

Proposer / Bidder Registration Form

It is the Bidder's responsibility to make certain they have received any/all addenda relating to their bid / proposal prior to the bid opening date. If you are downloading a bid we strongly encourage you to notify the City of Beverly Purchasing Department at dgelineau@beverlyma.gov and provide us with the following information. In the event an addendum is issued it will be sent to all bidders who have provided the City with this information.

Request for Proposal or Invitation for Bid Number: 16-035

Contact Name:

Company Name:

Address:

City/Town:

State:

Zip Code:

Phone:

Fax:

Cell:

Email:



CITY OF BEVERLY

16-035

Roof System Replacement at DPW Buildings

BIDS DUE:

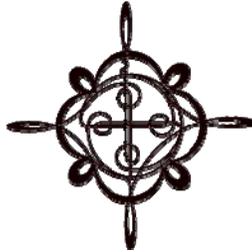
August 10, 2016 @ 11:00 A.M.

at the Office of the Purchasing Agent,
City Hall 191 Cabot Street, Beverly,
Massachusetts 01915

DPW ROOF PROJECT
BEVERLY, MASSACHUSETTS 01915

PROJECT MANUAL

July 14, 2016



B T A
28 VINCENT RD
MENDON, MASSACHUSETTS 01756
(508) 634 8401

City of Beverly
191 Cabot Street
Beverly, MA 01915

DPW ROOF PROJECT

Architect's PN 15003
July 14, 2016

BTA
28 Vincent Road
Mendon, MA 01756

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END OF DOCUMENT

DOCUMENT 000950 – LIST OF DRAWINGS

1.0 The following drawings are part of this document, dated , 2016.

Cover Page

A1.0 Roof Plan and Details

A2.0 Roofing Details

A3.0 Roof Plan and Details

A4.0 Roof Plan and Details

END OF DOCUMENT

Forms

Submitted Forms Checklist

For the Bidder's Convenience we have included this form.

Please be sure you have included the following.

Included

- Yes** **No** Form for Bid
- Yes** **No** DCAM Certificate of Eligibility
- Yes** **No** Contractor Update Statement
- Yes** **No** Bid Security
- Yes** **No** Contract Qualification Data Form
- Yes** **No** Certification of Good Faith
- Yes** **No** Conflict of Interest Certification
- Yes** **No** Certificate of State Tax Compliance
- Yes** **No** Corporate Vote
- Yes** **No** Certificate of Compliance with M.G.L. c.151B
- Yes** **No** Certificate of Non-Debarment
- Yes** **No** Affidavit of OSHA Compliance

Signature

ADVERTISEMENT FOR BIDS

The City of Beverly, 191 Cabot Street, Beverly, Massachusetts 01915, the Awarding Authority, invites sealed bids for the Roof System Replacement at DPW Buildings, 148 Park Street, Beverly, Massachusetts, in accordance with the Invitation for Bids Document.

Bidding procedures and award of the Contract will be in accordance with the provisions of Chapter 149 of the General Laws of the Commonwealth of Massachusetts, as amended.

The estimated cost of the project is \$350,000.

Each bid on this Contract must be accompanied by a copy of a Certificate of Eligibility issued by the Massachusetts Division of Capital Asset Management showing that the bidder has the classification **Roofing** and capacity rating to perform the work required. In order to be eligible to bid on this Contract, a bidder must be certified for the estimated project cost of \$350,000. Each bid must also be accompanied by a DCAMM Contractor Update Statement. Any bid submitted without the appropriate Certificate of Eligibility and Contractor Update Statement shall be invalid.

Sealed bids shall be submitted on a form furnished by the Awarding Authority and clearly identified as a bid, endorsed with the name and address of the bidder, and the name of the project, and **submitted to:**

**Purchasing Agent's Office
Beverly City Hall
191 Cabot Street
Beverly, MA 01915
RE: Roof System Replacement at Three DPW Buildings**

received no later than the times set forth below, when they will forthwith be publicly opened and read aloud at this location.

Sealed bids will be received until **11:00 A.M., on Wednesday, August 10, 2016.**

All bids may be mailed or hand-delivered to the above specified receiving address prior to the time specified hereunder, in accordance with the procedures set forth in the INSTRUCTIONS TO BIDDERS.

Each bid shall be submitted and will be considered in accordance with the Instructions to Bidders and the other Contract Documents, and shall be accompanied by a bid bond (a) in form satisfactory to the Awarding Authority, (b) with a surety company qualified to do business in the Commonwealth of Massachusetts and satisfactory to the Awarding Authority, and (c) conditioned upon the faithful performance by the principal of the agreements contained in the bid; or cash; or a certified check; or a treasurer's check; or by cashier's check; issued by a responsible bank or trust company, made payable to the City of Beverly, in an amount not less than five percent (5%) of the bid amount.

Specifications may be obtained at the Procurement Office, Beverly City Hall, 191 Cabot Street, Beverly, MA 01915 or by emailing dgelineau@beverlyma.gov or at www.beverlyma.gov/departments/procurement/forms.

Each bidder is advised to visit the site of the proposed work, become fully acquainted with conditions as they exist, and thoroughly examine the Contract Documents. Failure of any bidder to visit the site, and to examine the Contract Documents shall in no way relieve the bidder from any obligation with regard to the bid as submitted. Arrangements for site visitation, during the bidding period, may be made in the manner set forth in the INSTRUCTIONS TO BIDDERS.

The successful Bidder will be required to provide a Labor and Materials Payment Bond, and Performance Bond each bond being in the amount of 100 percent of the Contract Amount. Bonds must be written with a company qualified to do business in Massachusetts and acceptable to the Awarding Authority.

The minimum wages to be paid for all labor on the project are established in a schedule issued by the Department of Labor and Workforce Development, in accordance with Section 26A - 27D, of Chapter 149 of the M.G.L., as amended, said schedule being made a part of the Contract Documents and is included therein.

Section 6(f) of Chapter 64H of Massachusetts General Laws exempts Massachusetts sales tax on building materials and supplies to be used in the project, and bidders shall not include in their bids any amount therefor.

The successful Bidder must agree to commence work as stipulated in the receipt of Notice To Proceed, and complete the work in accordance with the times established in the Contract.

The Awarding Authority will reject bids when required to do so by the above-referenced General Laws. In addition, the Awarding Authority reserves the right to waive any informality in or to reject any or all bids if it be in the public interest to do so.

By: City of Beverly
Purchasing Agent

INSTRUCTIONS TO BIDDERS

1.1 SECURING DOCUMENTS

- A. Bidding Documents include the Invitation to Bid, Instructions to Bidders, Form for General Bid, and Bid Bond Form, and any Addenda issued prior to receipt of Bids. The Contract Documents for the proposed Work consist of the Bidding Documents, the Agreement (or Contract) Between Contractor And Owner, vote of Corporation authorizing Signing of Contract, Form of Subcontract Between Contractor and Subcontractor (for filed sub-bidders), the General Conditions of the Contract for Construction, Supplementary Conditions, Statutory Provisions for Massachusetts Public Construction Contracts, the Drawings, the Specifications, and all Modifications issued after execution of the Contract.
- B. All definitions set forth in the General Conditions of the Contract for Construction, or in other Contract Documents, are applicable to the Bidding Documents.
- C. Addenda are written or graphic instruments issued by the Owner through the Architect prior to the execution of the Contract which modify or interpret the Bidding Documents by additions, deletions, clarifications or corrections.
- D. A Bid is a complete and properly signed proposal to do the Work or designated portion thereof for the sums stipulated therein, submitted in accordance with the Bidding Documents.
- E. The Bid is the sum stated in the Bid for which the Bidder offers to perform the work described in the Bidding Documents.

1.2 COPIES OF BIDDING/CONTRACT DOCUMENTS

- A. Bidders may obtain complete sets of the Contract Documents as described in the Advertisement.
- B. Bidders shall use complete sets of Contract Documents in preparing Bids; neither the Owner nor the Architect or Owner's Project Manager assume any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Contract Documents.
- C. The Owner or the Architect in making copies of the Contract Documents available on the above terms does so only for the purpose of obtaining Bids on the Work and does not confer a license or grant for any other use.

1.3 BIDDERS REPRESENTATIONS

- A. Each Bidder by making his Bid represents that:
 - 1. They have read and carefully examined and understands the Contract Documents and his Bid is made in accordance therewith.
 - 2. He has visited the site, has familiarized himself with the local conditions under which the Work is to be performed and has correlated his observations with the requirements of the proposed Contract Documents.
 - 3. His Bid is based upon the materials, systems, and equipment required by the Contract Documents without exception.
 - 4. He has carefully examined all available relevant information including geotechnical reports, and existing condition drawings prepared by other architects.

5. He understands to the fullest extent that the award of this contract is contingent upon an availability of sufficient funds. Assuming sufficient funds are available for this project the work will begin on or around September 1, 2016.

6. Bidders: The resumes of project management and supervisory personnel attached to or included in the bid represent the assigned employees who will be dedicated 100% to the Project, for the duration of the Project.

- B. By signing and submitting a Bid, each bidder (1) represents that in regard to the conditions affecting the work to be done and the labor and materials needed, their Bid is based solely on their familiarization with the site in conjunction with the Contract Documents and other documents, and not on any oral or other representations of any employee, officer, agent or consultant of the Awarding Authority, and (2) agrees and assures that the site, the Contract Documents have been examined; that the Contract Documents are adequate; and that the required results can be produced under the Contract Documents. Documents are adequate; and that the required results can be produced under the Contract Documents.

1.4 INTERPRETATION AND CORRECTION OF DOCUMENTS

- A. Bidders shall promptly notify the Owner in writing, of any ambiguity, inconsistency or error which they may discover upon examination of the Contract Documents or the site and local conditions. Failure to so notify the Owner of any ambiguity, inconsistency or error that the bidder discovers or should have discovered in, or knows or should know exists in, the Contract Documents or the site and local conditions, shall preclude the bidder, if awarded a contract, from claiming or receiving any adjustments to the contract price or contract time on account of such ambiguity, inconsistency or error.
- B. Bidders requiring clarification or interpretation of the Contract Documents shall make a written request which shall reach the Owner at least three (3) business days prior to the date for receipt of Bids. Inquiries may be emailed to Purchasing Agent David Gelineau: dgelineau@beverlyma.gov. Bidders must identify the Project in all communications.
- C. Any interpretations, corrections or changes of the Contract Documents will be made, if at all, by written Addendum, which, when issued, become part of the Bidding/Contract Documents. Interpretations, corrections or changes of the Contract Documents purported to be made in any other manner shall have no standing, and Bidders shall not rely upon such interpretations, corrections and changes.
- D. Any estimates of quantities of materials or work that may be provided by the Awarding Authority or its architects, engineers or other consultants are for purposes of bid comparison only and are not guaranteed.
- E. The Awarding Authority makes no warranty, express or implied, that the Contract Documents and any estimates provided in connection therewith are accurate as to the kind or quantity of work required, and any such warranties are hereby expressly disclaimed. Each Bidder shall proceed at his own risk in investigating the proposed work, reviewing site conditions and the proposed Contract Documents, and submitting a bid.

1.5 ADDENDUM

- A. Addenda will be sent by email to all Bidders of record at the respective email addresses furnished by the Bidders for such purposes. Nevertheless, Bidders are solely responsible to ensure that they have received all Addenda.

- B. No Addenda will be issued later than two (2) calendar days prior to the date for receipt of Bids except an Addendum which includes postponement of the date for receipt of Bids.
- C. Each Bidder shall ascertain prior to submitting a Bid that he has received all Addenda issued, and shall acknowledge their receipt in his Bid.

1.6 PREPARATION OF GENERAL BIDS

- A. Each Bid shall be submitted on the prescribed FORM FOR BID
- B. Each Bidder shall submit one original and one copy of their bid to the City**
- C. Every bid which is not accompanied by a bid deposit, in the amount of five percent (5%) of the total bid price, or which does not otherwise conform to sections 44A-44H, inclusive, of Chapter 149 of the General Laws, or which is on a form not completely filled in, or which is incomplete, conditional or obscure, or which contains any addition not called for, will be rejected. All blank spaces on the bid form shall be filled in, in ink or type- written, in words and figures, without alterations or erasures. Use figures alone only where no space is provided for words. Every bid shall be signed in longhand by the Bidder and shall give the Bidder's business address.
- D. All bids for this Project are subject to the provisions of Massachusetts General Laws (Ter. Ed.), Chapter 30, Section 39M as amended and Chapter 149, Sections 44A through 44L inclusive and Chapter 149, Sections 26 through 27D inclusive.

1.7 BID SECURITY

- A. Each General Bid shall be accompanied by bid Security equal to five percent (5%) of the Bid amount in the form of a Bid Bond, Cash or a Certified, Treasurer's or Cashier's Check issued by a responsible U.S. bank or Trust Company, payable to the City of Beverly. Any surety bond provided must be from a surety company on the US Treasury list with a rate of at least an A+, Category X. Each Bidder shall attach the required Bid Bond or Check to the Bid Form. A Bid Bond must be (a) in a form satisfactory to the City; (b) issued by a surety company qualified to do business in the Commonwealth and satisfactory to the awarding authority; and (c) conditioned upon the faithful performance by the principal of the agreements contained in the bid.

1.8 SUBMISSION OF BID

- A. Each Bid shall be submitted on the FORM FOR BID furnished by the Owner, or copied from the Project Manual. All blank spaces shall be filled in, in ink or typewritten, in words or figures without alterations or erasures. Use figures alone only where no space is provided for words. The FORM FOR BID must be signed in longhand by the Bidder and shall give the bidder's business address. The Form for Bid, including the Bid Security, shall be enclosed in a sealed envelope with the following plainly marked on the outside:

BID FOR:
ROOF SYSTEM REPLACEMENT AT DPW BUILDINGS

If the Bid is mailed, the Bidder shall enclose his sealed Bid in an outer envelope, addressed as follows:

FROM: Bidder's Name and Business Address
ROOF SYSTEM REPLACEMENT AT DPW BUILDINGS

To: Purchasing Department
City of Beverly
191 Cabot Street
Beverly, MA 01915

1. Each Bidder shall include the following with their Bid:
 - a. Form for Bid
 - b. Bid Security
 - c. DCAM Certificate of Eligibility
 - d. Contractor Update Statement, DCAM Form
- B. As required by M.G.L., c. 149, Section 44D, every Bid must be accompanied by a Certificate of Eligibility issued by the Division of Capital Asset Management. Each Bid shall also be accompanied by an updated statement on the form prescribed by said Division. Any Bid submitted without the appropriate Certificate and update statement shall be invalid.
- C. All bidders are cautioned to allow ample time for transmittal of Bids. Bids received after the specified time and date will not be accepted nor recognized. The time of receipt will determine the acceptability of mailed bids, regardless of postmark.
- D. Any bid may be withdrawn prior to the time scheduled for the opening of such bids or authorized postponement thereof. No bid may be withdrawn for thirty (30) days, Saturdays, Sundays and legal holidays excluded, after opening of Bids. No telephone or telegraphic bid, change in bid or withdrawal of bid will be received nor recognized.

1.10 RIGHT TO REJECT BIDS

- A. The Awarding Authority reserves the right to reject any or all Bids if it be in the public interest so to do, and for any other reason permitted by law. (G.L. c.149, §.44E)

1.11 METHOD OF AWARD

- A. The Contract will be awarded to the lowest responsible and eligible Bidder on the basis of the proposed Contract Price.
- B. The award of Contract will be made, if at all, within thirty (30) days, Saturdays, Sundays and legal holidays excluded, after the opening of Bids
- C. Special attention is directed to the provisions of Sections 44A through 44L of Chapter 149 defining the term "lowest responsible and eligible Bidder" and giving the Awarding Authority the right to require essential information in regard to qualifications. The successful Bidder must submit a performance bond and payment bond each in the amount of bid price. Such bonds must be issued by a surety who is qualified to do business in the Commonwealth of Massachusetts and who is satisfactory to the Awarding Authority.
- D. In the event of a tie of two vendors, the vendors will be invited to the procurement office for a coin toss to break the tie. In the event of a tie of more than two vendors, the vendors will be invited to the procurement office for a random drawing to break the tie.
- E. If the Bidder selected as Contractor fails to execute the Agreement in accordance with the terms of his Bid and G.L.c.149, §44E, and to furnish a 100 percent Performance Bond and a 100 percent Payment Bond as required by the Bidding Documents, an award will be made to the next lowest responsible and eligible Bidder.

- F. The 30 day time limit will not apply to a second or subsequent award made after the expiration of the time limit because the first lowest responsible and eligible Bidder fails to execute the Agreement or to furnish a Performance Bond and Payment Bond.

1.12 EXECUTION OF CONTRACTS

- A. The Bidder who is selected as Contractor shall execute the Agreement with the Owner within five (5) days, Saturdays, Sundays and legal holidays excluded, after presentation thereof in accordance with his Bid; and shall furnish with the executed Agreement, a Performance Bond and also a Payment Bond, each of which shall be in the sum of 100 percent of the Contract Price, the premiums for which are to be paid by the Contractor and are included in the Contract Price. The forms for the bonds are contained herein. The Surety company must be qualified to do business under the laws of the Commonwealth of Massachusetts and must be satisfactory to the Awarding Authority. Attorneys-in-fact who sign bonds must file with each bond a certified and effectively dated copy of their power-of-attorney.
- B. The selected Bidder must agree to commence work within five(5) days of execution of a Contract and to substantially complete all Work in accordance with the phasing schedule contained in the Contract Documents.

1.13 SALES TAX

- A. The Owner is exempt from payment of sales and use taxes in the Commonwealth of Massachusetts. Bidders shall not include in their Bid any tax imposed upon the sales or rentals of tangible personal property in this Commonwealth, such as any and all building materials, supplies, services and equipment required to construct and complete the Work of this Contract.
- B. The Owner will furnish tax exemption certificates as required to the selected

1.14 PROPRIETARY MATERIALS

- A. Attention is directed to the provisions of G.L. Chapter 30, Sec. 39M, which require full competition on each item of material to be furnished under contracts for public work.

1.15 SUBSTITUTIONS

- A. The Project is subject to M.G.L. Ch. 30, Section 39M (b), requiring that specifications be written to provide full competition for each item of material to be furnished under the Contract. Notwithstanding anything to the contrary herein, the City shall consider any proposed equals in accordance with and to the extent required by section 39M (b) of chapter 30 of the General Laws, which is incorporated herein by reference.
- B. Basis-of-Design Product Specification: The specifications may contain specific manufacturer's products 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 other named manufacturers. This shall not limit the use of products from other manufacturers considered equal to the named product.
- C. Comparable Product: Product that is demonstrated and approved through submittal process, or where indicated as a product substitution, 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. M.G.L. Ch. 30, Section 39M(b), further defines "or equal" as a product that"
 1. Is at least equal in quality, durability, appearance, strength and design.

2. Will perform at least equally the function imposed by the general design for the public work being contracted for or the material being purchased.
3. Conforms substantially, even with deviations, to the detailed requirements for the item in the said specifications.

D. Any bidder that questions the “or equal” status of a product or system is encouraged to submit the product to the Architect during the bid phase for review and approval as an “or equal.”

1. A substitution request form has been included in the Bidding Documents (CSI form 1.5C) for the bidders use.

1.16 PREVAILING WAGES

A. Prevailing wages are applicable to this project under G.L. c. 149, §§ 26-27D. The prevailing wage rate sheets applicable to the project work, and example payroll record form and statement of compliance form are included in the Bidding Documents.

1.17 PERMITS AND FEES

A. Contractor shall obtain all permits required for construction work.

The City of Beverly will waive all building permit fees required, that are issued by the City of Beverly. Do not include the cost of City of Beverly issued building permit fees in the contract amount.

B. Contractor shall pay for all other permits, governmental fees and licenses for the Work.

1.18 ALTERNATES (If Applicable)

A. Each Bidder shall thoroughly examine the Contract Documents and fully determine the scope of the Alternates generally defined therein, recognizing any modifications to his work required by any Alternate whether or not any particular trade Section is mentioned therein.

B. Prices for Alternates shall include overhead, profit, and all other expense items incidental to the Work.

C. Bidders shall bid on all Alternates. If the price for an Alternate results in neither an addition nor a deduction to the Base Bid sum, the words “NO CHANGE” or the figure “\$0” shall be inserted in the appropriate spaces. A blank space or a mark other than a dollar figure greater than \$0 shall be interpreted as meaning that the bidder requires neither an addition nor deduction to the Base Bid sum on account of the alternate.

D. The Owner shall have the right to accept or reject any or all Alternates prior to signing the Agreement.

1.19 INSURANCE REQUIREMENTS

A. The Contractor shall purchase and maintain such insurance as will protect him from claims under worker’s compensation acts and from claims for damages because of bodily injury, including death, and property damage which might arise from and during operations under this contract, whether such operations be by himself or by a Subcontractor or anyone directly or indirectly employed by either of them.

