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.
- C. Perform no exterior repainting work unless environmental conditions are within MPI and paint manufacturer's requirements or until adequate weather protection is provided. Where required, suitable weatherproof covering and sufficient heating facilities shall be in place to maintain minimum ambient air and substrate temperatures for 24 hours before, during and after paint application.

1.7 Regulatory Requirements:

- 1. Conform to work place safety regulations for storage, mixing, application and disposal of all paint related materials to requirements of those authorities having jurisdiction.

2. Conform to safety precautions in accordance with the latest requirements to Industrial Health and Safety Regulations, latest edition, of authorities having jurisdiction.
3. Notify the Paint Inspection Agency on award of contract and make application for assignment of an Inspector using appropriate forms supplied by the Agency as well as provide a copy of the project repainting specification, drawings, color schedule and list of proposed materials for review purposes prior to commencement of work.
4. Fully cooperate at all times with the requirements of the Paint Inspection Agency in the performance of their duties, including providing access and assistance as required to complete inspection work.
5. To reduce the amount of contaminants entering waterways, sanitary / storm drain systems or into the ground the following procedures shall be strictly adhered to:
 - a. Retain cleaning water for water-based materials to allow sediments to be filtered out. In no case shall equipment be cleaned using free draining water.
 - b. Retain cleaners, thinners, solvents and excess paint and place in designated containers and ensure proper disposal.
 - c. Return solvent and oil soaked rags used during painting operations for contaminant recovery, proper disposal, or appropriate cleaning and laundering.
 - d. Dispose of contaminants in an approved legal manner in accordance with hazardous waste regulations.
 - e. Empty paint cans are to be dry prior to disposal or recycling (where available).
 - f. Close and seal tightly partly used cans of materials including sealant and adhesive containers and store protected in well ventilated fire-safe area at moderate temperature.
6. Where paint recycling is available, collect waste paint by type and provide for delivery to recycling or collection facility.

1.8 EXTRA MATERIALS

- A. Furnish extra materials described below that are from same production run (batch mix) as materials applied and that are packaged for storage and identified with labels describing contents.
 1. Quantity: One gallon of each applied product color and sheen.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 1. Benjamin Moore & Co.
 2. California Paints.
 3. Columbia Paint & Coatings.
 4. Del Technical Coatings.
 5. ICI Paints.
 6. Sherwin-Williams Company (The).

2.2 PAINT, GENERAL

- A. Material Compatibility:
 1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
- B. Colors: As selected by Architect from manufacturer's full range.

2.3 PRIMERS/SEALERS

- A. Wood-Knot Sealer: Sealer recommended in writing by topcoat manufacturer for use in paint system indicated.

2.4 WOOD PRIMERS

- A. Exterior Latex Wood Primer: MPI #6.
 - 1. VOC Content: E Range of E2.

2.5 EXTERIOR LATEX PAINTS

- A. Exterior Latex (Flat): MPI #10 (Gloss Level 1).
 - 1. VOC Content: E Range of E2.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
 - 1. Wood: 15 percent.
- C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- D. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.
 - 1. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.
- B. Remove plates, machined surfaces, and similar items already in place that are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
 - 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
 - 2. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
- C. Wood Substrates:
 - 1. Scrape and clean knots, and apply coat of knot sealer before applying primer.
 - 2. Sand surfaces that will be exposed to view, and dust off.
 - 3. Prime edges, ends, faces, undersides, and backsides of wood.
 - 4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.
- D. Sand, clean, dry, etch, neutralize and/or test all surfaces under adequate illumination, ventilation and temperature requirements.
- E. Protect all exterior surfaces and areas, including landscaping, walks, drives, all adjacent building surfaces (including glass, aluminum surfaces, etc.) and equipment and any labels and signage from repainting operations and damage by drop cloths, shields, masking, templates, or other

suitable protective means and make good any damage caused by failure to provide such protection.

3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions.
 - 1. Use applicators and techniques suited for paint and substrate indicated.
 - 2. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.
- B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 Mixing and Tinting:

- A. Unless otherwise specified or pre-approved, all paints shall be ready-mixed and pre-tinted. Re-mix all paint in containers prior to and during application to ensure break-up of lumps, complete dispersion of settled pigment, and color and gloss uniformity.
- B. Paste, powder or catalyzed paint mixes shall be mixed in strict accordance with manufacturer's written instructions.
- C. Where thinner is used, addition shall not exceed paint manufacturer's recommendations.

3.5 Finish and Colors:

- A. Unless otherwise specified herein, all painting work shall be in accordance with *MPI* Premium Grade finish requirements.
- B. Colors shall be as selected by the Architect from a manufacturer's full range of colors.

3.6 FIELD QUALITY CONTROL

- A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure at any time and as often as Owner deems necessary during the period when paints are being applied:
 - 1. Owner will engage the services of a qualified testing agency to sample paint materials being used. Samples of material delivered to Project site will be taken, identified, sealed, and certified in presence of Contractor.
 - 2. Testing agency will perform tests for compliance of paint materials with product requirements.
 - 3. Owner may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying-paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

3.7 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

END OF SECTION

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Roof Replacement



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