- B. Contractor shall not commence work under this Contract until he has obtained all insurance required herein nor until such insurance has been approved by the Owner. Contractor shall not allow any Subcontractor to commence work until the insurance required of the Subcontractor has been obtained and approved.
- C. Subcontracts: Contractor shall either (1) require each Subcontractor to procure and to maintain during the life of his Subcontract, Subcontractor has General Liability and Property Damage Insurance of same type and in such manner as specified herein, or (2) Insure activities of his Subcontractors on his own policy.
- D. All insurance required by this Document shall be provided by a Best "A+ VIII" rated company, or companies, authorized to do business in the Commonwealth of Massachusetts and satisfactory to the owner and shall be written for not less than any limits of liability specified herein, or required by law, whichever is greater.
- E. Certificates: Certificates of Insurance acceptable to the Owner shall be submitted in triplicate to the Owner simultaneously with the execution of the Contract. Certificates shall indicate that broad form Contractual Liability coverage is in force, as well as deletions of the XCU exclusions. Certificates shall contain a provision that the insurance company will notify the Owner by registered mail at least (60) calendar days in advance of any cancellation, non-renewal, change or expiration of the policies. Certificates shall include description of coverage, effective dates and expiration dates of policies and shall clearly indicate all exclusions (other than standard policy form exclusions contained in the basic policy) which will be added to the policies provided.
- F. Deductibles: In the event of paid claims, Contractor shall bear costs of any amounts deductible.
- G. The Owner shall be named as additional insured under all policies.

COVERAGE AND LIMITS

A. Workers' Compensation Insurance:

The Contractor shall maintain and cause all subcontractors and lower tier contractors to maintain Workers Compensation and Employers Liability Insurance in accordance with the law and regulations of the Commonwealth of Massachusetts. The limits of liability provided shall be as follows:

Coverage A:	Statutory
Coverage B:	\$500,000/\$500,000/\$500,000

B. Contractor Liability Insurance

Contractor shall purchase and maintain Commercial General Liability Insurance and cause all subcontractors and lower tier contractors to maintain the same throughout the term of the Contract. Commercial General Liability Insurance must be included with all applicable broad form endorsements. Such insurance shall be on the 1986 standard insurance Service Office occurrence coverage form (or any later amendments or revisions thereto).

Limits of liability to be provided shall be as follows:

Bodily Injury and Property Damages	\$1,000,000
Personal Injury and Advertising Injury	\$1,000,000
General Aggregate	\$2,000,000
Products/Completed Operations Aggregate	\$2,000,000
Medical Payments	\$ 10,000

Coverage shall specifically include blanket contractual liability covering Contractor's indemnity obligations as contained in this Document. The City of Beverly must be added as an additional Insured as their interest may appear.

C. Business Automobile Liability:

The Contractor shall maintain and cause all subcontractors and lower tier contractors to maintain business automobile liability insurance covering all owned, non-owned, leased, rented and hired automobiles (symbol 1). The limits of liability shall be as follows:

Bodily Injury and Property Damage: \$1,000,000 per occurrence

Automobile physical damage coverage shall be at the option of General Contractor, all subcontractors and lower tier contractors. The City of Beverly shall not be liable for physical loss or damage to any owned, non-owned, leased, rented or hired automobile.

The City of Beverly must be added as an additional insured as their interest may appear.

D. Umbrella or Excess Liability

Umbrella or Excess Liability shall be provided in excess of the primary limits of liability required above. Coverage shall be at least as broad as provided in the primary coverage required.

The limits of liability to be provided shall be as follows:

\$2,000,000 per occurrence Bodily Injury and Property Damage
\$2,000,000 per occurrence Personal Injury and Advertising Injury
\$2,000,000 General Aggregate
\$2,000,000 Products and Completed Operations Aggregate

E. Builder's Risk Insurance

The Contractor shall provide Builder's Risk Insurance. Such coverage shall include all building additions and materials used for the Work while at the construction site or on route to the construction site. The amount of Builder's Risk Coverage shall equal the total cost of the construction project.

INDEMNIFICATION

The Contractor shall take responsibility for the work and take all precautions for preventing injuries to persons and property in or about the work and shall bear all losses resulting to it on

made for all labor performed or furnished and for all materials used or employed in carrying out the Contract. The Contractor shall assume the defense of, and indemnify and save harmless, the Designer, the Owner, and their officers and agents from all claims relating to labor performed or furnished and materials used or employed for the work: to inventions, patents and patent rights used in and in doing the work unless injuries to any person or corporation received or sustained by or from the Contractor and its employees, and subcontractors and employees, in doing the work, or in consequence of any improper materials, implements or labor used or employed therein; and to any act, omission or neglect of the Contractor and its employees therein.

PERFORMANCE AND PAYMENT BONDS

The General Contractor shall provide the City of Beverly with a 100% performance bond and a 100% labor and materials or payment bond executed by a surety company licensed by the Commonwealth of Massachusetts.

1.20 COMMENCEMENT OF WORK AND TIME OF COMPLETION

A. Schedule, Phasing of the Work and Substantial Completion

1. On-Site Work shall begin within 10 days receipt of the Notice to Proceed.
2. Work shall be completed within 60 days receipt of the Notice to Proceed.

1.21 TIMELY COMPLETION AND LIQUIDATED DAMAGES

- A. The Contractor shall start the work under this Contract on written notice from and on the date set by Owner. The Contractor shall start the work on the date set by the Owner and shall continue, without interruption, to completion with all the practical dispatch and regularity. It is expected that the work be fully completed within 60 days receipt of the Notice to Proceed.
- B. In case all work is not fully completed within the time specified, it shall be understood and agreed that the Contractor shall pay the Owner, not as a penalty but as liquidated damages, \$500/day for each calendar day of delay until the entire Work is substantially complete, up to and including the day of Substantial Completion as further provided in the Contract Documents.

FORM FOR BID

To: City of Beverly, Massachusetts, Awarding Authority

From: _____ Contractor

A. ROOF SYSTEM REPLACEMENT AT DPW BUILDINGS:

1. **BID:** The undersigned proposes to furnish all labor and materials required for Project located in Beverly, Massachusetts, in accordance with the accompanying plans and specifications prepared by Brett Thibault Architect specified below, subject to additions and deductions, if applicable, according to the terms of the specifications, for the lump sum price of

_____ Dollars

(Total contract price in words, which governs)

(_____)

(Total contract price amount in numbers)

B. ADDENDA: This Bidder has received, and this bid includes, the following addenda of which receipt is hereby acknowledged:

Date	Number
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

The undersigned agrees that if he is selected as contractor, he will promptly confer with the awarding authority.

E. CONTRACT: The undersigned agrees that, if he is selected as general contractor, he will within ten (10) days, Saturdays, Sundays and legal holidays excluded, after presentation thereof by the awarding authority, execute a contract in accordance with the terms of bid and furnish a performance bond and also a labor and materials or payment bond, each of a surety company qualified to do business under the laws of the Commonwealth of Massachusetts and satisfactory to the awarding authority and each in the sum of the contract price, the premiums for which are to be paid by the general contractor and are included in the contract price.

F. Examined Conditions and Documents: The undersigned Bidder hereby declares that he has visited the site, the conditions present, and has carefully examined the Contract Documents, together with all Addenda issued, received and acknowledged below, and has familiarized himself with the legal requirements (federal, state, and local laws, ordinances, and rule and regulations) and other conditions which may affect the cost, progress or performance of Work, and has made independent investigations, deemed necessary by the Bidder.

G. LABOR: The undersigned hereby certifies that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work and that he will comply fully with all laws and regulations applicable to awards made subject to section forty-four A of Chapter 149 of the Massachusetts General Laws.

H. CERTIFICATE OF ELIGIBILITY: The undersigned has included with this Bid his Certificate

of Eligibility and Update Statement as required by the General Laws.

I. NON-COLLUSION CERTIFICATION: 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 Paragraph, the word "person" shall mean any natural person, joint venture, partnership, corporation, or other business or legal entity.

J. OSHA COMPLIANCE CERTIFICATION: The undersigned agrees that if he is selected as the contractor, he will comply with the provisions of M.G.L. Chapter 30, Section 39S. The undersigned certifies, under penalties of perjury, that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work; that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; and that 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.

K. TAXES: As required by MGL, Chapter 62C, s49A, the undersigned certifies that the bidder has complied with all laws of the Commonwealth of Massachusetts relating to taxes.

L. DEBARMENT: The undersigned further certifies under penalties of perjury that the said undersigned is not presently debarred from doing public construction work in the Commonwealth of Massachusetts under provisions of Section 29F of Chapter 29, or any other applicable debarment provisions of any other Chapter of the General Laws or any rule or regulation promulgated thereunder.

M. TIME OF COMPLETION: If selected Contractor, the undersigned agrees to begin and complete the work as specified in the Contract Documents.

N. AUTHORITY RIGHTS: The Bidder understands the Awarding Authorities right to reject any and all bids. Should the Invitation to Bid, Instruction to Bidders, Form For Bid, Conditions of the Contract, Plans or Specifications require submission of special data to accompany the Bid, the Awarding Authority reserves the right to rule the bidder's failure to submit such data an informality and to receive said data subsequently, within a reasonable time as set by the Authority. The Bidder acknowledges that no proposal may be withdrawn for 30 days, Saturdays, Sundays, and legal holidays excluded, after opening of bids per MGL c. 149, 44A(3).

Date: _____

Name of Bidder: _____

By: _____

(Signature)

(Title of Person Signing Bid)

(Business Address)

(City and State)

Telephone

Fax

E-Mail

NOTE: This proposal must bear the written signature of the bidder. If the bidder is a partnership, the proposal must be signed by a partner. If the bidder is a corporation, the proposal must be signed by a duly authorized officer or agent of such corporation.

1) CONTRACT QUALIFICATION DATA

a) List the exact name of your firm.

b) How many years has your firm been in business under its present business name and business organization structure?

_____years

c) How many years has your firm been regularly and actively engaged, performing the type of work described in the specification.

_____years

d) Does your firm have a twenty-four (24) hour emergency number that is staffed by a person and not an answering machine? Yes No

If yes, please list number: () _____

Indicate below three (3) references that will serve to illustrate the ability of your firm to act as the primary contractor for the contract:

<i>Client Name and Address</i>	<i>Contact Person and Telephone #</i>
1.	
2.	
3.	

SIGNATURE OF AUTHORIZED INDIVIDUAL _____

PAYMENT BOND

Bond No. _____

KNOW ALL MEN BY THESE PRESENT, that we _____ with a place of business at _____, as Principal (the "Principal"), and _____, a corporation qualified to do business in the Commonwealth of Massachusetts, with a place of business at _____ as Surety (the "Surety"), are held and firmly bound unto the City of Beverly, Massachusetts as Obligee (the "Obligee"), in the sum of _____ lawful money of the United States of America, to be paid to the Obligee, for which payment, well and truly to be made, we bind ourselves, our respective heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these present.

WHEREAS, the Principal has assumed and made a contract with the Obligee, bearing the date of _____, for the construction of _____.

NOW, THE CONDITIONS of this obligation are such that if the Principal and all subcontractors under said contract shall pay for all labor performed or furnished and for all materials used or employed in said contract and in any and all duly authorized modifications, alterations, extensions of time, changes or additions to said contract that may hereafter be made, notice to the Surety of such modifications, alterations, extensions of time, changes or additions being hereby waived, the foregoing to include, but not be limited to, any other purposes or items set out in, and to be subject to, the provisions of Massachusetts General Laws, Chapter 30, Section 39M, and Chapter 149, Section 29, as amended then this obligation shall become null and void; otherwise, it shall remain in full force and virtue.

IN WITNESS WHEREFORE, the Principal and Surety have hereto set their hands and seals this _____ day of _____.

PRINCIPAL

SURETY

[Name and Seal]

[Attorney-in-fact] [Seal]

[Title]

[Address]

Attest: _____

[Phone]

Attest: _____

PERFORMANCE BOND

Bond No. _____

KNOW ALL MEN BY THESE PRESENT, that we _____ with a place of business at _____, as Principal (the "Principal"), and _____, a corporation qualified to do business in the Commonwealth of Massachusetts, with a place of business at _____

_____ as Surety (the "Surety"), are held and firmly bound unto the City of Beverly, Massachusetts as Obligee (the "Obligee"), in the sum of _____ lawful money of the United States of America, to be paid to the Obligee, for which payment, well and truly to be made, we bind ourselves, our respective heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these present.

WHEREAS, the Principal has assumed and made a Contract with the Obligee, bearing the date of _____, for the construction of _____.

NOW THE CONDITIONS of this obligation are such that if the Principal (and all Subcontractors under said contract) shall well and truly keep and perform all the undertakings, covenants, agreement, terms and conditions of said contract on its part to be kept and performed during the original term of said contract and any extensions thereof that may be granted by the Obligee, with or without notice to the Surety, and during the life and any guarantee required under the contract, and shall also well and truly keep and perform all the undertakings, covenants, agreements, terms and conditions of any and all duly authorized modifications, alterations, changes or additions with notice to the Surety being hereby waived, then this obligation shall become null and void; otherwise, it shall remain in full force and virtue.

IN THE EVENT the Contract is abandoned by the Principal, or is terminated by the City of Beverly, Massachusetts under the applicable provisions of the Contract, the Surety hereby further agrees that the Surety shall, if requested in writing by the City of Beverly, Massachusetts promptly take such action as is necessary to complete said Contract in accordance with its terms and conditions.

IN WITNESS WHEREOF, the Principal and Surety have hereto set their hands and seals this _____ day of _____.

PRINCIPAL

SURETY

[Name and Seal]

[Attorney-in-fact] [Seal]

[Title]

[Address]

Attest: _____

[Phone]

Attest: _____

CITY OF BEVERLY

CONTRACT

DATE: _____

This Contract is entered into on, or as of, this date by and between the City of Beverly (the "City"), and

["Contractor"]

[Address of the Contractor]

[Telephone Number]

[FAX Number]

1. This is a Contract for the procurement of the following:
2. The Contract price to be paid to the Contractor by the City of Beverly is:
3. Payment will be made as follows:

In consideration for performance of the work in accordance with the requirements of this Contract, and in accordance with all applicable statutes, the City shall pay the Contractor the prices set forth in the Contractor's Bid/submission, a copy of which is attached hereto and incorporated by reference.

This Contract is a fixed price/fixed rate contract and therefore miscellaneous expenditures associated with the Contractor's work on this project shall not be paid by the City. In the event that an unforeseen miscellaneous expense is incurred, the Contractor shall receive the City's approval in writing prior to incurring the expense if it will subsequently seek payment of said expense from the City.

Payment shall be made to the Contractor for work completed in accordance with this Contract. All requests for payment shall be submitted to the City as an invoice and shall specify work completed, progress made toward completing deliverables, the number of hours worked, the classification of each employee who performed work, and the billing rate for each employee who performed work on the project.

Payment will be due thirty (30) days after receipt of the Contractor's invoice by the City for services rendered in accordance with this Contract. The City shall not make payments in advance.

If the City objects to all or part of any invoice, the City shall notify the Contractor in writing within two (2) weeks of the date of receipt of the invoice, and shall pay that portion of the invoice not in dispute within thirty (30) days after the date of receipt of the invoice.

Should it be necessary for the Contractor to engage the services of a specialized contractor or companies other than those originally proposed in the Contractor's response to the City's procurement documents, the Contractor shall take such measures only with the City's prior written approval. Charges for such services, with no mark-up, shall be billed directly to the City unless otherwise agreed upon by the parties.

No payment by the City to the Contractor shall be deemed to be a waiver of any right of the City under this Contract or a ratification by the City of any breach hereof by the Contractor.

4. Definitions:

4.1 Acceptance: All Contracts require proper acceptance of the described goods or services by the City of Beverly. Proper acceptance shall be understood to include inspection of goods and certification of acceptable performance for services by authorized representatives of the City to insure that the goods or services are complete and are as specified in the Contract.

4.2 Contract Documents: All documents relative to the Contract including (where used) Instructions to Bidders, Proposal Form, General Conditions, Supplementary General Conditions, General Specifications, Other Specifications included in Project Manual, Drawings, and all Addenda issued during the bidding period. The Contract documents are complementary, and what is called for by any one shall be as binding as if called for by all. The intention of the document is to include all labor and materials, equipment and transportation necessary for the proper performance of the Contract. The Contractor's Bid/Submission is also included in the Contract documents. In the event of any conflict among the Contract Documents, the Documents shall be construed according to the following priorities:

Highest Priority:	Amendments to Contract (if any)
Second Priority:	Contract
Third Priority:	Addenda to the Procurement Documents (if any)
Fourth Priority:	Procurement Documents
Fifth Priority:	Contractor's Bid/submission.

4.3 The Contractor: The "other party" to any Contract with the City. This term shall (as the sense and particular Contract so require) include Vendor, Contractor, Engineer, or other label used to identify the other party in the particular Contract. Use of the term "Contractor" shall be understood to refer to any other such label used.

4.4 Date of Substantial Performance: The date when the work is sufficiently complete, the services are performed, or the goods delivered, in accordance with Contract documents, as modified by approved Amendments and Change Orders.

4.5 Goods: Goods, Supplies or Materials.

4.6 SubContractor: Those having a direct Contract with the Contractor. The term includes one who furnished material worked to a special design according to the Drawings or Specifications of this work, but does not include one who merely furnishes material not so worked.

4.7 Work: The services or materials contracted for, or both.

5. Term of Contract and Time for Performance:

Work shall commence by the Contractor by _____. This Contract and the work of the Contractor shall be completed, in accordance with the provisions of the Contract Documents on or before _____, unless extended pursuant to a provision for extension contained in the Contract documents at the sole discretion of the City, and not subject to assent by the Contractor, and subject to the availability and appropriation of funds as certified by the City Finance Director. The time limits stated in the Contract documents are of the essence of the Contract.

6. Subject to Appropriation:

Notwithstanding anything in the Contract documents to the contrary, any and all payments which the City is required to make under this Contract shall be subject to appropriation or other availability of funds as certified by the City Accountant. In the absence of appropriation, this Contract shall be immediately terminated without liability for damages, penalties or other charges.

7. Permits and Approvals:

Permits, Licenses, Approvals and all other legal or administrative prerequisites to its performance of the Contract shall be secured and paid for by the Contractor, there will be no charge to Contractor for permits issued by the City of Beverly.

8. Termination and Default:

8.1 Without Cause. The City may terminate this Contract for convenience and without cause on seven (7) calendar days notice when in the best interests of the City by providing notice to the Contractor, which shall be in writing and shall be deemed delivered and received when given in person to the Contractor, or when received by fax, express mail, certified mail return receipt requested, regular mail postage prepaid or delivered by any other appropriate method evidencing actual receipt by the Contractor. Upon termination without cause, Contractor will be paid for services rendered to the date of termination.

8.2 For Cause. If the Contractor is determined by the City to be in default of any term or condition of this Contract, the City may terminate this Contract on seven (7) days notice by providing notice to the Contractor, which shall be in writing and shall be

deemed delivered and received when given in person to the Contractor, or when received by fax, express mail, certified mail return receipt requested, regular mail postage prepaid or delivered by any other appropriate method evidencing actual receipt by the Contractor. If any assignment shall be made by the Contractor or by any guarantor of the Contractor for the benefit of creditors, or if a petition is filed by the Contractor or by any guarantor of the Contractor for adjudication as a bankrupt, or for reorganization or an arrangement under any provision of the Bankruptcy Act as then in force and effect, or if an involuntary petition under any of the provisions of the Bankruptcy Act is filed against the Contractor and such involuntary petition is not discharged within ninety (90) days thereafter, in any event the City may terminate this Contract upon written notice to the Contractor.

8.3 Default. The following shall constitute events of a default under the Contract:

- 1) any material misrepresentation made by the Contractor to the City; 2) any failure to perform any of its obligations under this Contract including, but not limited to the following: (i) failure to commence performance of this Contract at the time specified in this Contract due to a reason or circumstance within the Contractor's reasonable control, (ii) failure to perform this Contract with sufficient personnel and equipment or with sufficient material to ensure the completion of this Contract within the specified time due to a reason or circumstance within the Contractor's reasonable control, (iii) failure to perform this Contract in a manner reasonably satisfactory to the City, (iv) failure to promptly re-perform within a reasonable time the services that were rejected by the City as unsatisfactory, or erroneous, (v) discontinuance of the services for reasons not beyond the Contractor's reasonable control, (vi) failure to comply with a material term of this Contract, including, but not limited to, the provision of insurance and non-discrimination, (vii) any other acts specifically and expressly stated in this Contract as constituting a basis for termination of this Contract, and (viii) failure to comply with any and all requirements of state law and/or regulations, and City bylaw and/or regulations.

9. The Contractor's Breach and the City's Remedies:

Failure of the Contractor to comply with any of the terms or conditions of this Contract shall be deemed a material breach of this Contract, and the City of Beverly shall have all the rights and remedies provided in the Contract documents, the right to cancel, terminate, or suspend the Contract in whole or in part, the right to maintain any and all actions at law or in equity or other proceedings with respect to a breach of this Contract, including damages and specific performance, and the right to select among the remedies available to it by all of the above.

To the fullest extent permitted by law, from any sums due to the Contractor for services, the City may keep the whole or any part of the amount for expenses, losses and damages incurred by the City as a consequence of procuring services as a result of any failure, omission or mistake of the Contractor in providing services as provided in this Contract.

10. Statutory Compliance:

10.1 This Contract will be construed and governed by the provisions of applicable federal, state and local laws and regulations; and wherever any provision of the Contract or Contract documents shall conflict with any provision or requirement of federal, state or local law or regulation, then the provisions of law and regulation shall control. Where applicable to the Contract, the provisions of the General Laws are incorporated by reference into this Contract, including, but not limited to, the following:

General Laws Chapter 30B – Procurement of Goods and Services.

General Laws Chapter 30, Sec. 39, *et seq.* - Public Works Contracts.

General Laws Chapter 149, Section 44A, *et seq.* Public Buildings Contracts.

10.2 Wherever applicable law mandates the inclusion of any term and provision into a municipal contract, this Section shall be understood to import such term or provision into this Contract. To whatever extent any provision of this Contract shall be inconsistent with any law or regulation limiting the power or liability of cities and towns, such law or regulation shall control.

10.3 The Contractor shall give all notices and comply with all laws and regulations bearing on the performance of the Contract. If the Contractor performs the Contract in violation of any applicable law or regulation, the Contractor shall bear all costs arising therefrom.

10.4 The Contractor shall keep itself fully informed of all existing and future State and federal Laws and Municipal By-laws and Regulations and of all orders and decrees of any bodies or tribunals having jurisdiction in any manner affecting those engaged or employed in the work, of the materials used in the work or in any way affecting the conduct of the work. If any discrepancy or inconsistency is discovered in the Drawings, Specifications or Contract for this work in violation of any such law, by-law, regulation, order or decree, it shall forthwith report the same in writing to the City. It shall, at all times, itself observe and comply with all such existing and future laws, by-laws, regulations, orders and decrees; and shall protect and indemnify the City of Beverly, and its duly appointed agents against any claim or liability arising from or based on any violation whether by him or its agents, employees or subcontractors of any such law, by-law, regulation or decree.

11. Conflict of Interest:

Both the City and the Contractor acknowledge the provisions of the State Conflict of Interest Law (General Laws Chapter 268A), and this Contract expressly prohibits any activity which shall constitute a violation of that law. The Contractor shall be deemed to have investigated the application of M.G.L. c. 268A to the performance of this Contract; and by executing the Contract documents the Contractor certifies to the City that neither it nor its agents, employees, or subcontractors are thereby in violation of General Laws Chapter 268A.

12. Certification of Tax Compliance

This Contract must include a certification of tax compliance by the Contractor, as required by General Laws Chapter 62C, Section 49A (Requirement of Tax Compliance by All Contractors Providing Goods, Services, or Real Estate Space to the Commonwealth of Massachusetts or Subdivision).

13. Non-Discrimination

The Contractor will carry out the obligations of this Contract in full compliance with all of the requirements imposed by or pursuant to General Laws Chapter 151B (Law Against Discrimination) and any executive orders, rules, regulations, and requirements of the Commonwealth of Massachusetts as they may from time to time be amended. The Contractor shall not discriminate against or exclude any person from participation herein on grounds of race, color, religious creed, national origin, sex, gender identity, sexual orientation (which shall not include persons whose sexual orientation involves minor children as the sex object), age, genetic information, ancestry, children, marital status, veteran status or membership in the armed services, the receiving of public assistance, and handicap. The previous sentence shall include, but not be limited to, the following: advertising, recruitment; hiring; rates of pay or other forms of compensation; terms; conditions or privileges of employment; employment upgrading; transfer; demotion; layoff; and termination. The Contractor shall take affirmative actions to insure that applicants are employed, and that employees are treated during their employment, without regard to race, color, religious creed, national origin, sex, gender identity, sexual orientation (which shall not include persons whose sexual orientation involves minor children as the sex object), age, genetic information, ancestry, children, marital status, veteran status or membership in the armed services, the receiving of public assistance, and handicap.

14. Assignment:

Assignment of this Contract is prohibited, unless and only to the extent that assignment is provided for expressly in the Contract documents.

15. Condition of Enforceability Against the City:

This Contract is only binding upon, and enforceable against, the City if: (1) the Contract is signed by the Mayor or his designee; and (2) endorsed with approval by the City Accountant as to appropriation or availability of funds; (3) endorsed with approval by the City Solicitor as to form and (4) otherwise procured in accordance with all applicable federal, state, and local laws, rules, and regulations.

16. Corporate Contractor:

If the Contractor is a corporation, it shall endorse upon this Contract (or attach hereto) its Clerk's Certificate certifying the corporate capacity and authority of the party signing this Contract for the corporation. Such certificate shall be accompanied by a letter or other instrument stating that such authority continues in full force and effect as of the date the Contract is executed by the Contractor. This Contract shall not be enforceable against the City of Beverly unless and until the Contractor complies with this section.

The Contractor, if a foreign corporation, shall comply with the provisions of the General Laws, Chapter 181, Sections 3 and 5, and any Acts and Amendments thereof, and in addition thereto, relating to the appointment of the Commissioner of Corporations as its attorney, shall file with the Commissioner of Corporations a Power of Attorney and duly

authenticated copies of its Charter or Certificate of Incorporation; and said Contractor shall comply with all the laws of the Commonwealth of Massachusetts.

17. Liability of Public Officials:

To the full extent permitted by law, no official, employee, agent or representative of the City of Beverly shall be individually or personally liable on any obligation of the City under this Contract.

18. Indemnification:

The Contractor shall indemnify, defend and save harmless the City, the City's officers, agents and employees, from and against any and all damages, liabilities, actions, suits, proceedings, claims, demands, losses, costs, expenses, recoveries and judgments of every nature and description (including reasonable attorneys' fees) that may arise in whole or in part out of or in connection with the work being performed or to be performed, or out of any act or omission by the Contractor, its boards, commissions, committees, employees, agents, subcontractors, material men, assigns and anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by any party indemnified hereunder, or for any violation of federal, state, or local statute, by-law, or ordinance by the Contractor, its employees, agents, subcontractors, material men, and anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable.. The Contractor further agrees to reimburse the City for damage to its property caused by the Contractor, its employees, agents, subcontractors or material men, and anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, including damages caused by his, its or their use of faulty, defective, or unsuitable material or equipment, unless the damage is caused by the City's gross negligence or willful misconduct. The existence of insurance shall in no way limit the scope of the Contractor's indemnification under this contract.

19. Workers Compensation Insurance:

The Contractor shall provide by insurance for the payment of compensation and the furnishing of other benefits under Chapter 152 of the General Laws of Massachusetts (The Worker's Compensation Act) to all employees of the Contractor who are subject to the provisions of Chapter 152 of the General Laws of Massachusetts.

Failure to provide and continue in force such insurance during the period of this Contract shall be deemed a material breach of this Contract, shall operate as an immediate termination thereof, and Contractor shall indemnify the City for all losses, claims, and actions resulting from the failure to provide the insurance required by this Article.

The Contractor shall furnish to the City evidence of such insurance prior to the execution of this Contract before the same shall be binding on the parties thereto, except if specifically waived by the City.

20. Documents, Materials, Etc.

Any materials, reports, information, data, etc. given to or prepared or assembled by the Contractor under this Contract are to be kept confidential to the extent permitted by law and shall not be made available to any individual or organization by the Contractor

(except agents, servants, or employees of the Contractor) without the prior written approval of the City, except as otherwise required by law. The Contractor shall comply with the provisions Chapter 66 *et seq.* of the General Laws of Massachusetts as it relates to public documents, and all other state and federal laws and regulations relating to confidentiality, security, privacy and use of confidential data.

Any materials produced in whole or in part under this Contract shall not be subject to copyright, except by the City, in the United States or any other country. The City shall have unrestricted authority to, without payment of any royalty, commission, or additional fee of any type or nature, publicly disclose, reproduce, distribute and otherwise use, and authorize others to use, in whole or in part, any reports, data or other materials prepared under this Contract.

All data, reports, programs, software, equipment, furnishings, and any other documentation or product paid for by the City shall vest in the City at the termination of this Contract. The Contractor shall at all times, during or after termination of this Contract, obtain the prior written approval of the City before making any statement bearing on the work performed or data collected under this Contract to the press or issues any material for publication through any medium.

21. Audit, Inspection and Recordkeeping

At any time during normal business hours, and as often as the City may deem it reasonably necessary, there shall be available in the office of the Contractor for the purpose of audit, examination, and/or to make excerpts or transcript all records, contracts, invoices, materials, payrolls, records of personnel, conditions of employment and other data relating to all matters covered by this Agreement.

22. Payment

The City agrees to make all reasonable efforts to pay to the Contractor the sum set forth in the Contractor's bid or proposal within thirty (30) days of receipt of an invoice detailing the work completed and acceptance from the City of the work completed.

23. Waiver and Amendment

Amendments, or waivers of any additional term, condition, covenant, duty or obligation contained in this Contract may be made only by written amendment executed by all signatories to the original Agreement, prior to the effective date of the amendment.

To the extent allowed by law, any conditions, duties, and obligations contained in this Contract may be waived only by written Agreement by both parties.

Forbearance or indulgence in any form or manner by a party shall not be construed as a waiver, nor in any manner limit the legal or equitable remedies available to that party. No waiver by either party of any default or breach shall constitute a waiver of any subsequent default or breach of a similar or different matter.

24. Forum and Choice of Law

This Contract and any performance herein shall be governed by and be construed in accordance with the laws of the Commonwealth of Massachusetts, regardless of choice of

law principles. Any and all proceedings or actions relating to subject matter herein shall be brought and maintained in the courts of the Commonwealth of Massachusetts or the federal district court sitting in the Commonwealth of Massachusetts, which shall have exclusive jurisdiction thereof. This paragraph shall not be construed to limit any other legal rights of the parties.

25. Notices

Any notice permitted or required under the provisions of this Contract to be given or served by either of the parties hereto upon the other party hereto shall be in writing and signed in the name or on the behalf of the party giving or serving the same. Notice shall be deemed to have been received at the time of actual service or three (3) business days after the date of a certified or registered mailing properly addressed. Notice to the Contractor shall be deemed sufficient if sent to the address set forth in the Contract and to the City of Beverly by being sent to the City Solicitor, Beverly City Hall, 191 Cabot Street, Beverly, Massachusetts 01915.

26. Binding on Successors:

This Contract shall be binding upon the Contractor, its assigns, transferees, and/or successors in interest (and where not corporate, the heirs and estate of the Contractor).

27. Complete Contract/Severability:

This instrument, together with its endorsed supplements, and the other components of the contract documents, constitutes the entire contract between the parties, with no agreements other than those incorporated herein. If any provision, or portion thereof, of this Contract shall be adjudged to be invalid or unenforceable by final judgment or order of a court of competent jurisdiction the remaining provisions shall continue in effect to the extent permitted by law.

28. Independent Contractor

The Contractor shall provide services under this Contract as an independent contractor with the City and not as an employee of the City. No employee, agent or representative of the Contractor shall be entitled to receive any benefits of employment with the City, including without limitation salary, overtime, vacation pay, holiday pay, sick leave, health insurance, life insurance, pension or deferred compensation.

29. Use of Alcohol and Controlled Substances Prohibited/No Smoking

The Contractor hereby acknowledges that the use of alcoholic beverages, narcotics, and mood altering substances, except for current valid, legal prescriptions, by any officer, employee, agent, or representative of the Contractor is prohibited on City property which is the subject matter of this Agreement and during all hours of work under this Agreement. If any officer, employee, agent, or representative of the Contractor violates the foregoing provision, the City shall have the right to order that such officer, employee, agent, or representative of the Contractor shall not be permitted to return to work on this Agreement. Under such circumstances, the Contractor shall promptly remove the subject officer, employee, agent, or representative from the job site and shall not permit the subject officer, employee, agent, or representative to perform further work in conjunction with this Agreement. Pursuant to Massachusetts General Laws (M.G.L.) c. 270, §22, the Commonwealth of Massachusetts Smokefree Workplace Law, the Contractor, its officers,

employees, agents, and representatives shall refrain from smoking and from using tobacco products in any public building in the City.

30. Supplemental Conditions

The foregoing provisions apply to all contracts to which the City of Beverly shall be a party. One of the following “Supplements” *must* be “checked” as applicable to this Contract, shall be attached hereto, and shall in any event apply as the nature of the Contract requires. The Supplement contains additional terms governing the Contract:

GOODS

SUPPLEMENT “G” - Applicable to Contracts for the procurement of Goods (governed by the provisions of General Laws Chapter 30B)

SERVICES

SUPPLEMENT “S” - Applicable to Contracts for the procurement of Services (governed by the provisions of General Laws Chapter 30B)

CONSTRUCTION

SUPPLEMENT “C” - Applicable to Contracts for Construction

SUPPLEMENT “C”

[] CONSTRUCTION

SUPPLEMENT “C” - Applicable to Contracts for the construction of:

(1) Public Buildings and Public Works

(

(2) Public Buildings

(governed by the provisions of General Laws Chapter 149, § 44A, et seq.); and

(3) Public Works

(governed by the provisions of General Laws Chapter 30, §39M, et

seq)

1. This form supplements the City of Beverly “Contract and General Conditions” and applies only to contracts for the construction, reconstruction, alteration, remodeling or repair of public works or public buildings.
2. Wherever the law requires one contracting with a city or town to be bonded, such obligation shall be understood to be a term and condition of this Contract. The Contractor agrees to secure such bond (where required) in the form required by the City and provide an original thereof to the City prior to the commencement of performance.
3. Equality:
 - 3.1. In the case of a closed Specification written for a specific item or items to be furnished under the Base Bid, such specifications shall, as applicable, be in compliance with the Massachusetts General Laws, Chapter 30, Section 39M and Chapter 149, Sec. 44A et seq.
 - 3.2. Where the name of an item, material or manufacturer is mentioned in the Specifications or on the Drawings, except as above noted, the intent is to establish a standard and in no way should be construed to exclude any item or manufacturer not mentioned by name, but whose product meets the Specifications as to design, utility and quality. Final decision shall rest with the Project Representative as to its acceptability.
- 4.1 DELETED>
- 4.2 With regard to change orders requested by the Contractor, upon request of the City or Architect, the Contractor shall, without cost to the City, submit to the Architect and the City,

in such form as the Architect may require, a “Change Order Proposal” including a full description of the character and scope of work involved in any proposed extra Work or change in Work, an accurate written estimate of the cost of such proposed change including all the elements of pricing in appropriate detail, and an explanation of the impact of the proposed Change on the construction schedule. The cost estimate shall indicate the quantity and unit cost of each item of material or other product and the number of hours of Work and hourly rate for each class of labor as well as the description and amounts of all other costs chargeable. If required by the Architect or Owner, in order to establish the exact cost of new Work added or of previously required Work deleted, the Contractor shall obtain and furnish to the Architect bona fide proposals (on letterhead) from Subcontractors, Sub-subcontractors or recognized suppliers for furnishing labor and materials included in such Work, including the same supporting information. The Contractor shall promptly revise and resubmit such cost estimate if the Architect or the Owner determines that it is not in compliance with the requirements of this Contract, or that it contains errors of fact or mathematical errors.

The Contractor shall indicate in the Change Order Proposal any extension of the Contract Time that the Contractor believes is necessary if the change or extra work is ordered or that the Contractor believes it is entitled to for any other reason. If the Contractor claims an extension of the Contract time, the Contractor shall provide in the Change Order Proposal a full explanation of the need for a time extension with supporting documentation, including a schedule impact analysis, in form acceptable to the City and Architect indicating the activities affected and overall impact on the schedule of the proposed change. Requests for substitutions or other changes initiated by Contractor shall be submitted with a Change Order Proposal in accordance with all the provisions of this Contract.

Change Order Proposals shall be furnished promptly so as to occasion no delay in work, and shall be furnished at the Contractor’s expense. By submitting a Change Order Proposal, the Contractor shall be deemed to certify in writing that the Change Order Proposal includes all work affected by the change, that the cost estimate indicated in the Change Proposal includes all direct, supplemental, indirect, consequential, serial and cumulative costs and delays, as applicable, and that those costs and delays would be necessarily incurred if the change or extra work is ordered, despite the Contractor’s commercially reasonable and diligent efforts to mitigate them. The Contractor shall cooperate fully with the City and Architect to provide sufficient substantiation and explanation of costs and schedule impacts to allow the City and the Architect to reasonably evaluate the Change Order Proposal.

4.3. Any adjustment to the Contract sum as a result of a Change Order Proposal, shall be based on one of the following methods, as selected by the Owner:

- (a) By unit prices stated in the Contract Documents or otherwise mutually agreed upon
- (b) By Cost and Percentage estimated by the Contractor as provided in this Contract and accepted by the City, the Contractor’s estimate shall become a fixed price which shall not be changed by any variation in the actual cost of executing the work covered by the change
- (c) By actual Cost determined after the work covered by the change is completed, plus percentage

- (d) By determination by the Architect or the fair value of the work covered by the change

4.4 As used in this following section, "Cost" shall mean the estimated or actual net increase or decrease in cost to the Contractor, Sub-Contractor, or Sub-subcontractor for performing the work covered by the change, including actual payments for materials, equipment rentals, expendable items, wages and associated taxes and benefits to workers, insurance, bonds and other provable direct costs, but not including any administrative, accounting or expediting costs, or other indirect or overhead costs, or any wages or benefits of the Contractor's job superintendent or other supervisory or management personnel, or any amount for profit or fee to the Contractor, Sub-Contractor or Sub-subcontractor.

4.5 "Percentage" shall mean an allowance calculated as a percentage of Cost to be added to or subtracted from the Contract Sum to cover overhead and profit and all other expenses (including but not limited to the salary and benefits of the Contractor's job superintendent and other supervisory and management personnel) which are not included in the cost of the work involved in the change.

4.5.1. Percentage for extra work performed by a Subcontractor shall be 15% of the actual net increase in the cost of the work, whether performed by the Subcontractor's own forces or by Sub-subcontractor's. In no event shall the aggregate of all percentage allowances for overhead and profit for Subcontractor's and Sub-subcontractor's, regardless of tier, exceed 15% of the actual, direct costs for labor, materials and equipment incorporated in the work.

4.5.2. Percentage for the Contractor shall be 15 % of any net increase in cost of work performed by the Contractor's own forces and 5% of any net increase in cost of work performed for the Contractor by Subcontractor's.

4.5.3. In the case of changes that result in a credit to the City for work deleted, Percentage for a Subcontractor shall be 10% of any net decrease in the cost of the work, whether performed by the Subcontractor's own forces or by Sub-subcontractor's; and percentage for the Contractor shall be 10% of any net decrease in cost of work performed by the Contractor's own forces and 5% of any net decrease in cost of work performed for the Contractor by Subcontractors.

4.5.4. Related changes may be aggregated into a single Change Order Proposal when determined appropriate by the Architect, and in such case percentage shall be calculated based on the cumulative net increase or decrease in cost, if any.

4.5.5. For purposes of applying the percentage allowances described in this section, costs of insurance, bond premiums and taxes shall be excluded from the cost of the work.

5. The Contractor will carry out the obligations of this contract in full compliance with all of the requirements imposed by or pursuant to General Laws Chapter 151, Sec. 1, et seq., the (Minimum Wage Law) and any executive orders, rules, regulations, and requirements of the Commonwealth of Massachusetts as they may from time to time be amended. The Contractor will at all times comply with the wage rates as determined by the Commissioner of the Department of Labor and Industries, under the provisions of General Laws Chapter 149, Sections 26 and 27D (Prevailing Wage), as shall be in force and as amended.

6. The Contractor shall continuously maintain adequate protection of all work from damage and shall protect the property of the City and others, including adjacent property, from injury or loss arising in connection with the Contract. The Contractor shall make good any such damage, injury or loss, except as may be directly due to errors in the Contract Documents or caused by agents or employees of the City, or due to causes beyond the Contractor's control and not the Contractor's fault or negligence.
7. The Contractor shall take all necessary precautions for the safety of employees on the work, and shall comply with all applicable provisions of Federal, State and local laws and codes to prevent accidents or injury to persons on, about or adjacent to the premises where the work is being performed. The Contractor will erect and properly maintain at all times, as required by the conditions and progress of the work, all necessary safeguards for the protection of workers and the public, shall post danger signs warning against the hazards created by such features of construction such as pits, protruding nails, hosts, well holes, elevator hatchways, scaffolding, window openings, stairways and falling materials; and shall designate a responsible member of its organization on the work, whose duty shall be the prevention of accidents.
8. The City shall at all times have access to the work wherever it is in preparation or progress and the Contractor shall provide suitable accommodations for such access.
9. The Contractor shall appoint a competent superintendent and foreman and any necessary assistants, all of whom shall be satisfactory to the City. If the City in its sole discretion determines that the construction superintendent, foreman, or assistants are unacceptable to the City, then upon seven days notice from the City, the Contractor shall replace such person or persons with people acceptable to the City.
10. The Contractor shall give efficient supervision to the work, using its best skill and attention. The Contractor shall carefully study and compare the drawings, specifications and other instructions and shall at once report to the City any error, inconsistency or omission which shall be discovered. Included in this responsibility shall be supervision of all work performed by subcontractors on the work.
11. If the Contractor should neglect to prosecute the work properly, or fail to perform the contract or any of its provisions, the City, upon three days written notice, may, without prejudice to any other remedy it may have, make good such deficiencies and may deduct the cost thereof from the payment then or thereafter due the Contractor.
12. Inspection by the City's Project Representative
 - 12.1. The City shall have the right to designate a Project Representative who may make periodic visits to the site to familiarize the City generally with the progress and quality of the work, and to determine in general if the work is proceeding in accordance with the Contract Documents. The Project Representative will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the work, and will not be responsible for the Contractor's failure to carry out the construction work in accordance with the Contract Documents. During such visits and on the basis of these observations while at the site, the Project

Representative will keep the City informed on the progress of the work, will endeavor to guard the City against defects and deficiencies in the work of contractors, and may condemn structural work as failing to conform to the Contract Documents. The Project Representative shall have authority to act on behalf of the City only to the extent expressly delegated by the City, which shall be shown to the Contractor, and shall have authority to stop the work whenever such stoppage may reasonably be necessary to insure the proper execution of the Contract.

12.2. In connection with the work, the Project Representative shall not be responsible for construction methods, means, techniques, sequences or procedures employed by the Contractor or the Contractor's safety programs, requirements, regulations, or precautions.

13. Decisions of the Project Representative

13.1. The Project Representative shall, within a reasonable time, make decisions on all claims of the City or the Contractor and on all other matters relating to the execution and progress of the structural work or the interpretation of the Contract Documents.

13.2. The Project Representative's decision, in matters relating to the project, shall be final, if within the terms of the Contract Documents.

13.3. If, however, the Project Representative fails to render a decision within ten days after the parties have presented their evidence, either party may then avail itself of the remedies provided in this contract or available to it by law. If the Project Representative renders a decision after such remedies have commenced, such decision may be entered as evidence but shall not disturb or interrupt such proceedings except where such decision is acceptable to the parties concerned.

14.1 Use of Premises by the Contractor:

14.1. The Contractor shall confine its apparatus, the storage of materials and the operations of its workmen to limits indicated by law, by-laws, permits or directions of the City and shall not unreasonably encumber the premises with its materials.

14.2. The Contractor shall not load or permit any part of the structure to be loaded with a weight that will endanger its safety.

15. Maintenance of Premises:

The Contractor shall at all times keep the premises free from accumulation of waste materials or rubbish caused by its employees or work, and at the completion of the work it shall remove all its rubbish from and about the work site and all its tools, scaffolding and surplus materials and shall leave its work "broom-clean", or its equivalent, unless more exactly specified. In case of dispute, the City may remove the rubbish and charge the cost to the several contractors, as the City shall determine to be just.

16. Right to Terminate

If the Contractor should (1) be adjudged a bankrupt, (2) make a general assignment for the benefit of creditors, (3) have a receiver appointed on account of its insolvency, (4)

persistently or repeatedly refuse or fail to supply enough personnel and resources to perform the contract, (5) fail to make prompt payment to subcontractors or to providers of materials or labor, (6) persistently disregard laws and regulations or lawful directives of the City, or (7) be guilty of a substantial violation of any provision of the Contract, then the City may, without prejudice to any other right or remedy and after giving the Contractor (or any surety) seven (7) days written notice and opportunity to cure, terminate the contract and the employment of the Contractor and take possession of the premises and of all materials, tools and appliances thereon and finish the work by whatever method it deems appropriate.

In such cases, the Contractor shall not be entitled to receive any further payment until the work is finished. If the unpaid amount owed to the Contractor for work already completed shall exceed the expense of finishing the work, including compensation for additional architectural, managerial, legal and administrative services, such excess shall be paid to the Contractor. If such expenses shall exceed such unpaid balances, the Contractor shall pay the difference to the City.

The Contractor shall not be relieved of liability to the City by virtue of any termination of this contract, and any claim for damages against the Contractor relating to the Contractor's performance under this contract shall survive any termination hereunder.

Notwithstanding any other provision of this Agreement, the City reserves the right at any time in its absolute discretion to suspend or terminate this Agreement in whole or in part for its convenience upon seven days written notice to the Contractor. The City shall incur no liability by reason of such termination except for the obligation to pay compensation for all work performed by the Contractor and accepted by the City to the termination date.

17. Progress Payments:

- 17.1. The Contractor shall submit to the City an itemized Application for Payment, supported to the extent required by the City by invoices or other vouchers, showing payments for materials and labor, payments to Subcontractors and such other evidence of the Contractor's right to payment.
- 17.2. The Contractor shall, before the first application, submit to the City a schedule of values of the various parts of the work, including quantities aggregating the total sum of the Contract, divided so as to facilitate payments to Subcontractors, made out in such form as the City and the Contractor may agree upon, and, if required, supported by such evidence as to its correctness. This schedule, when approved by the City, shall be used as a basis for payment, unless it is found to be in error. If applying for payments, the Contractor shall submit a statement based upon this schedule.
- 17.3 All progress payments shall be governed by M.G.L. c. 30, §39K for public building construction contracts and by M.G.L. c. 30, §39G for public works construction contracts. The provisions of both statutes are incorporated herein by reference.

17.4 This Contract shall be considered to include in their entirety all terms respecting workers' compensation insurance and other terms required to be included in it by Chapter 152 of the Massachusetts General Laws, as amended, and applicable provisions of any other laws, including, without limitation, Chapter 30, Sections 39F, 39G, 39K, 39L, 39M, 39N, 39O, 39P, and 39R of the Massachusetts General Laws, as amended, and Chapter 149, Sections 34, 34A, and 34B of the Massachusetts General Laws, as amended, and Chapter 82, Section 40 of the Massachusetts General Laws, as amended, as though such terms were set forth in their entirety herein.

18. Withholding of Payments

18.1. The City may withhold or, on account of subsequently discovered evidence, nullify the whole or part of any payment to such extent as may be necessary in its reasonable opinion to protect the City of Beverly from loss on account of:

18.1.1. Defective work not remedied.

18.1.2. Claims filed or reasonable evidence indicating probable filing of claims.

18.1.3. Failure of the Contractor to make payments properly to Subcontractors or for material or labor.

18.1.4. A reasonable doubt that the Contract can be completed for the balance then unpaid.

18.1.5. Damage to another contractor.

18.1.6. Delays resulting in liquidated damages.

18.2. Withholding of payments shall be in strict compliance with statutory requirements.

19. Claims by Contractor and Liability of City

All claims by the Contractor against the City shall, unless otherwise provided by law, be initiated by a written claim submitted to the City no later than seven (7) calendar days after the event or the first appearance of the circumstances causing the claim. The claim shall set forth in detail all known facts and circumstances supporting the claim. The Contractor shall continue its performance under this contract regardless of the submission or existence of any claims.

The limit of liability of the City under this Agreement is limited to the compensation provided herein for work actually performed, and shall in no event include liability for delays or for incidental, special or consequential damages or lost profits or for damages or loss from causes beyond the City's reasonable control.

20. Liquidated Damages:

Because both parties recognize (1) that the time for completion of this Contract is of the essence, (2) that the City will suffer loss if the work is not completed within the contract time specified, plus any extension thereof allowed in accordance with the provisions of

this contract, and (3) the delays, expense and difficulties involved in a legal proceeding to determine the actual loss suffered by the City if the work is not completed in time, it is agreed that the Contractor will pay the City as liquidated damages representing an estimate of delay damages, not as a penalty, the sum of Five Hundred Dollars (\$500.00) per day for each calendar day of delay until the work is completed, whether the work is completed by the Contractor or some other person. The City's right to impose liquidated damages shall in no way prohibit or restrict the City's right to bring a legal action for damages in lieu of or in addition to its option to impose liquidated damages. The City may deduct any liquidated damages from money due the Contractor, and if such payment is insufficient to cover the liquidated damages, then the Contractor shall pay the amount due.

21. The Contractors' Mutual Responsibility:

Should the Contractor cause damage to any separate subcontractor on the work, the Contractor agrees, upon due notice, to settle with such contractor by agreement, or by recourse to remedies provided by law or by the provisions of the contract. If such separate contractor sues the City on account of any damage alleged to have been sustained, the City shall notify the Contractor, who shall defend such proceedings at the City's expense and, if any judgment against the City arises therefrom, the Contractor shall pay or satisfy it and pay all costs incurred by the City.

22. Separate Contracts:

22.1. The City reserves the right to let other Contracts in connection with this work under similar General Conditions. The Contractor shall afford other contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work, and shall properly connect and coordinate its work with theirs.

22.2. If any part of the Contractor's work depends, for proper execution or results, upon the work of any other contractor, the Contractor shall inspect and promptly report to the City any defects in such work that render it unsuitable for such proper execution and results. Failure of the Contractor to so inspect and report shall constitute an acceptance of the other contractor's work as fit and proper for the reception of its work except as to defects which may develop in the other contractor's work after the execution of its work.

22.3. To insure the proper execution of its subsequent work, the Contractor shall measure work already in place and shall at once report to the City any discrepancy between the executed work and the Drawings.

23. Subcontracts:

23.1. All Subcontracts shall be awarded in conformity with the requirements of the General Laws, Commonwealth of Massachusetts, Chapter 149, Sections 44A to 44L, inclusive.

23.2. The Contractor agrees that it is as fully responsible to the City for the acts and omissions of its Subcontractors and of persons either directly or indirectly

employed by them, as it is for the acts and omissions of persons directly employed by it.

23.3. Nothing contained in the Contract Documents shall create any contractual relationship between any Subcontractor and the City.

24. Contractor-Subcontractor Relations:

The Contractor agrees to bind every Subcontractor and every Subcontractor agrees to be bound by the terms of the Agreement, the General Conditions of the Contract, the Supplementary General Conditions, the Drawings and Specifications, as far as applicable to its work, including the provisions of the General Laws, Commonwealth of Massachusetts, Chapter 149, Section 44A, et seq.

25. Indemnification:

25.1. The Contractor shall indemnify, defend and save harmless the City, its boards, commissions, committees, officers, agents, assigns, and employees from and against any and all damages, liabilities, actions, suits, proceedings, claims, demands, losses, recoveries and judgments of every nature and description (including reasonable attorneys' fees) brought or recovered against them that may arise in whole or in part out of or in connection with the work being performed or to be performed, or out of any act or omission by the Contractor, its employees, agents, subcontractors, material men, and anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by any party indemnified hereunder, or for any violation of federal, state, or local statute, by-law, or ordinance by the Contractor, its employees, agents, subcontractors, material men, and anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable. The Contractor further agrees to reimburse the City for damage to its property caused by Contractor, its employees, agents, subcontractors or material men, and anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, including damages caused by his, its or their use of faulty, defective or unsuitable material or equipment, unless the damage is caused by the City's gross negligence or willful misconduct. The existence of insurance shall in no way limit the scope of the Contractor's indemnification under this Contract.

25.2. In any and all claims against the City or any of their agents or employees by any employee of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligation under this paragraph shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any Subcontractor under Workmen's Compensation Acts, disability benefit acts or other employee benefit acts.

25.3. The intent of the Specifications regarding insurance is to specify minimum coverage and minimum limits of liability acceptable under the Contract. However, it shall be the Contractor's responsibility to purchase and maintain insurance of such character and in such amounts as will adequately protect it and the City from and

against all claims, damages, losses and expenses resulting from exposure to any casualty liability in the performance of the Work.

25.4. Neither the City, nor any of its officers, employees, boards, committees, commissions, agents and representatives, shall be under any personal obligation or incur any personal liability by reason of this Contract, the execution thereof or anything relating thereto which arises out of the breach or violation of any provision of this Contract, or the violation of any Federal, Massachusetts or local statute, by-law, rule, regulation, order or directive, or which relates to personal injury or property damage suffered by the Contractor or its employees, regarding the subject matter of this Contract.

26. The Contractor's Insurance:

26.1. The Contractor shall purchase and maintain such insurance as will protect him from claims set forth below which may arise out of or result from the Contractor's operations under the Contract, whether such operations be of himself or by any subcontractor or by anyone directly or indirectly employed by any of them or by anyone for whose acts any of them may be liable.

26.1.1. Claims under MA Workmen's Compensation/Employer Liability, disability benefit and other similar employee benefit acts.

26.1.2. Claims for damage because of bodily injury, sickness or disease, or death of any person other than his employees, and claims insured by usual personal injury liability coverage.

26.1.3. Claims for damage because of injury to or destruction of tangible property, including loss of use resulting there from.

26.1.4. Claims for damages because of bodily injury, death of a person or property, including, but not limited to, claims arising out of ownership, maintenance or use of a motor vehicle.

26.1.5. Claims involving contractual liability associated with the Contractor's obligations under this contract.

26.1.6. If applicable, any professional claims due to an error or omission.

26.1.7. Claims involving environmental impairment liability due to operations, completed operations or abatement activities.

26.2. The insurance required by the above shall be written for not less than the following minimum limits of liability:

1. Worker's Compensation and Employer's Liability: with limits of \$500,000.00 for Employer Liability or with the MA Statutory Endorsement.

Comprehensive General Liability Insurance (Broad Form)

Bodily Injury	\$1,000,000 Each Person/Each Occurrence \$2,000,000 General Aggregate per project Or a Combined Single Limit of \$2,000,000
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Property Damage	\$1,000,000 Each Occurrence
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\$2,000,000 General Aggregate per project
Or a Combined Single Limit of \$2,000,000

Automobile Liability Insurance

Bodily Injury \$1,000,000 Each Person/Each Occurrence
Or a Combined Single Limit of \$1,000,000

Property Damage \$1,000,000 Each Occurrence
Or a Combined Single Limit of \$1,000,000

Excess Liability (Umbrella) \$2,000,000

26.3. The above insurance policies shall also be subject to the following requirements:

26.3.1. Insurance coverage for the Contractor's Comprehensive General Liability, as hereinafter specified under Paragraph entitled "Protective Liability Insurance" shall be written by one and the same insurance company to avoid the expense of duplicate and/or overlapping coverage and to facilitate and expedite the settlement of claims.

26.3.2. Certificates of Insurance acceptable to the City shall be addressed to and filed with the City prior to commencement of the work. Renewal certificates shall be addressed to and filed with the City at least ten (10) days prior to the expiration date of required policies.

26.3.3. No insurance coverage shall be subject to cancellation without at least thirty (30) days prior written notice forwarded by registered or certified mail to the City. The City shall also be notified of the attachment of any restrictive amendments to the policies.

26.3.4. All Certificates of Insurance shall be on the "MIIA" or "ACORD" Certificate of Insurance form, shall contain true transcripts from the policies, authenticated by the proper officer of the Insurer, evidencing in particular those insured, the extent of coverage, the location and operations to which the insurance applies, the expiration date and the above-mentioned notice clauses.

26.3.5. All premium costs shall be the sole responsibility of the Contractor.

26.3.6. All insurance shall be written on an occurrence basis. Coverages shall be maintained without interruption from date of the Contract until date of final payment and termination of any coverage required to be maintained after payment.

27. Protective Liability Insurance:

- 27.1. The Contractor shall purchase and maintain such insurance as described in the preceding paragraph as will protect the City from claims which may arise from operations under the Contract, including operations performed for the named insureds by independent contractors and general inspection thereof by the named insureds.
- 27.2. The Contractor shall also purchase and maintain such insurance as will protect the City against Automobile Non-Ownership Liability in connection with the Contractor's operations under the Contract, whether such operations be by itself or by any Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable.
- 27.3. The limits of liability for coverage required under the preceding paragraphs shall be as specified under the provisions hereof governing the Contractor's General Liability Policy.
- 27.4. The City shall be named as an additional insured on the above referenced automobile, comprehensive general liability, and excess liability Policies, and the Contractor's insurance shall be the primary coverage. The Contractor shall provide the City with rider(s) or endorsement(s) evidencing such additional insured status. The cost of such insurance, including required endorsements and amendments, shall be the sole responsibility of the Contractor.

28. Liens:

Neither the Final Payment nor any part of the retained percentage shall become due until the Contractor, if required, shall deliver to the City a complete release of all liens arising out of the Contract, or receipts in full in lieu thereof and, if required in either case, an affidavit that as far as it has knowledge or information, the releases and receipts include all the labor and material for which a lien could be filed. The Contractor shall comply with all statutory provisions of the General Laws of the Commonwealth of Massachusetts with regard to liens, Chapter 254 and 149 as amended (as a minimum requirement).

29. Guarantees:

29.1 The Contractor guarantees and warrants to the City that all labor furnished under this Contract will be competent to perform the tasks undertaken, that the product of such labor will yield only first-class results, that materials and equipment furnished will be of good quality and new unless otherwise permitted by this Contract, and that the Work will be of good quality, free from faults and defects and in strict conformance with this Contract. All Work not conforming to these requirements may be considered defective.

29.2. If at any time any part of the work constructed under the terms of this contract shall in the opinion of the Mayor or his designee require repairing due to defective work or materials furnished by the Contractor, he may notify the Contractor in writing to make the required repairs. If the Contractor shall neglect to start such repairs within ten days of the date of giving it notice thereof and to complete the same to the satisfaction of the Mayor or his designee with reasonable dispatch, then the latter may employ other persons

to make such repairs. The City shall charge the expense thereof to the Contractor and may use any moneys still retained to pay for the same, and if such sum is insufficient, the Contractor shall be obligated to pay the balance thereof.

29.3. All guarantees and warranties required in the various Sections of the Specifications which originate with a Subcontractor or Manufacturer must be delivered to the City before final payment to the Contractor may be made for the amount of that subtrade or for the phase of work to which the guarantee or warranty relates. The failure to deliver a required guarantee or warranty shall be held to constitute a failure of the Subcontractor to fully complete his work in accordance with the Contract Documents. The Contractor's obligation to correct work is in addition to, and not in substitution of, such guarantees or warranties as may be required in the various Sections of the Specifications.

29.4 Any manufacturers' warranties for equipment provided will be assigned to the City.

30. Force Majeure:

A. The Contractor agrees to indemnify or pay on behalf of the City any economic loss arising out of a delay in the commissioning, completion, or permanent abandonment of the contract as a result of the "Force Majeure" perils. These perils include, but are not limited to the following:

1. On-site or off-site strikes;
2. Transportation delays;
3. Changes in government ordinances, statutes or laws;
4. Court orders amending laws; or
5. Other delays caused by forces beyond the control of the City.

31. Safety Provision

A. Contractor shall be responsible for providing adequate safety measures for all persons and all property which are used in the scope of duties. These duties shall survive the termination of this agreement.

32. Performance Bond

Within ten (10) calendar days after notification of award of this Contract by the City, the Contractor shall deliver to the City a Performance Bond, in the amount of one hundred (100%) percent of the Contract price, with a surety company that is acceptable to the City and that is licensed by the Massachusetts Division of Insurance.

33. Labor and Materials Payment Bond

Within ten (10) calendar days after notification of award of this Contract by the City, the Contractor shall deliver to the City a Labor and Materials Payment Bond, in the amount of one hundred (100%) percent of the Contract price, with a surety company that is acceptable to the City and that is licensed by the Massachusetts Division of Insurance.

CERTIFICATION OF GOOD FAITH

The undersigned certifies under pains and penalties of perjury that this contract has been obtained in good faith and without collusion or fraud with any other person. As used in this certification, the word “person” shall mean any natural person, business, partnership, corporation, union, committee, club, or other organization, entity, or group of individuals.

Signature required

CONFLICT OF INTEREST CERTIFICATION

The Undersigned hereby certifies that:

1. The Undersigned has not given, offered, or agreed to give any gift, contribution, or offer of employment as an inducement for, or in connection with, the award of a Contract.
2. No consultant to, or subcontractor for, the Undersigned has given, offered, or agreed to give any gift, contribution, or offer of employment to the Undersigned, or to any other person, corporation, or entity as an inducement for, or in connection with, the award to the consultant or subcontractor of a Contract by the Undersigned.
3. No person, corporation, or other entity, other than a bona fide full time employee of the Undersigned has been retained or hired to solicit for or in any way assist the Undersigned in obtaining a Contract upon an agreement or understanding that such person, corporation or entity be paid a fee or other compensation contingent upon the award of a Contract to the Undersigned.
4. Undersigned understands that the Massachusetts Conflict of Interest Law, Chapter 268A of the Massachusetts General Laws (M.G.L.), applies to the Undersigned and its officers, employees, agents, subcontractors, and affiliated entities.
5. Undersigned understands that the Undersigned and its officers, employees, agents, subcontractors, and affiliated entities, shall not participate in any activity which constitutes a violation of the Massachusetts Conflict of Interest Law or which creates an appearance of a violation of the Massachusetts Conflict of Interest Law.

Signature required

CERTIFICATE OF STATE TAX COMPLIANCE

Pursuant to Massachusetts General Laws, Chapter 62C, Section 49A,

_____, authorized signatory for
name of signatory

_____, whose
contractor

principal place of business is at _____,

_____ does hereby certify under the pains and penalties of perjury
that _____ has paid all

contractor

Massachusetts taxes and has complied with all laws of the Commonwealth of Massachusetts relating to taxes, reporting of employees and contractors, and withholding and remitting child support.

Signature required

Federal Identification No. of _____ : _____
contractor number

CORPORATE VOTE

At a duly authorized meeting of the Board of Directors of _____
_____ held on _____ at which all the
Directors were present or waived notice, it was voted that _____,
_____ of this company, be and he/she hereby is authorized to execute
contracts and bonds in the name and behalf of said company, and affix its Corporate Seal
thereto, and such execution of any contract or obligation in this company ' s name on its behalf
by _____, shall be binding upon this company.

A TRUE COPY ATTEST:

Clerk,

Date of this Contract

I hereby certify that I am the Clerk of _____, that
_____ is duly elected _____ of said
company, and the above vote has not been amended or rescinded and remains in full force and
effect as of the date of this contract.

Clerk Corporate Seal

SWORN TO AND SUBSCRIBED BEFORE ME THIS _____ DAY OF

Notary Public

If a corporation, complete above or attach to each signed copy of the bid/written
request/quotation, a notarized copy of vote of corporation authorizing the signatory to sign this
bid/written request/quotation form. If attesting clerk is the same person as the individual
executing this contract, have signature notarized above.

CERTIFICATE OF COMPLIANCE WITH M.G.L. c. 151B

The undersigned hereby certifies that it is in compliance with and shall remain in compliance with Massachusetts General Laws (M.G.L.) Chapter 151B and shall not discriminate on any prohibited basis outlined therein. The Bidder also hereby certifies that it shall comply with any and all applicable Supplier Diversity Office (SDO) thresholds that have been established for the project.

Signature required

CERTIFICATE OF NON-DEBARMENT

The undersigned hereby certifies that it is presently not debarred, suspended, or otherwise prohibited from practice by any federal, state, or local agency, and that, should any proceeding arise in which it is debarred, suspended, or otherwise prohibited from practice by any federal, state, or local agency, the Bidder shall inform the Owner within one (1) business day of such debarment, suspension, or prohibition from practice.

Signature required

AFFIDAVIT OF OSHA COMPLIANCE

The undersigned agrees that if he is selected as the contractor, he will comply with the provisions of M.G.L. Chapter 30, Section 39S.

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

Date _____

(Name of Bidder)

By _____
(Name of person Signing Bid and Title)
Signature is required

(Business Address)

(City and State)

(Telephone Number)

SECTION 012100 - ALLOWANCES

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 governing allowances.
 - 1. Certain items are specified in the Contract Documents by allowances. Allowances have been established as a budget cost basis for quantities of materials and labor to accomplish project requirements that are latent or unquantifiable prior to bid. If necessary, additional requirements will be issued by Change Order.
- B. Types of allowances include the following:
 - 1. Lump-sum allowances.
- C. Related Requirements:
 - 1. Section 012200 "Unit Prices" for procedures for using unit prices.

1.3 SELECTION AND PURCHASE

- A. At the earliest practical date after award of the Contract, advise the Architect of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.
- B. At Architect's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.
- C. Purchase products and systems selected by Architect from the designated supplier.

1.4 ACTION SUBMITTALS

- A. Submit proposals for purchase of products or systems included in allowances, in the form specified for Change Orders.

1.5 INFORMATIONAL SUBMITTALS

- A. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.
- B. Submit time sheets and other documentation to show labor time and cost for installation of allowance items that include installation as part of the allowance.
- C. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.6 COORDINATION

- A. Coordinate allowance items with other portions of the Work. Furnish templates as required to coordinate installation.

1.7 LUMP-SUM AND QUANTITY ALLOWANCES

- A. Allowance shall include cost to Contractor of specific products and materials approved by Architect under allowance and shall include **taxes**, freight and delivery to Project site.
- B. Unused Materials: Return unused materials purchased under an allowance to manufacturer or supplier for credit to Owner, after installation has been completed and accepted.
 - 1. If requested by Architect, retain and prepare unused material for storage by Owner. Deliver unused material to Owner's storage space as directed.

1.8 ADJUSTMENT OF ALLOWANCES

- A. Allowance Adjustment: To adjust allowance amounts, prepare a Change Order proposal based on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place where applicable. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.
 - 1. Include installation costs in purchase amount only where indicated as part of the allowance.
 - 2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other margins claimed.
 - 3. Submit substantiation of a change in scope of work, if any, claimed in Change Orders related to unit-cost allowances.
 - 4. Owner reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.
- B. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the purchase order amount or Contractor's handling, labor, installation, overhead, and profit.

1. Do not include Contractor's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of work has changed from what could have been foreseen from information in the Contract Documents.
2. No change to Contractor's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.2 PREPARATION

- A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

3.3 SCHEDULE OF ALLOWANCES

- A. Allowance No. 1: Quantity Allowance: Include 15,000 LF of PT 2x6 T&G SYP decking.
- B. Allowance No. 2: Quantity Allowance: Include 1000 lf of 6x12 engineered wood joist.
- C. Allowance No. 3: Lump-Sum Allowance: Include the sum of \$10,000 for unspecified latent conditions that will require repair according to Owner's written instructions.
- D. Allowance No. 4: Contingency Allowance: Include a contingency allowance of 10% of bid for use according to Owner's written instructions.

END OF SECTION 012100

SECTION 012200 - UNIT PRICES

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 unit prices.
- B. Related Requirements:
 - 1. Section 012100 "Allowances" for procedures for submitting and handling Change Orders for quantity and lump sum allowances.

1.3 DEFINITIONS

- A. Unit price is a price per unit of measurement for materials, equipment, or services, or a portion of the Work, added to or deducted from the Contract Sum by appropriate modification, if the scope of Work or estimated quantities of Work required by the Contract Documents are increased or decreased.

1.4 PROCEDURES

- A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.
- B. Measurement and Payment: Measurement and payment for unit prices are specified in Section 012100 "Allowances".
- C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.
- D. List of Unit Prices: A schedule of unit prices is included in Part 3. Specification Sections, if any, referenced in the schedule contain requirements for materials described under each unit price.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF UNIT PRICES

A. Unit Price No. 1: Pressure treated 2x6 southern yellow pine tongue and groove decking.

1. Description: All associated costs of removal and replacement of unsound existing 2x6 (VIF) tongue and groove decking.
2. Unit of Measurement: Linear feet, based on survey of footage removed.
3. Quantity Allowance: Coordinate unit price with allowance adjustment requirements in Section 012100 "Allowances."

B. Unit Price No. 2: 12x6 engineered wood joists.

1. Description: All associated costs of removal and replacement of unsound existing 6x12 (VIF) joists.
2. Unit of Measurement: Linear feet, based on survey of footage removed.
3. Quantity Allowance: Coordinate unit price with allowance adjustment requirements in Section 012100 "Allowances."

End of Section

END OF SECTION 012200

SECTION 012500 - SUBSTITUTION 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 substitutions.

1.3 DEFINITIONS

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
 - 1. Substitutions for Basis of Design Products: Products proposed by the contractor that are substantially identical to those indicated as Basis of Design on the drawings.
 - 2. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
 - 3. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

1.4 ACTION SUBMITTALS

- A. Substitution Requests: Submit one (1) copy of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Substitution Request Form: Submit contractor's standard form for approval prior to submitting for substitutions.
 - 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why basis of design product or fabrication or installation cannot be provided.
 - b. Coordination information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
 - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section.

Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.

- d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples, where applicable or requested.
 - f. Certificates and qualification data, where applicable or requested.
 - g. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
 - h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - i. Research reports evidencing compliance with building code in effect for Project, from 2009 IBC.
 - j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
 - k. Cost information, including a proposal of change, if any, in the Contract Sum.
 - l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
 - m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
- a. Forms of Acceptance: Architect's written acceptance. Note: architect's written acceptance is not an indication that a change order may be submitted.
 - b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.5 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.6 PROCEDURES

- A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

- A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.
 - 1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
 - a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - b. Substitution request is fully documented and properly submitted.
 - c. Requested substitution will not adversely affect Contractor's construction schedule.
- B. Substitutions for Convenience: Not allowed.

PART 3 - EXECUTION (Not Used)

END OF SECTION 012500

SECTION 013300 - 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.

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 "action 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 revisions to submittals noted by 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 startup 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.
 - f. Scheduled date for Architect's final release or approval.
 - g. Scheduled date of fabrication.
 - h. Scheduled dates for purchasing.
 - i. Scheduled dates for installation.
 - j. Activity or event number.

1.5 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

- A. Architect's Digital Data Files: Electronic digital data files of the Contract Drawings will not be provided by Architect for Contractor's use in preparing submittals.
- 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 7 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.
- D. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:

1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
 2. Name file with submittal number or other unique identifier, including revision identifier.
 - a. File name shall use project identifier and Specification Section number followed by a decimal point and then a sequential number (e.g., LNHS-061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., LNHS-061000.01.A).
 3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Architect.
 4. Transmittal Form for Electronic Submittals: Use electronic form acceptable to Owner, containing the following information:
 - a. Project name.
 - b. Date.
 - c. Name and address of Architect.
 - d. Name of Construction Manager.
 - e. Name of Contractor.
 - f. Name of firm or entity that prepared submittal.
 - g. Names of subcontractor, manufacturer, and supplier.
 - h. Category and type of submittal.
 - i. Submittal purpose and description.
 - j. Specification Section number and title.
 - k. Specification paragraph number or drawing designation and generic name for each of multiple items.
 - l. Drawing number and detail references, as appropriate.
 - m. Location(s) where product is to be installed, as appropriate.
 - n. Related physical samples submitted directly.
 - o. Indication of full or partial submittal.
 - p. Transmittal number[, numbered consecutively].
 - q. Submittal and transmittal distribution record.
 - r. Other necessary identification.
 - s. Remarks.
- E. 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.
- F. 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.
- G. Use for Construction: Retain complete copies of submittals on Project site. Use only final action 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 one paper copies of each submittal unless otherwise indicated. Architect will return one copies; contractor shall then copy and distribute executed returns to Owner.
 3. Informational Submittals: Submit one paper copies of each submittal unless otherwise indicated. Architect will not return copies.
 4. 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.
 - a. Provide a digital signature with digital certificate on electronically submitted certificates and certifications where indicated.
 - b. Provide a notarized statement on original paper copy certificates and certifications where indicated.
- 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. Submit Product Data before or concurrent with Samples.
 5. Submit Product Data in the following format:
 - a. 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.
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.
 - g. Seal and signature of professional engineer if specified.
 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 (215 by 280 mm), but no larger than 30 by 42 inches (750 by 1067 mm).
 3. Submit Shop Drawings in the following format:
 - a. PDF electronic file.
- 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.
 - e. Specification paragraph number and generic name of each item.
 3. For projects where electronic submittals are required, provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record.
 4. 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.
 - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
 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 one sets of Samples. Architect will retain one Sample set and return review result electronically.
 - 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 at least three sets of paired units that show approximate limits of variations.

- E. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
 2. Manufacturer and product name, and model number if applicable.
 3. Number and name of room or space.
 4. Location within room or space.
 5. Submit product schedule in the following format:
 - a. PDF electronic file.
- F. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Section 017700 "Closeout Procedures."
- G. Maintenance Data: Comply with requirements specified herein.
- H. 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.
- I. 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 AWS forms. Include names of firms and personnel certified.
- J. 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.
- K. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- 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. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- O. Product Test Reports: Submit written reports indicating that 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.

- 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 digitally signed PDF electronic file 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: See requirements in Section 017700 "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. Action Submittals: Architect will review each submittal, make marks to indicate corrections or revisions required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.

City of Beverly
191 Cabot Street
Beverly, MA 01915

DPW ROOF PROJECT

Architect's PN 15003
July 14, 2016

BTA
28 Vincent Road
Mendon, MA 01756

- B. 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.
- C. Partial submittals shall be discarded without review.
- D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.
- E. Submittals not required by the Contract Documents will be discarded by the Architect without action.

END OF SECTION 013300

SECTION 015000 - 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 Requirements:
 - 1. Section 011000 "Summary" for work restrictions and limitations on utility interruptions.

1.3 USE CHARGES

- A. 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.
- B. Electric Power Service from Existing System: Electric power from Owner's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations
- C. Temporary Heat: The Contractor shall provide and include in his bid all associated costs for temporary heating equipment and fuel necessary and as required for construction operations.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Portable Chain-Link Fencing: Minimum 2-inch (50-mm), 0.148-inch- (3.8-mm-) thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet (1.8 m) high with galvanized-steel pipe posts; minimum 2-3/8-inch- (60-mm-) OD line posts and 2-7/8-inch- (73-mm-) OD corner and pull posts, with 1-5/8-inch- (42-mm-) OD top and bottom rails. Provide concrete or galvanized-steel bases for supporting posts

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.
 - 1. Locate facilities to limit site disturbance as specified in Section 011000 "Summary" and/or per Owner's requirements.
- B. Provide each facility ready for use when needed to avoid delay. Do not remove temporary facilities and controls until they are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 SUPPORT FACILITIES INSTALLATION

- A. Parking: Use Owner-designated areas of Owner's 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 progress cleaning requirements found elsewhere in these documents.

3.3 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.
- B. 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 Section 011000 "Summary."
- C. Temporary Erosion and Sedimentation Control: Comply with requirements of 2003 EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.
- D. Site Enclosure Fence: Before construction operations begin, furnish and install site enclosure fence in a manner that will prevent people and animals from easily entering site except by entrance gates.
 - 1. Extent of Fence: As required to enclose entire Project site or portion determined sufficient to accommodate construction operations and as per Owner.
 - 2. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Furnish one set of keys to Owner

3.4 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of Owner's facilities. To minimize waste and abuse, limit availability of Owner's facilities to essential and intended uses.
- B. 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.
 - 2. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 017700 "Closeout Procedures."

END OF SECTION 015000

SECTION 017700 - 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.
 - 5. Repair of the Work.

1.3 ACTION SUBMITTALS

- A. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.
- B. Certified List of Incomplete Items: Final submittal at Final Completion.

1.4 CLOSEOUT SUBMITTALS

- A. Certificate of Insurance: For continuing coverage.
- B. Record Drawings.

1.5 MAINTENANCE MATERIAL SUBMITTALS

- A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

1.6 SUBSTANTIAL COMPLETION PROCEDURES

- A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.

- B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
1. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.
 2. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 3. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Owner. Label with manufacturer's name and model number where applicable.
- C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
1. Advise Owner of pending insurance changeover requirements.
 2. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 3. Complete final cleaning requirements, including touchup painting.
 4. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. 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.

1.7 FINAL COMPLETION PROCEDURES

- A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:
1. Submit a final Application for Payment.
 2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
 3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
- B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. 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.

1.8 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. Use CSI Form 14.1A.
 1. Organize list of locations in sequential order.
 2. Include the following information at the top of each page:
 - a. Project name.
 - b. Date.
 - c. Name of Architect.
 - d. Name of Contractor.
 - e. Page number.
 3. Submit list of incomplete items in the following format:
 - a. PDF electronic file. Architect will return annotated file.

1.9 SUBMITTAL OF PROJECT WARRANTIES

- A. Time of Submittal: 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, or when delay in submittal of warranties might limit Owner's rights under warranty.
- B. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.
- C. 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.
 1. Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

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 designated 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. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
 - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - e. Remove snow and ice to provide safe access to building.
 - f. 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.
 - g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - h. Sweep concrete floors broom clean in unoccupied spaces.
 - i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.
 - j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials.
 - k. Remove labels that are not permanent.
 - l. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
 - m. Leave Project clean and ready for occupancy.
- C. Construction Waste Disposal: Waste disposal is the sole responsibility of the contractor. The contractor shall provide all means and methods to remove the existing glazing system from the roof to an approved waste container, remove it from the site, and legally dispose it. No debris or other waste shall remain on site in any form at the time of final payment request.

3.2 REPAIR OF THE WORK

- A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.

- B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.
1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
 2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that already show evidence of repair or restoration.
 - a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.

END OF SECTION 017700

**SECTION 028213
ASBESTOS ROOFING ABATEMENT**

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City of Beverly
191 Cabot Street
Beverly, MA 01915

DPW ROOF PROJECT

Architect's PN 15003
July 14, 2016

BTA
28 Vincent Road
Mendon, MA 01756

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ATTACHMENT #3..... **Error! Bookmark not defined.**
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**INSTRUCTIONS TO ARCHITECT/ENGINEER AND INDUSTRIAL HYGIENE CONSULTANT
SECTION**

02 82 13.21

ASBESTOS ROOFING ABATEMENT SPECIFICATIONS

1. These specifications provide general guidance to personnel given the task of designing and executing a Class II roofing abatement project. Each abatement is a unique situation and therefore must be tailored for that project. This specification incorporates current regulatory requirements and current best abatement practices, procedures and technology. The **City of Beverly** and/or the Industrial Hygiene consultants may provide additional specification additions or deletions to this specification that, in their professional judgment, will ensure a safe and effective approach to a specific abatement project while maintaining compliance with applicable regulations and policy. Any changes must be clearly marked on/attached to this document prior to finalization of the specification so that the changes will be adequately considered in the review process.
2. These specifications are to be used in conjunction with Contractor selection criteria and general construction provisions.

PART 1 - GENERAL

1.1 SUMMARY OF THE WORK

1.1.1 CONTRACT DOCUMENTS AND RELATED REQUIREMENTS

Drawings, general provisions of the contract, including general and supplementary conditions and other Division 01 specifications, shall apply to the work of this section. The contract documents show the work to be done under the contract and related requirements and conditions impacting the project. Related requirements and conditions include applicable codes and regulations, notices and permits, existing site conditions and restrictions on use of the site, requirements for partial owner occupancy during the work, coordination with other work and the phasing of the work. In the event the Asbestos Abatement Contractor discovers a conflict in the contract documents and/or requirements or codes, the conflict must be brought to the immediate attention of the Contracting Officer for resolution. Whenever there is a conflict or overlap in the requirements, the most stringent shall apply. Any actions taken by the Contractor without obtaining guidance from the Contracting Officer shall become the sole risk and responsibility of the Asbestos Abatement Contractor. All costs incurred due to such action are also the responsibility of the Asbestos Abatement Contractor.

1.1.2 EXTENT OF WORK

- A. Below is a brief description of the estimated quantities of asbestos roofing materials to be abated. These quantities are for informational purposes only and are based on the best information available at the time of the specification preparation. The Contractor shall satisfy himself as the actual quantities to be abated. Nothing in this section may be interpreted as limiting the extent of work otherwise required by this contract and related documents.
- B. Removal, clean-up and disposal of ACM roofing system in an appropriate regulated area in the following approximate quantities;

(21,000) square feet of roofing system

1.1.3 RELATED WORK

NOT USED

1.1.4 TASKS

The work tasks are summarized briefly as follows:

- A. Pre-abatement activities including pre-abatement meeting(s), inspection(s), notifications, permits, submittal approvals, work-site preparations, emergency procedures arrangements, and standard operating procedures for Class II asbestos abatement work.
- B. Abatement activities including removal, clean-up and disposal of ACM waste, recordkeeping, security, monitoring, and inspections.
- C. Cleaning and decontamination activities including final visual inspection, air monitoring and certification of decontamination.

1.1.5 ABATEMENT CONTRACTOR USE OF PREMISES

- A. The Contractor and Contractor's personnel shall cooperate fully with the OWNER representative/consultant to facilitate efficient use of buildings and areas within buildings. The Contractor shall perform the work in accordance with the OWNER specifications, drawings, phasing plan and in compliance with any/all applicable Federal, State and Local regulations and requirements.
- B. The Contractor shall use the existing facilities in the building strictly within the limits indicated in contract documents as well as the approved OWNER Design and Construction Procedure. OWNER Design and Construction Procedure drawings of partially occupied buildings will show the limits of regulated areas; the placement of decontamination facilities; the temporary location of bagged waste ACM; the path of transport to outside the building; and the temporary waste storage area for each building/regulated area. Any variation from the arrangements shown on drawings shall be secured in writing from the OWNER representative through the pre-abatement plan of action. The following limitations of use shall apply to existing facilities shown on drawings:

1.2 VARIATIONS IN QUANTITY

The quantities and locations of ACM as indicated on the drawings and the extent of work included in this section are estimates which are limited by the physical constraints imposed by occupancy of the buildings. Accordingly, minor variations (+/- 5%) in quantities of ACM within the regulated area are considered as having no impact on contract price and time requirements of this contract. Where additional work is required beyond the above variation, the Contractor shall provide unit prices for additional work that is newly discovered materials and those prices will be used for additional work under the contract.

1.3 STOP ASBESTOS REMOVAL

If the Contracting Officer; their field representative; (the facility Safety Officer/Manager or their designee, or the OWNER Professional Industrial Hygienist/Certified Industrial Hygienist (VPIH/CIH) presents a verbal **Stop Asbestos Removal Order**, the Contractor/Personnel shall

immediately stop all asbestos removal and maintain HEPA filtered negative pressure air flow in the containment and adequately wet any exposed ACM. If a verbal Stop Asbestos Removal Order is issued, the OWNER shall follow-up with a written order to the Contractor as soon as practicable. The Contractor shall not resume any asbestos removal activity until authorized to do so in writing by the OWNER Contracting Officer. A stop asbestos removal order may be issued at any time the OWNER Contracting Officer determines abatement conditions/activities are not within OWNER specification, regulatory requirements or that an imminent hazard exists to human health or the environment. Work stoppage will continue until conditions have been corrected to the satisfaction of the OWNER. Standby time and costs for corrective actions will be borne by the Contractor, including the VPIH/CIH time. The occurrence of any of the following events shall be reported immediately by the Contractor's competent person to the OWNER Contracting Office or field representative using the most expeditious means (e.g., verbal or telephonic), followed up with written notification to the Contracting Officer as soon as it is practical. The Contractor shall immediately stop asbestos removal/disturbance activities and initiate fiber reduction activities:

- A. Airborne PCM analysis results equal to or greater than 0.01 f/cc outside a regulated area or >0.05 f/cc inside a regulated area;
- B. breach or break in regulated area containment barrier(s);
- C. less than -0.02" WCG pressure in the regulated area;
- D. serious injury/death at the site ;
- E. fire/safety emergency at the site ;
- F. respiratory protection system failure;
- G. power failure or loss of wetting agent; or
- H. any visible emissions observed outside the regulated area.

1.4 DEFINITIONS

1.4.1 GENERAL

Definitions and explanations here are neither complete nor exclusive of all terms used in the contract documents, but are general for the work to the extent they are not stated more explicitly in another element of the contract documents. Drawings must be recognized as diagrammatic in nature and not completely descriptive of the requirements indicated therein.

1.4.2 GLOSSARY

Abatement - Procedures to control fiber release from asbestos-containing materials. Includes removal, encapsulation, enclosure, demolition, and renovation activities related to asbestos containing materials (ACM).

Aerosol - Solid or liquid particulate suspended in air.

Adequately wet - Sufficiently mixed or penetrated with liquid to prevent the release of particulates. If visible emissions are observed coming from the ACM, then that material has not been adequately wetted.

Aggressive method - Removal or disturbance of building material by sanding, abrading, grinding, or other method that breaks, crumbles, or disintegrates intact ACM.

Aggressive sampling - EPA AHERA defined clearance sampling method using air moving equipment such as fans and leaf blowers to aggressively disturb and maintain in the air residual fibers after abatement.

AHERA - Asbestos Hazard Emergency Response Act. Asbestos regulations for schools issued in 1987.

Aircell - Pipe or duct insulation made of corrugated cardboard which contains asbestos.

Air monitoring - The process of measuring the fiber content of a known volume of air collected over a specified period of time. The NIOSH 7400 Method, Issue 2 is used to determine the fiber levels in air. For personal samples and clearance air testing using Phase Contrast Microscopy (PCM) analysis. NIOSH Method 7402 can be used when it is necessary to confirm fibers counted by PCM as being asbestos. The AHERA TEM analysis may be used for background, area samples and clearance samples when required by this specification, or at the discretion of the VPIH/CIH as appropriate.

Air sample filter - The filter used to collect fibers which are then counted. The filter is made of mixed cellulose ester membrane for PCM (Phase Contrast Microscopy) and polycarbonate for TEM (Transmission Electron Microscopy)

Amended water - Water to which a surfactant (wetting agent) has been added to increase the penetrating ability of the liquid.

Asbestos - Includes chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, actinolite asbestos, and any of these minerals that have been chemically treated or altered. Asbestos also includes PACM, as defined below.

Asbestos Hazard Abatement Plan (AHAP) - Asbestos work procedures required to be submitted by the contractor before work begins.

Asbestos-containing material (ACM) - Any material containing more than one percent of asbestos.

Asbestos contaminated elements (ACE) - Building elements such as ceilings, walls, lights, or ductwork that are contaminated with asbestos.

Asbestos-contaminated soil (ACS) - Soil found in the work area or in adjacent areas such as crawlspaces or pipe tunnels which is contaminated with asbestos-containing material debris and cannot be easily separated from the material.

Asbestos-containing waste (ACW) material - Asbestos-containing material or asbestos contaminated objects requiring disposal.

Asbestos Project Monitor - Some states require that any person conducting asbestos abatement clearance inspections and clearance air sampling be licensed as an asbestos project monitor.

Asbestos waste decontamination facility - A system consisting of drum/bag washing facilities and a temporary storage area for cleaned containers of asbestos waste. Used as the exit for waste and equipment leaving the regulated area. In an emergency, it may be used to evacuate personnel.

Authorized person - Any person authorized by the OWNER, the Contractor, or government agency and required by work duties to be present in regulated areas.

Authorized visitor - Any person approved by the OWNER; the contractor; or any government agency representative having jurisdiction over the regulated area (e.g., OSHA, Federal and State EPA0..

Barrier - Any surface that isolates the regulated area and inhibits fiber migration from the regulated area.

Containment Barrier - An airtight barrier consisting of walls, floors, and/or ceilings of sealed plastic sheeting which surrounds and seals the outer perimeter of the regulated area.

Critical Barrier - The barrier responsible for isolating the regulated area from adjacent spaces, typically constructed of plastic sheeting secured in place at openings such as doors, windows, or any other opening into the regulated area.

Primary Barrier - Plastic barriers placed over critical barriers and exposed directly to abatement work.

Secondary Barrier - Any additional plastic barriers used to isolate and provide protection from debris during abatement work.

Breathing zone - The hemisphere forward of the shoulders with a radius of about 150 - 225 mm (6 - 9 inches) from the worker's nose.

Bridging encapsulant - An encapsulant that forms a layer on the surface of the ACM.

Building/facility owner - The legal entity, including a lessee, which exercises control over management and recordkeeping functions relating to a building and/or facility in which asbestos activities take place.

Bulk testing - The collection and analysis of suspect asbestos containing materials.

Certified Industrial Hygienist (CIH) - A person certified in the comprehensive practice of industrial hygiene by the American Board of Industrial Hygiene.

Class I asbestos work - Activities involving the removal of Thermal System Insulation (TSI) and surfacing ACM and Presumed Asbestos Containing Material (PACM).

Class II asbestos work - Activities involving the removal of ACM which is not thermal system insulation or surfacing material. This includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastic.

Clean room/Changing room - An uncontaminated room having facilities for the storage of employee's street clothing and uncontaminated materials and equipment.

Clearance sample - The final air sample taken after all asbestos work has been done and visually inspected. Performed by the OWNER's professional industrial hygiene consultant/Certified Industrial Hygienist (VPIH/CIH).

Closely resemble - The major workplace conditions which have contributed to the levels of historic asbestos exposure, are no more protective than conditions of the current workplace.

Competent person - In addition to the definition in 29 CFR 1926.32(f), one who is capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure, who has the authority to take prompt corrective measures to eliminate them, as specified in 29 CFR 1926.32(f); in addition, for Class I and II work who is specially trained in a training course which meets the criteria of EPA's Model Accreditation Plan (40 CFR 763) for supervisor.

Contractor's Professional Industrial Hygienist (CPIH/CIH) - The asbestos abatement contractor's industrial hygienist. The industrial hygienist must meet the qualification requirements of a PIH and may be a certified industrial hygienist (CIH).

Count - Refers to the fiber count or the average number of fibers greater than five microns in length with a length-to-width (aspect) ratio of at least 3 to 1, per cubic centimeter of air.

Crawlspace - An area which can be found either in or adjacent to the work area. This area has limited access and egress and may contain asbestos materials and/or asbestos contaminated soil.

Decontamination area/unit - An enclosed area adjacent to and connected to the regulated area and consisting of an equipment room, shower room, and clean room, which is used for the decontamination of workers, materials, and equipment that are contaminated with asbestos.

Demolition - The wrecking or taking out of any load-supporting structural member and any related razing, removing, or stripping of asbestos products.

OWNER Total - means a building or substantial part of the building is completely removed, torn or knocked down, bulldozed, flattened, or razed, including removal of building debris.

Disposal bag - Typically 6 mil thick sift-proof, dustproof, leak-tight container used to package and transport asbestos waste from regulated areas to the approved landfill. Each bag/container must be labeled/marked in accordance with EPA, OSHA and DOT requirements.

Disturbance - Activities that disrupt the matrix of ACM or PACM, crumble or pulverize ACM or PACM, or generate visible debris from ACM or PACM. Disturbance includes cutting away small amounts of ACM or PACM, no greater than the amount that can be contained in one standard sized glove bag or waste bag in order to access a building component. In no event shall the amount of ACM or PACM so disturbed exceed that which can be contained in one glove bag or disposal bag which shall not exceed 60 inches in length or width.

Drum - A rigid, impermeable container made of cardboard fiber, plastic, or metal which can be sealed in order to be sift-proof, dustproof, and leak-tight.

Employee exposure - The exposure to airborne asbestos that would occur if the employee were not wearing respiratory protection equipment.

Encapsulant - A material that surrounds or embeds asbestos fibers in an adhesive matrix and prevents the release of fibers.

Encapsulation - Treating ACM with an encapsulant.

Enclosure - The construction of an air tight, impermeable, permanent barrier around ACM to control the release of asbestos fibers from the material and also eliminate access to the material.

Equipment room - A contaminated room located within the decontamination area that is supplied with impermeable bags or containers for the disposal of contaminated protective clothing and equipment.

Fiber - A particulate form of asbestos, 5 microns or longer, with a length to width (aspect) ratio of at least 3 to 1.

Fibers per cubic centimeter (f/cc) - Abbreviation for fibers per cubic centimeter, used to describe the level of asbestos fibers in air.

Filter - Media used in respirators, vacuums, or other machines to remove particulate from air.

Firestopping - Material used to close the open parts of a structure in order to prevent a fire from spreading.

Friable asbestos containing material - Any material containing more than one (1) percent or asbestos as determined using the method specified in appendix A, Subpart F, 40 CFR 763, section 1, Polarized Light Microscopy, that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure.

Glovebag - Not more than a 60 x 60 inch impervious plastic bag-like enclosure affixed around an asbestos-containing material, with glove-like appendages through which materials and tools may be handled.

High efficiency particulate air (HEPA) filter - An ASHRAE MERV 17 filter capable of trapping and retaining at least 99.97 percent of all mono-dispersed particles of 0.3 micrometers in diameter.

HEPA vacuum - Vacuum collection equipment equipped with a HEPA filter system capable of collecting and retaining asbestos fibers.

Homogeneous area - An area of surfacing, thermal system insulation or miscellaneous ACM that is uniform in color, texture and date of application.

HVAC - Heating, Ventilation and Air Conditioning

Industrial hygienist (IH) - A professional qualified by education, training, and experience to anticipate, recognize, evaluate and develop controls for occupational health hazards. Meets definition requirements of the American Industrial Hygiene Association (AIHA).

Industrial hygienist technician (IH Technician) - A person working under the direction of an IH or CIH who has special training, experience, certifications and licenses required for the industrial hygiene work assigned. Some states require that an industrial hygienist technician conducting asbestos abatement clearance inspection and clearance air sampling be licensed as an asbestos project monitor.

Intact - The ACM has not crumbled, been pulverized, or otherwise deteriorated so that the asbestos is no longer likely to be bound with its matrix.

Lockdown - Applying encapsulant, after a final visual inspection, on all abated surfaces at the conclusion of ACM removal prior to removal of critical barriers.

National Emission Standards for Hazardous Air Pollutants (NESHAP) - EPA's rule to control emissions of asbestos to the environment (40 CFR Part 61, Subpart M).

Negative initial exposure assessment - A demonstration by the employer which complies with the criteria in 29 CFR 1926.1101 (f)(2)(iii), that employee exposure during an operation is expected to be consistently below the PEL's.

Negative pressure - Air pressure which is lower than the surrounding area, created by exhausting air from a sealed regulated area through HEPA equipped filtration units. OSHA requires maintaining -0.02" water column gauge inside the negative pressure enclosure.

Negative pressure respirator - A respirator in which the air pressure inside the facepiece is negative during inhalation relative to the air pressure outside the respirator facepiece.

Non-friable ACM - Material that contains more than 1 percent asbestos but cannot be crumbled, pulverized, or reduced to powder by hand pressure.

Organic vapor cartridge - The type of cartridge used on air purifying respirators to remove organic vapor hazardous air contaminants.

Outside air - The air outside buildings and structures, including, but not limited to, the air under a bridge or in an open ferry dock.

Owner/operator - Any person who owns, leases, operates, controls, or supervises the facility being demolished or renovated or any person who owns, leases, operates, controls, or supervises the demolition or renovation operation, or both.

Penetrating encapsulant - Encapsulant that is absorbed into the ACM matrix without leaving a surface layer.

Personal protective equipment (PPE) - equipment designed to protect user from injury and/or specific job hazard. Such equipment may include protective clothing, hard hats, safety glasses, and respirators.

Personal sampling/monitoring - Representative air samples obtained in the breathing zone for one or workers within the regulated area using a filter cassette and a calibrated air sampling pump to determine asbestos exposure.

Permissible exposure limit (PEL) - The level of exposure OSHA allows for an 8 hour time weighted average. For asbestos fibers, the eight (8) hour

time weighted average PEL is 0.1 fibers per cubic centimeter (0.1 f/cc) of air and the 30-minute Excursion Limit is 1.0 fibers per cubic centimeter (1 f/cc).

Pipe tunnel - An area, typically located adjacent to mechanical spaces or boiler rooms in which the pipes servicing the heating system in the building are routed to allow the pipes to access heating elements. These areas may contain asbestos pipe insulation, asbestos fittings, or asbestos-contaminated soil.

Polarized light microscopy (PLM) - Light microscopy using dispersion staining techniques and refractive indices to identify and quantify the type(s) of asbestos present in a bulk sample.

Polyethylene sheeting - Strong plastic barrier material 4 to 6 mils thick, semi-transparent, flame retardant per NFPA 241.

Positive/negative fit check - A method of verifying the seal of a facepiece respirator by temporarily occluding the filters and breathing in (inhaling) and then temporarily occluding the exhalation valve and breathing out (exhaling) while checking for inward or outward leakage of the respirator respectively.

Presumed ACM (PACM) - Thermal system insulation, surfacing, and flooring material installed in buildings prior to 1981. If the building owner has actual knowledge, or should have known through the exercise of due diligence that other materials are ACM, they too must be treated as PACM. The designation of PACM may be rebutted pursuant to 29 CFR 1926.1101 (b).

Professional IH - An IH who meets the definition requirements of AIHA; meets the definition requirements of OSHA as a "Competent Person" at 29 CFR 1926.1101 (b); has completed two specialized EPA approved courses on management and supervision of asbestos abatement projects; has formal training in respiratory protection and waste disposal; and has a minimum of four projects of similar complexity with this project of which at least three projects serving as the supervisory IH. The PIH may be either the OWNER's PIH (VPIH) of Contractor's PIH (CPIH/CIH).

Project designer - A person who has successfully completed the training requirements for an asbestos abatement project designer as required by 40 CFR 763 Appendix C, Part I; (B)(5).

Assigned Protection factor - A value assigned by OSHA/NIOSH to indicate the expected protection provided by each respirator class, when the respirator is properly selected and worn correctly. The number indicates the reduction of exposure level from outside to inside the respirator facepiece.

Qualitative fit test (QLFT) - A fit test using a challenge material that can be sensed by the wearer if leakage in the respirator occurs.

Quantitative fit test (QNFT) - A fit test using a challenge material which is quantified outside and inside the respirator thus allowing the determination of the actual fit factor.

Regulated area - An area established by the employer to demarcate where Class I, II, III asbestos work is conducted, and any adjoining area where debris and waste from such asbestos work may accumulate; and a work area within which airborne concentrations of asbestos exceed, or there is a reasonable possibility they may exceed the PEL.

Regulated ACM (RACM) - Friable ACM; Category I non-friable ACM that has become friable; Category I non-friable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading or; Category II non-friable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of the demolition or renovation operation.

Removal - All operations where ACM, PACM and/or RACM is taken out or stripped from structures or substrates, including demolition operations.

Renovation - Altering a facility or one or more facility components in any way, including the stripping or removal of asbestos from a facility component which does not involve demolition activity.

Repair - Overhauling, rebuilding, reconstructing, or reconditioning of structures or substrates, including encapsulation or other repair of ACM or PACM attached to structures or substrates.

Shower room - The portion of the PDF where personnel shower before leaving the regulated area.

Supplied air respirator (SAR) - A respiratory protection system that supplies minimum Grade D respirable air per ANSI/Compressed Gas Association Commodity Specification for Air, G-7.1-1989.

Surfacing ACM - A material containing more than 1 percent asbestos that is sprayed, troweled on or otherwise applied to surfaces for acoustical, fireproofing and other purposes.

Surfactant - A chemical added to water to decrease water's surface tension thus making it more penetrating into ACM.

Thermal system ACM - A material containing more than 1 percent asbestos applied to pipes, fittings, boilers, breeching, tanks, ducts, or other structural components to prevent heat loss or gain.

Transmission electron microscopy (TEM) - A microscopy method that can identify and count asbestos fibers.

OWNER Professional Industrial Hygienist (VPIH/CIH) - The Department of Veterans Affairs Professional Industrial Hygienist must meet the qualifications of a PIH, and may be a Certified Industrial Hygienist (CIH).

OWNER Representative - The OWNER official responsible for on-going project work.

Visible emissions - Any emissions, which are visually detectable without the aid of instruments, coming from ACM/PACM/RACM/ACS or ACM waste material.

Waste/Equipment decontamination facility (W/EDF) - The area in which equipment is decontaminated before removal from the regulated area.

Waste generator - Any owner or operator whose act or process produces asbestos-containing waste material.

Waste shipment record - The shipping document, required to be originated and signed by the waste generator, used to track and substantiate the disposition of asbestos-containing waste material.

Wet cleaning - The process of thoroughly eliminating, by wet methods, any asbestos contamination from surfaces or objects.

1.4.3 REFERENCED STANDARDS ORGANIZATIONS

The following acronyms or abbreviations as referenced in contract/specification documents are defined to mean the associated names. Names and addresses may be subject to change.

- A. AIHA American Industrial Hygiene Association
2700 Prosperity Avenue, Suite 250
Fairfax, VA 22031
703-849-8888
- B. ANSI American National Standards Institute
1430 Broadway

City of Beverly
191 Cabot Street
Beverly, MA 01915

DPW ROOF PROJECT

Architect's PN 15003
July 14, 2016

BTA
28 Vincent Road
Mendon, MA 01756

New York, NY 10018
212-354-3300

- C. ASTM American Society for Testing and Materials
1916 Race St.
Philadelphia, PA 19103
215-299-5400
- D. CFR Code of Federal Regulations
Government Printing Office
Washington, DC 20420
- F. CGA Compressed Gas Association
1235 Jefferson Davis Highway
Arlington, VA 22202
703-979-0900
- E. CS Commercial Standard of the National Institute of Standards and
Technology (NIST)
U. S. Department of Commerce
Government Printing Office
Washington, DC 20420
- F. EPA Environmental Protection Agency
401 M St., SW
Washington, DC 20460
202-382-3949
- G. MIL-STD Military Standards/Standardization Division
Office of the Assistant Secretary of Defense
Washington, DC 20420
- J. NIST National Institute for Standards and Technology
U. S. Department of Commerce
Gaithersburg, MD 20234
301-921-1000
- K. NEC National Electrical Code (by NFPA)
- L. NEMA National Electrical Manufacturer's Association
2101 L Street, NW
Washington, DC 20037
- M. NFPA National Fire Protection Association
1 Batterymarch Park
P.O. Box 9101
Quincy, MA 02269-9101
800-344-3555
- N. NIOSH National Institutes for Occupational Safety and Health
4676 Columbia Parkway

Cincinnati, OH 45226
513-533-8236

O. OSHA Occupational Safety and Health Administration
U.S. Department of Labor
Government Printing Office
Washington, DC 20402

P. UL Underwriters Laboratory
333 Pfingsten Rd.
Northbrook, IL 60062
312-272-8800

1.5 APPLICABLE CODES AND REGULATIONS

1.5.1 GENERAL APPLICABILITY OF CODES, REGULATIONS, AND STANDARDS

- A. All work under this contract shall be done in strict accordance with all applicable Federal, State, and local regulations, standards and codes governing asbestos abatement, and any other trade work done in conjunction with the abatement. All applicable codes, regulations and standards are adopted into this specification and will have the same force and effect as this specification.
- B. The most recent edition of any relevant regulation, standard, document or code shall be in effect. Where conflict among the requirements or with these specifications exists, the most stringent requirement(s) shall be utilized.
- C. Copies of all standards, regulations, codes and other applicable documents, including this specification and those listed in Section 1.5 shall be available at the worksite in the clean change area of the worker decontamination system.

1.5.2 CONTRACTOR RESPONSIBILITY

The Asbestos Abatement Contractor (Contractor) shall assume full responsibility and liability for compliance with all applicable Federal, State and Local regulations related to any and all aspects of the asbestos abatement project. The Contractor is responsible for providing and maintaining training, accreditations, medical exams, medical records, personal protective equipment (PPE) including respiratory protection including respirator fit testing, as required by applicable Federal, State and Local regulations. The Contractor shall hold the OWNER and VPIH/CIH consultants harmless for any Contractor's failure to comply with any applicable work, packaging, transporting, disposal, safety, health, or environmental requirement on the part of himself, his employees, or his subcontractors. The Contractor will incur all costs of the CPIH/CIH, including all sampling/analytical costs to assure compliance with OSHA/EPA/State requirements related to failure to comply with the regulations applicable to the work

1.5.3 FEDERAL REQUIREMENTS

Federal requirements which govern some aspect of asbestos abatement include, but are not limited to, the following regulations.

- A. Occupational Safety and Health Administration (OSHA)
 - 1. Title 29 CFR 1926.1101 - Construction Standard for Asbestos
 - 2. Title 29 CFR 1910.132 - Personal Protective Equipment

3. Title 29 CFR 1910.134 - Respiratory Protection
4. Title 29 CFR 1926 - Construction Industry Standards
5. Title 29 CFR 1910.20 - Access to Employee Exposure and Medical Records
6. Title 29 CFR 1910.1200 - Hazard Communication
7. Title 29 CFR 1910.151 - Medical and First Aid
- B. Environmental Protection Agency (EPA)
 1. 40 CFR 61 Subpart A and M (Revised Subpart B) - National Emission Standard for Hazardous Air Pollutants - Asbestos.
 2. 40 CFR 763.80 - Asbestos Hazard Emergency Response Act (AHERA)
- C. Department of Transportation (DOT)
 - Title 49 CFR 100 - 185 - Transportation

1.5.4 STATE REQUIREMENTS

State requirements that apply to the asbestos abatement work, disposal, clearance, etc., include, but are not limited to, the following: 310 CMR 7.00

1.5.5 LOCAL REQUIREMENTS

If local requirements are more stringent than federal or state standards, the local standards are to be followed. It is the contractor's responsibility to acquire and understand any local requirements.

1.5.6 STANDARDS

- A. Standards which govern asbestos abatement activities include, but are not limited to, the following:
 1. American National Standards Institute (ANSI) Z9.2-79 - Fundamentals Governing the Design and Operation of Local Exhaust Systems and ANSI Z88.2 - Practices for Respiratory Protection.
 2. Underwriters Laboratories (UL)586-90 - UL Standard for Safety of HEPA filter Units, 7th Edition.
- B. Standards which govern encapsulation work include, but are not limited to, the following:
 1. American Society for Testing and Materials (ASTM)
- C. Standards which govern the fire and safety concerns in abatement work include, but are not limited to, the following:
 1. National Fire Protection Association (NFPA) 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations.
 2. NFPA 701 - Standard Methods for Fire Tests for Flame Resistant Textiles and Film.
 3. NFPA 101 - Life Safety Code

1.5.7 EPA GUIDANCE DOCUMENTS

- A. EPA guidance documents which discuss asbestos abatement work activities are listed below. These documents are made part of this section by reference. EPA publications can be ordered from (800) 424-9065.
- B. Guidance for Controlling ACM in Buildings (Purple Book) EPA 560/5-85-024
- C. Asbestos Waste Management Guidance EPA 530-SW-85-007
- D. A Guide to Respiratory Protection for the Asbestos Abatement Industry EPA-560-OPTS-86-001
- E. Guide to Managing Asbestos in Place (Green Book) TS 799 20T July 1990

1.5.8 NOTICES

- A. State and Local agencies: Send written notification as required by state and local regulations including the local fire department prior to beginning any work on ACM.
- B. Copies of notifications shall be submitted to the OWNER for the facility's records at the same time frame notification is given to EPA, State, and Local authorities.

1.5.9 PERMITS/LICENSES

- A. The contractor shall apply for and have all required permits and licenses to perform asbestos abatement work as required by Federal, State, and Local regulations.

1.5.10 POSTING AND FILING OF REGULATIONS

- A. Maintain two (2) copies of applicable federal, state, and local regulations. Post one copy of each at the regulated area where workers will have daily access to the regulations and keep another copy in the Contractor's office.

1.5.11 OWNER RESPONSIBILITIES

Prior to commencement of work:

- A. Notify occupants adjacent to regulated areas of project dates and requirements for relocation, if needed. Arrangements must be made prior to starting work for relocation of desks, files, equipment, and personal possessions to avoid unauthorized access into the regulated area. **Note: Notification of adjacent personnel is required by OSHA in 29 CFR 1926.1101 (k) to prevent unnecessary or unauthorized access to the regulated area.**
- B. Submit to the Contractor results of background air sampling; including location of samples, person who collected the samples, equipment utilized, calibration data and method of analysis. During abatement, submit to the Contractor, results of bulk material analysis and air sampling data collected during the course of the abatement. This information shall not release the Contractor from any responsibility for OSHA compliance.

1.5.12 SITE SECURITY

- A. Regulated area access is to be restricted only to authorized, trained/accredited and protected personnel. These may include the Contractor's employees, employees of Subcontractors, OWNER employees and representatives, State and local inspectors, and any other designated individuals. A list of authorized personnel shall be established prior to commencing the project and be posted in the clean room of the decontamination unit.
- B. Entry into the regulated area by unauthorized individuals shall be reported immediately to the Competent Person by anyone observing the entry. The Competent person shall immediately notify the OWNER.
- C. A log book shall be maintained in the clean room of the decontamination unit. Anyone who enters the regulated area must record their name, affiliation, time in, and time out for each entry.
- D. Access to the regulated area shall be through of a critical barrier doorway. All other access (doors, windows, hallways, etc.) shall be sealed or locked to prevent entry to or exit from the regulated area. The only exceptions for this requirement are the waste/equipment load-out area

which shall be sealed except during the removal of containerized asbestos waste from the regulated area, and emergency exits. Emergency exits shall not be locked from the inside; however, they shall be sealed with poly sheeting and taped until needed.

- E. The Contractor's Competent Person shall control site security during abatement operations in order to isolate work in progress and protect adjacent personnel. A 24 hour security system shall be provided at the entrance to the regulated area to assure that all entrants are logged in/out and that only authorized personnel are allowed entrance.
- F. The Contractor will have the OWNER's assistance in notifying adjacent personnel of the presence, location and quantity of ACM in the regulated area and enforcement of restricted access by the OWNER's employees.
- G. The regulated area shall be locked during non-working hours and secured by OWNER Representative or Competent Person. The OWNER Police should be informed of asbestos abatement regulated areas to provide security checks during facility rounds and emergency response..

1.5.13 EMERGENCY ACTION PLAN AND ARRANGEMENTS

- A. An Emergency Action Plan shall be developed by prior to commencing abatement activities and shall be agreed to by the Contractor and the OWNER. The Plan shall meet the requirements of 29 CFR 1910.38 (a);(b).
- B. Emergency procedures shall be in written form and prominently posted in the clean room and equipment room of the decontamination unit. Everyone, prior to entering the regulated area, must read and sign these procedures to acknowledge understanding of the regulated area layout, location of emergency exits and emergency procedures.
- C. Emergency planning shall include written notification of police, fire, and emergency medical personnel of planned abatement activities; work schedule; layout of regulated area; and access to the regulated area, particularly barriers that may affect response capabilities.
- D. Emergency planning shall include consideration of fire, explosion, hazardous atmospheres, electrical hazards, slips/trips and falls, confined spaces, and heat stress illness. Written procedures for response to emergency situations shall be developed and employee training in procedures shall be provided.
- E. Employees shall be trained in regulated area/site evacuation procedures in the event of workplace emergencies.
 - 1. For non life-threatening situations - employees injured or otherwise incapacitated shall decontaminate following normal procedures with assistance from fellow workers, if necessary, before exiting the regulated area to obtain proper medical treatment.
 - 2. For life-threatening injury or illness, worker decontamination shall take least priority after measures to stabilize the injured worker, remove them from the regulated area, and secure proper medical treatment.
- F. Telephone numbers of any/all emergency response personnel shall be prominently posted in the clean room, along with the location of the nearest telephone.
- G. The Contractor shall provide verification of first aid/CPR training for personnel responsible for providing first aid/CPR. OSHA requires medical assistance within 3-4 minutes of a life-threatening injury/illness. Bloodborne Pathogen training shall also be verified for those personnel required to provide first aid/CPR.

- H. The Emergency Action Plan shall provide for a Contingency Plan in the event that an incident occurs that may require the modification of the standard operating procedures during abatement. Such incidents include, but are not limited to, fire; accident; power failure; negative pressure failure; and supplied air system failure. The Contractor shall detail procedures to be followed in the event of an incident assuring that asbestos abatement work is stopped and wetting is continued until correction of the problem.

1.5.14 PRE-CONSTRUCTION MEETING

Prior to commencing the work, the Contractor shall meet with the Design Team to present and review, as appropriate, the items following this paragraph. The Contractor's Competent Person(s) who will be on-site shall participate in the pre-start meeting. The pre-start meeting is to discuss and determine procedures to be used during the project. At this meeting, the Contractor shall provide:

- A. Proof of Contractor licensing.
- B. Proof the Competent Person is trained and accredited and approved for working in this State. Verification of the experience of the Competent Person shall also be presented.
- C. A list of all workers who will participate in the project, including experience and verification of training and accreditation.
- D. A list of and verification of training for all personnel who have current first-aid/CPR training. A minimum of one person per shift must have adequate training.
- E. Current medical written opinions for all personnel working on-site meeting the requirements of 29 CFR 1926.1101(m).
- F. Current fit-tests for all personnel wearing respirators on-site meeting the requirements of 29 CFR 1926.1101(h) and Appendix C.
- G. A copy of the Contractor's Asbestos Hazard Abatement Plan for Class II Asbestos Abatement. In these procedures, the following information must be detailed, specific for this project.
 - 1. Regulated area preparation procedures;
 - 2. Notification requirements procedure of Contractor as required in 29 CFR 1926.1101(d);
 - 3. If required, decontamination area set-up/layout and decontamination procedures for employees;
 - 4. Abatement methods/procedures and equipment to be used; and
 - 5. Personal protective equipment to be used.
- H. At this meeting the Contractor shall provide all submittals as required.
- I. Procedures for handling, packaging and disposal of asbestos waste.
- J. Emergency Action Plan and Contingency Plan Procedures.

1.6 PROJECT COORDINATION

The following are the minimum administrative and supervisory personnel necessary for coordination of the work.

1.6.1 PERSONNEL

- A. Administrative and supervisory personnel shall consist of a qualified Competent Person(s) as defined by OSHA in the Construction Standards and the Asbestos Construction Standard; Contractor Professional Industrial Hygienist and Industrial Hygiene Technicians. These employees are the

Contractor's representatives responsible for compliance with these specifications and all other applicable requirements.

- B. Non-supervisory personnel shall consist of an adequate number of qualified personnel to meet the schedule requirements of the project. Personnel shall meet required qualifications. Personnel utilized on-site shall be pre-approved by the OWNER representative. A request for approval shall be submitted for any person to be employed during the project giving the person's name; social security number; qualifications; accreditation card with color picture; Certificate of Worker's Acknowledgment; and Affidavit of Medical Surveillance and Respiratory Protection and current Respirator Fit Test.
- C. Minimum qualifications for Contractor and assigned personnel are:
1. The Contractor has conducted within the last three (3) years, three (3) projects of similar complexity and dollar value as this project; has not been cited and penalized for serious violations of federal (and state as applicable) EPA and OSHA asbestos regulations in the past three (3) years; has adequate liability/occurrence insurance for asbestos work as required by the state; is licensed in applicable states; has adequate and qualified personnel available to complete the work; has comprehensive standard operating procedures for asbestos work; and has adequate materials, equipment and supplies to perform the work.
 2. The Competent Person has four (4) years of abatement experience of which two (2) years were as the Competent Person on the project; meets the OSHA definition of a Competent Person; has been the Competent Person on two (2) projects of similar size and complexity as this project within the past three (3) years; has completed EPA AHERA/OSHA/State/Local training requirements/accreditation(s) and refreshers; and has all required OSHA documentation related to medical and respiratory protection.
 3. The Contractor Professional Industrial Hygienist/CIH (CPIH/CIH) shall have five (5) years of monitoring experience and supervision of asbestos abatement projects; has participated as senior IH on five (5) abatement projects, three (3) of which are similar in size and complexity as this project; has developed at least one complete standard operating procedure for asbestos abatement; has trained abatement personnel for three (3) years; has specialized EPA AHERA/OSHA training in asbestos abatement management, respiratory protection, waste disposal and asbestos inspection; has completed the NIOSH 582 Course or equivalent, Contractor/Supervisor course; and has appropriate medical/respiratory protection records/documentation.
 4. The Abatement Personnel shall have completed the EPA AHERA/OSHA abatement worker course; have training on the standard operating procedures of the Contractor; has one year of asbestos abatement experience within the past three (3) years of similar size and complexity; has applicable medical and respiratory protection documentation; and has certificate of training/current refresher and State accreditation/license.

All personnel should be in compliance with OSHA construction safety training as applicable and submit certification

1.7 RESPIRATORY PROTECTION

1.7.1 GENERAL - RESPIRATORY PROTECTION PROGRAM

The Contractor shall develop and implement a written Respiratory Protection Program (RPP) which is in compliance with the January 8, 1998 OSHA requirements found at 29 CFR 1926.1101 and 29 CFR 1910.Subpart I;134. ANSI Standard Z88.2-1992 provides excellent guidance for developing a respiratory protection program. All respirators used must be NIOSH approved for asbestos abatement activities. The written RPP shall, at a minimum, contain the basic requirements found at 29 CFR 1910.134 (c)(1)(i - ix) - Respiratory Protection Program.

1.7.2 RESPIRATORY PROTECTION PROGRAM COORDINATOR

The Respiratory Protection Program Coordinator (RPPC) must be identified and shall have two (2) years experience coordinating RPP of similar size and complexity. The RPPC must submit a signed statement attesting to the fact that the program meets the above requirements.

1.7.3 SELECTION AND USE OF RESPIRATORS

The procedure for the selection and use of respirators must be submitted to the OWNER as part of the Contractor's qualifications. The procedure must be written clearly enough for workers to understand. A copy of the Respiratory Protection Program must be available in the clean room of the decontamination unit for reference by employees or authorized visitors.

1.7.4 MINIMUM RESPIRATORY PROTECTION

Minimum respiratory protection shall be a half face, HEPA filtered, air purifying respirator when fiber levels are maintained consistently at or below 0.1 f/cc. A higher level of respiratory protection may be provided or required, depending on fiber levels. Respirator selection shall meet the requirements of 29 CFR 1926.1101 (h); Table 1, except as indicated in this paragraph. Abatement personnel must have a respirator for their exclusive use.

1.7.5 MEDICAL WRITTEN OPINION

No employee shall be allowed to wear a respirator unless a physician or other licensed health care professional has provided a written determination they are medically qualified to wear the class of respirator to be used on the project while wearing whole body impermeable garments and subjected to heat or cold stress

1.7.6 RESPIRATOR FIT TEST

All personnel wearing respirators shall have a current quantitative fit test which was conducted in accordance with 29 CFR 1910.134 (f) and Appendix A. Fit tests shall be done for PAPRs which have been put into a failure mode.

1.7.7 RESPIRATOR FIT CHECK

The Competent Person shall assure that the positive/negative pressure user seal check is done each time the respirator is donned by an employee.

Head coverings must cover respirator head straps. Any situation that prevents an effective facepiece to face seal as evidenced by failure of a user seal check shall preclude that person from wearing a respirator inside the regulated area until resolution of the problem.

1.7.8 MAINTENANCE AND CARE OF RESPIRATORS

The Respiratory Protection Program Coordinator shall submit evidence and documentation showing compliance with 29 CFR 1910.134 (h) Maintenance and care of respirators.

1.8 WORKER PROTECTION

1.8.1 TRAINING OF ABATEMENT PERSONNEL

Prior to beginning any abatement activity, all personnel shall be trained in accordance with OSHA 29 CFR 1926.1101 (k)(9) and any additional State/Local requirements. Training must include, at a minimum, the elements listed at 29 CFR 1926.1101 (k)(9)(viii). Training shall have been conducted by a third party, EPA/State approved trainer meeting the requirements of EPA 40 CFR 763 Appendix C (AHERA MAP). Initial training certificates and current refresher and accreditation proof must be submitted for each person working at the site.

1.8.2 MEDICAL EXAMINATIONS

Medical examinations meeting the requirements of 29 CFR 1926.1101 (m) shall be provided for all personnel working in the regulated area, regardless of exposure levels. A current physician's written opinion as required by 29 CFR 1926.1101 (m)(4) shall be provided for each person and shall include in the medical opinion the person has been evaluated for working in a heat and cold stress environment while wearing personal protective equipment (PPE) and is able to perform the work without risk of material health impairment.

1.8.3 PERSONAL PROTECTIVE EQUIPMENT

Provide whole body clothing, head coverings, foot coverings and any other personal protective equipment as determined by conducting the hazard assessment required by OSHA at 29 CFR 1910.132 (d). The Competent Person shall ensure the integrity of personal protective equipment worn for the duration of the project. Duct tape shall be used to secure all suit sleeves to wrists and to secure foot coverings at the ankle. Worker protection shall meet the most stringent requirements.

1.8.4 REGULATED AREA ENTRY PROCEDURE

The Competent Person shall ensure that each time workers enter the regulated area, they remove ALL street clothes in the clean room of the decontamination unit and put on new disposable coveralls, head coverings, a clean respirator, and then proceed through the shower room to the equipment room where they put on non-disposable required personal protective equipment.

1.8.5 DECONTAMINATION PROCEDURE

The Competent Person shall require all personnel to adhere to following decontamination procedures whenever they leave the regulated area.

- A. When exiting the regulated area, remove all disposable PPE and dispose of in a disposal bag provided in the regulated area.
- B. Carefully decontaminate and clean the respirator. Put in a clean container/bag.
- C. Where containment is not required for ACM removal, an adequate washing station will be provided for the employees for removal of disposable PPE and to clean the respirator.

1.8.6 REGULATED AREA REQUIREMENTS

The Competent Person shall meet all requirements of 29 CFR 1926.1101 (o) and assure that all requirements for Class I regulated areas at 29 CFR 1926.1101 (e) are met applicable to Class II work. All personnel in the regulated area shall not be allowed to eat, drink, smoke, chew tobacco or gum, apply cosmetics, or in any way interfere with the fit of their respirator.

1.9 DECONTAMINATION FACILITIES

1.9.1 DESCRIPTION:

Provide each regulated area with a fiber drum with a disposal bag in it for personnel waste materials.

1.9.2 WASTE/EQUIPMENT DECONTAMINATION AREA (W/EDA) - The Competent Person shall provide a W/EDA for removal of all waste, equipment and contaminated material from the regulated area.

1.9.3 WASTE/EQUIPMENT DECONTAMINATION PROCEDURES: Contain all waste in 6 mil poly bags. Clean/decontaminate bags and pass through a double 6 mil flap doorway into another bag or fiber drum. Remove to disposal dumpster/gondola/vehicle. At no time shall unprotected personnel from the clean side be allowed to enter the regulated area.

PART 2 - PRODUCTS, MATERIALS AND EQUIPMENT

2.1 MATERIALS AND EQUIPMENT

2.1.1 GENERAL REQUIREMENTS (ALL ABATEMENT PROJECTS)

Prior to the start of work, the contractor shall provide and maintain a sufficient quantity of materials and equipment to assure continuous and efficient work throughout the duration of the project. Work shall not start unless the following items have been delivered to the site and the CPIH/CIH has submitted verification to the OWNER's representative.

- A. All materials shall be delivered in their original package, container or bundle bearing the name of the manufacturer and the brand name (where applicable).
- B. Store all materials subject to damage off the ground, away from wet or damp surfaces and under cover sufficient enough to prevent damage or contamination. Flammable and combustible materials cannot be stored inside buildings. Replacement materials shall be stored outside of the regulated area until abatement is completed.
- C. The Contractor shall not block or hinder use of buildings by patients, staff, and visitors to the OWNER in partially occupied buildings by placing materials/equipment in any unauthorized location.

- D. The Competent Person shall inspect for damaged, deteriorating or previously used materials. Such materials shall not be used and shall be removed from the worksite and disposed of properly.
- E. Polyethylene sheeting for walls in the regulated area shall be a minimum of 4-mils. For floors and all other uses, sheeting of at least 6-mil shall be used in widths selected to minimize the frequency of joints. Fire retardant poly shall be used throughout.
- F. The method of attaching polyethylene sheeting shall be agreed upon in advance by the Contractor and the OWNER and selected to minimize damage to equipment and surfaces. Method of attachment may include any combination of moisture resistant duct tape furring strips, spray glue, staples, nails, screws, lumber and plywood for enclosures or other effective procedures capable of sealing polyethylene to dissimilar finished or unfinished surfaces under both wet and dry conditions.
- G. Polyethylene sheeting utilized for the PDF shall be opaque white or black in color, 6 mil fire retardant poly.
- H. Installation and plumbing hardware, showers, hoses, drain pans, sump pumps and waste water filtration system shall be provided by the Contractor.
- I. An adequate number of HEPA vacuums, scrapers, sprayers, nylon brushes, brooms, disposable mops, rags, sponges, staple guns, shovels, ladders and scaffolding of suitable height and length as well as meeting OSHA requirements, fall protection devices, water hose to reach all areas in the regulated area, airless spray equipment, and any other tools, materials or equipment required to conduct the abatement project. All electrically operated hand tools, equipment, electric cords shall be connected to GFCI protection.
- J. Special protection for objects in the regulated area shall be detailed (e.g., plywood over carpeting or hardwood floors to prevent damage from scaffolds, water and falling material).
- K. Disposal bags - 2 layers of 6 mil poly for asbestos waste shall be pre-printed with labels, markings and address as required by OSHA, EPA and DOT regulations.
- L. The OWNER shall be provided an advance copy of the MSDS as required for all hazardous chemicals under OSHA 29 CFR 1910.1200 - Hazard Communication in the pre-project submittal. Chlorinated compounds shall not be used with any spray adhesive, mastic remover or other product. Appropriate encapsulant(s) shall be provided.
- M. OSHA DANGER demarcation signs, as many and as required by OSHA 29 CFR 1926.1101(k)(7) shall be provided and placed by the Competent Person. All other posters and notices required by Federal and State regulations shall be posted in the Clean Room.
- N. Adequate and appropriate PPE for the project and number of personnel/shifts shall be provided. All personal protective equipment issued must be based on a written hazard assessment conducted under 29 CFR 1910.132(d).

2.2 CONTAINMENT BARRIERS AND COVERINGS IN THE REGULATED AREA

2.2.1 GENERAL

Using critical barriers, seal off the perimeter to the regulated area to completely isolate the regulated area from adjacent spaces. All horizontal surfaces in the regulated area must be covered with 2 layers of 6 mil fire retardant poly to prevent contamination and to facilitate clean-up. Should adjacent areas become contaminated, immediately stop work and clean

up the contamination at no additional cost to the Government. Provide firestopping and identify all fire barrier penetrations due to abatement work as specified in Section 2.2.8; FIRESTOPPING.

2.2.2 PREPARATION PRIOR TO SEALING THE REGULATED AREA

Place all tools, scaffolding, materials and equipment needed for working in the regulated area prior to erecting any plastic sheeting. Remove all uncontaminated removable furniture, equipment and/or supplies from the regulated area before commencing work, or completely cover with 2 layers of 6-mil fire retardant poly sheeting and secure with duct tape. Lock out and tag out any HVAC systems in the regulated area.

2.2.3 CONTROLLING ACCESS TO THE REGULATED AREA

Access to the regulated area is allowed only through the personnel decontamination facility (PDF), if required. All other means of access shall be eliminated and OSHA Danger demarcation signs posted as required by OSHA. If the regulated area is adjacent to or within view of an occupied area, provide a visual barrier of 6 mil opaque fire retardant poly sheeting to prevent building occupant observation. If the adjacent area is accessible to the public, the barrier must be solid.

2.2.4 CRITICAL BARRIERS

Completely separate any openings into the regulated area from adjacent areas using fire retardant poly at least 6 mils thick and duct tape. Individually seal with two layers of 6 mil poly and duct tape all HVAC openings into the regulated area. Individually seal all lighting fixtures, clocks, doors, windows, convectors, speakers, or any other objects in the regulated area. Heat must be shut off any objects covered with poly.

2.2.5 SECONDARY BARRIERS:

A loose layer of 6 mil fire retardant poly shall be used as a drop cloth to protect the floor/horizontal surfaces from debris generated during the Class II work, except for floor tile abatement. This layer shall be replaced as needed during the work.

2.2.6 EXTENSION OF THE REGULATED AREA

If the enclosure of the regulated area is breached in any way that could allow contamination to occur, the affected area shall be included in the regulated area and constructed as per this section. If the affected area cannot be added to the regulated area, decontamination measures must be started immediately and continue until air monitoring indicates background levels are met.

2.2.7 FIRESTOPPING:

- A. Through penetrations caused by cables, cable trays, pipes, sleeves must be firestopped with a fire-rated firestop system providing an air tight seal.
- B. Firestop materials that are not equal to the wall or ceiling penetrated shall be brought to the attention of the OWNER Representative. The Contractor shall list all areas of penetration, the type of sealant used, and whether or not the location is fire rated. Any discovery of penetrations during abatement shall be brought to the attention of the

OWNER Representative immediately. All walls, floors and ceilings are considered fire rated unless otherwise determined by the OWNER Representative or Fire Marshall.

- C. Any visible openings whether or not caused by a penetration shall be reported by the Contractor to the OWNER Representative for a sealant system determination. Firestops shall meet ASTM E814 and UL 1479 requirements for the opening size, penetrant, and fire rating needed.

2.3 MONITORING, INSPECTION AND TESTING

2.3.1 GENERAL

- A. Perform throughout abatement work monitoring, inspection and testing inside and around the regulated area in accordance with the OSHA requirements and these specifications. OSHA requires that the Employee exposure to asbestos must not exceed 0.1 fiber per cubic centimeter (f/cc) of air, averaged over an 8-hour work shift. The CPIH/CIH is responsible for and shall inspect and oversee the performance of the Contractor IH Technician. The IH Technician shall continuously inspect and monitor conditions inside the regulated area to ensure compliance with these specifications. In addition, the CPIH/CIH shall personally manage air sample collection, analysis, and evaluation for personnel, regulated area, and adjacent area samples to satisfy OSHA requirements. Additional inspection and testing requirements are also indicated in other parts of this specification.
- B. The OWNER will employ an independent industrial hygienist (VPIH/CIH) consultant and/or use its own IH to perform various services on behalf of the OWNER. The VPIH/CIH will perform the necessary monitoring, inspection, testing, and other support services to ensure that OWNER patients, employees, and visitors will not be adversely affected by the abatement work, and that the abatement work proceeds in accordance with these specifications, that the abated areas or abated buildings have been successfully decontaminated. The work of the VPIH/CIH consultant in no way relieves the Contractor from their responsibility to perform the work in accordance with contract/specification requirements, to perform continuous inspection, monitoring and testing for the safety of their employees, and to perform other such services as specified. The cost of the VPIH/CIH and their services will be borne by the OWNER except for any repeat of final inspection and testing that may be required due to unsatisfactory initial results. Any repeated final inspections and/or testing, if required, will be paid for by the Contractor.
- C. If fibers counted by the VPIH/CIH during abatement work, either inside or outside the regulated area, utilizing the NIOSH 7400 air monitoring method, exceed the specified respective limits, the Contractor shall stop work. The Contractor may request confirmation of the results by analysis of the samples by TEM. Request must be in writing and submitted to the OWNER's representative. Cost for the confirmation of results will be borne by the Contractor for both the collection and analysis of samples and for the time delay that may/does result for this confirmation. Confirmation sampling and analysis will be the responsibility of the CPIH/CIH with review and approval of the VPIH/CIH. An agreement between the CPIH/CIH and the VPIH/CIH shall be reached on the exact details of the confirmation effort, in writing, including such things as the number of samples, location, collection, quality control on-site, analytical laboratory, interpretation of results and any follow-up actions. This written

agreement shall be co-signed by the IH's and delivered to the OWNER's representative..

2.3.2 SCOPE OF SERVICES OF THE VPIH/CIH CONSULTANT

A. The purpose of the work of the VPIH/CIH is to: assure quality; resolve problems; and prevent the spread of contamination beyond the regulated area. In addition, their work includes performing the final inspection and testing to determine whether the regulated area or building has been adequately decontaminated. All air monitoring is to be done utilizing PCM/TEM. The VPIH/CIH will perform the following tasks:

1. Task 1: Establish background levels before abatement begins by collecting background samples. Retain samples for possible TEM analysis.//
2. Task 2: Perform continuous air monitoring, inspection, and testing outside the regulated area during actual abatement work to detect any faults in the regulated area isolation and any adverse impact on the surroundings from regulated area activities.//
3. Task 3: Perform unannounced visits to spot check overall compliance of work with contract/specifications. These visits may include any inspection, monitoring, and testing inside and outside the regulated area and all aspects of the operation except personnel monitoring.
4. Task 4: Provide support to the OWNER representative such as evaluation of submittals from the Contractor, resolution of unforeseen developments, etc.
5. Task 5: Perform, in the presence of the OWNER representative, final inspection and testing of a decontaminated regulated area or building at the conclusion of the abatement and clean-up work to certify compliance with all regulations and the OWNER requirements/specifications.
6. Task 6: Issue certificate of decontamination for each regulated area or building and project report.

SPEC WRITER NOTE: Buildings which will be totally demolished must have abatement plans approved by the VPIH/CIH consultant and be periodically inspected for compliance. See Section 02 42 00, DEMOLITION.

- B. All documentation, inspection results and testing results generated by the VPIH/CIH will be available to the Contractor for information and consideration. The Contractor shall cooperate with and support the VPIH/CIH for efficient and smooth performance of their work.
- C. The monitoring and inspection results of the VPIH/CIH will be used by the OWNER to issue any Stop Removal orders to the Contractor during abatement work and to accept or reject a regulated area or building as decontaminated.
- D. All air sampling and analysis data will be recorded on a form acceptable to the OWNER or VA Form 10-0018.

2.3.3 MONITORING, INSPECTION AND TESTING BY CONTRACTOR CPIH

The Contractor's CPIH/CIH is responsible for managing all monitoring, inspections, and testing required by these specifications, as well as any and all regulatory requirements adopted by these specifications. The

CPIH/CIH is responsible for the continuous monitoring of all subsystems and procedures which could affect the health and safety of the Contractor's personnel. Safety and health conditions and the provision of those conditions inside the regulated area for all persons entering the regulated area is the exclusive responsibility of the Contractor/Competent Person. The person performing the personnel and area air monitoring inside the regulated area shall be an IH Technician, who shall be trained and shall have specialized field experience in sampling and analysis. The IH Technician shall have successfully completed a NIOSH 582 Course or equivalent and provide documentation. The IH Technician shall participate in the AIHA Asbestos Analysis Registry or participate in the Proficiency Analytic Testing program of AIHA for fiber counting quality control assurance. The IH Technician shall also be an accredited EPA AHERA/State Contractor/Supervisor, Abatement Worker and Building Inspector. The IH Technician shall have participated in five abatement projects collecting personal and area samples as well as responsibility for documentation on substantially similar projects in size and scope. The analytic laboratory used by the Contractor to analyze the samples shall be AIHA accredited for asbestos PAT and approved by the OWNER prior to start of the project. A daily log, shall be maintained by the CPIH/CIH or IH Technician, documenting all OSHA requirements for air personal monitoring for asbestos in 29 CFR 1926.1101(f), (g) and Appendix A. This log shall be made available to the OWNER representative and the VPIH/CIH upon request. The log will contain, at a minimum, information on personnel or area samples, other persons represented by the sample, the date of sample collection, start and stop times for sampling, sample volume, flow rate, and fibers/cc. The CPIH/CIH shall collect and analyze samples for each representative job being done in the regulated area, i.e., removal, wetting, clean-up, and load-out. No fewer than two personal samples per shift shall be collected and one area sample per 1,000 square feet of regulated area where abatement is taking place and one sample per shift in the clean room area shall be collected. In addition to the continuous monitoring required, the CPIH/CIH will perform inspection and testing at the final stages of abatement for each regulated area as specified in the CPIH/CIH responsibilities. Additionally, the CPIH/CIH will monitor and record pressure readings within the containment daily with a minimum of two readings at the beginning and at the end of a shift, and submit the data in the daily report.

2.4 ASBESTOS HAZARD ABATEMENT PLAN

The Contractor shall have established Asbestos Hazard Abatement Plan (AHAP) in printed form and loose leaf folder consisting of simplified text, diagrams, sketches, and pictures that establish and explain clearly the ways and procedures to be followed during all phases of the work by the Contractor's personnel. The AHAP must be modified as needed to address specific requirements of the project. The AHAP shall be submitted for review and approval prior to the start of any abatement work. The minimum topics and areas to be covered by the AHAP(s) are:

- A. Minimum Personnel Qualifications
- B. Contingency Plans and Arrangements
- C. Security and Safety Procedures
- D. Respiratory Protection/Personal Protective Equipment Program and Training
- E. Medical Surveillance Program and Recordkeeping
- F. Regulated Area Requirements for Abatement

- G. Decontamination Facilities and Entry/Exit Procedures (PDF and W/EDF)
- H. Monitoring, Inspections, and Testing
- I. Disposal of ACM waste
- J. Regulated Area Decontamination/Clean-up
- K. Regulated Area Visual and Air Clearance
- L. Project Completion/Closeout

2.5 SUBMITTALS

2.5.1 PRE-START MEETING SUBMITTALS

Submit to the OWNER a minimum of 14 days prior to the pre-start meeting the following for review and approval. Meeting this requirement is a prerequisite for the pre-start meeting for this project:

- A. Submit a detailed work schedule for the entire project reflecting contract documents and the phasing/schedule requirements from the CPM chart.
- B. Submit a staff organization chart showing all personnel who will be working on the project and their capacity/function. Provide their qualifications, training, accreditations, and licenses, as appropriate. Provide a copy of the "Certificate of Worker's Acknowledgment" and the "Affidavit of Medical Surveillance and Respiratory Protection" for each person.
- C. Submit Asbestos Hazard Abatement Plan developed specifically for this project, incorporating the requirements of the specifications, prepared, signed and dated by the CPIH/CIH.
- D. Submit the specifics of the materials and equipment to be used for this project with manufacturer names, model numbers, performance characteristics, pictures/diagrams, and number available for the following:
 - 1. Supplied air system, negative air machines, HEPA vacuums, air monitoring pumps, calibration devices, pressure differential monitoring device and emergency power generating system.
 - 2. Waste water filtration system, shower system, containment barriers.
 - 3. Encapsulants, surfactants, hand held sprayers, airless sprayers, and fire extinguishers.
 - 4. Respirators, protective clothing, personal protective equipment.
 - 5. Fire safety equipment to be used in the regulated area.
- E. Submit the name, location, and phone number of the approved landfill; proof/verification the landfill is approved for ACM disposal; the landfill's requirements for ACM waste; the type of vehicle to be used for transportation; and name, address, and phone number of subcontractor, if used. Proof of asbestos training for transportation personnel shall be provided.
- F. Submit required notifications and arrangements made with regulatory agencies having regulatory jurisdiction and the specific contingency/emergency arrangements made with local health, fire, ambulance, hospital authorities and any other notifications/arrangements.
- G. Submit the name, location and verification of the laboratory and/or personnel to be used for analysis of air and/or bulk samples. Personal air monitoring must be done in accordance with OSHA 29 CFR 1926.1101 (f) and Appendix A. And area or clearance air monitoring in accordance with EPA AHERA protocols.
- H. Submit qualifications verification: Submit the following evidence of qualifications. Make sure that all references are current and verifiable by providing current phone numbers and documentation.

1. Asbestos Abatement Company: Project experience within the past 3 years; listing projects first most similar to this project: Project Name; Type of Abatement; Duration; Cost; Reference Name/Phone Number; Final Clearance; and Completion Date
 2. List of project(s) halted by owner, A/E, IH, regulatory agency in the last 3 years: Project Name; Reason; Date; Reference Name/Number; Resolution
 3. List asbestos regulatory citations (e.g., OSHA), notices of violations (e.g., Federal and state EPA), penalties, and legal actions taken against the company including and of the company's officers (including damages paid) in the last 3 years. Provide copies and all information needed for verification.
- I. Submit information on personnel: Provide a resume; address each item completely; copies of certificates, accreditations, and licenses. Submit an affidavit signed by the CPIH/CIH stating that all personnel submitted below have medical records in accordance with OSHA 29 CFR 1926.1101(m) and 29 CFR 1910.20 and that the company has implemented a medical surveillance program and written respiratory protection program, and maintains recordkeeping in accordance with the above regulations. Submit the phone number and doctor/clinic/hospital used for medical evaluations.
1. CPIH/CIH and IH Technician: Name; years of abatement experience; list of projects similar to this one; certificates, licenses, accreditations for proof of AHERA/OSHA specialized asbestos training; professional affiliations; number of workers trained; samples of training materials; samples of AHAP(s) developed; medical opinion; and current respirator fit test.
 2. Competent Person(s)/Supervisor(s): Number; names; social security numbers; years of abatement experience as Competent Person/Supervisor; list of similar projects in size/complexity as Competent Person/Supervisor; as a worker; certificates, licenses, accreditations; proof of AHERA/OSHA specialized asbestos training; maximum number of personnel supervised on a project; medical opinion (asbestos surveillance and respirator use); and current respirator fit test.
 3. Workers: Numbers; names; social security numbers; years of abatement experience; certificates, licenses, accreditations; training courses in asbestos abatement and respiratory protection; medical opinion (asbestos surveillance and respirator use); and current respirator fit test.
- J. Submit copies of State license for asbestos abatement; copy of insurance policy, including exclusions with a letter from agent stating in plain language the coverage provided and the fact that asbestos abatement activities are covered by the policy; copy of AHAP(s) incorporating the requirements of this specification; information on who provides your training, how often; who provides medical surveillance, how often; who performs and how is personal air monitoring of abatement workers conducted; a list of references of independent laboratories/IH's familiar with your air monitoring and standard operating procedures; and copies of monitoring results of the five referenced projects listed and analytical method(s) used.
- K. Rented equipment must be decontaminated prior to returning to the rental agency.
- L. Submit, before the start of work, the manufacturer's technical data for all types of encapsulants, all MSDS, and application instructions.

2.5.2 SUBMITTALS DURING ABATEMENT

- A. The Competent Person shall maintain and submit a daily log at the regulated area documenting the dates and times of the following: purpose, attendees and summary of meetings; all personnel entering/exiting the regulated area; document and discuss the resolution of unusual events such as barrier breeching, equipment failures, emergencies, and any cause for stopping work; representative air monitoring and results/TWAs/ELs. Submit this information daily to the VPIH/CIH.
- B. The CPIH/CIH shall document and maintain the inspection and approval of the regulated area preparation prior to start of work and daily during work.
 - 1. Removal of any poly barriers.
 - 2. Visual inspection/testing by the CPIH/CIH or IH Technician prior to application of lockdown encapsulant.
 - 3. Packaging and removal of ACM waste from regulated area.
 - 4. Disposal of ACM waste materials; copies of Waste Shipment Records/landfill receipts to the OWNER's representative on a weekly basis.

2.5.3 SUBMITTALS AT COMPLETION OF ABATEMENT

The CPIH/CIH shall submit a project report consisting of the daily log book requirements and documentation of events during the abatement project including Waste Shipment Records signed by the landfill's agent. It will also include information on the containment and transportation of waste from the containment with applicable Chain of Custody forms. The report shall include a certificate of completion, signed and dated by the CPIH/CIH, in accordance with Attachment #1. All clearance and perimeter area samples must be submitted. The OWNER Representative will retain the abatement report after completion of the project and provide copies of the abatement report to OWNER's Engineer and the Safety Office.

PART 3 - EXECUTION

3.1 PRE-ABATEMENT ACTIVITIES

3.1.1 PRE-ABATEMENT MEETING

The OWNER representative, upon receipt, review, and substantial approval of all pre-abatement submittals and verification by the CPIH/CIH that all materials and equipment required for the project are on the site, will arrange for a pre-abatement meeting between the Contractor, the CPIH/CIH, Competent Person(s), the OWNER representative(s), and the VPIH/CIH. The purpose of the meeting is to discuss any aspect of the submittals needing clarification or amplification and to discuss any aspect of the project execution and the sequence of the operation. The Contractor shall be prepared to provide any supplemental information/documentation to the OWNER's representative regarding any submittals, documentation, materials or equipment. Upon satisfactory resolution of any outstanding issues, the OWNER's representative will issue a written order to proceed to the Contractor. No abatement work of any kind described in the following provisions shall be initiated prior to the OWNER written order to proceed.

3.1.2 PRE-ABATEMENT INSPECTIONS AND PREPARATIONS

Before any work begins on the construction of the regulated area, the Contractor will:

- A. Conduct a space-by-space inspection with an authorized OWNER representative and prepare a written inventory of all existing damage in those spaces where asbestos abatement will occur. Still or video photography may be used to supplement the written damage inventory. Document will be signed and certified as accurate by both parties.
- B. The OWNER Representative, the Contractor, and the VPIH/CIH must be aware of an Air Quality Alert indicating the failure to identify asbestos in the areas listed as well as common issues when preparing specifications and contract documents. This is especially critical when demolition is planned, because AHERA surveys are non-destructive, and ACM may remain undetected. A NESHAPS (destructive) ACM inspection should be conducted on all building structures that will be demolished. Ensure the following areas are inspected on the project: Lay-in ceilings concealing ACM; ACM behind walls/windows from previous renovations; inside utility chases/walls; transite piping/ductwork/sheets; behind radiators; lab fume hoods; transite lab countertops; roofing materials; below window sills; water/sewer lines; electrical conduit coverings; crawl spaces(previous abatement contamination); flooring/mastic covered by carpeting/new flooring; exterior insulated wall panels; on underground fuel tanks; steam line trench coverings.
- C. Ensure that all furniture, machinery, equipment, curtains, drapes, blinds, and other movable objects required to be removed from the regulated area have been cleaned and removed or properly protected from contamination.

SPEC WRITER NOTE: Indicate responsible party in charge of decontamination, removal and relocation of regulated area furnishings.

- D. If present and required, remove and dispose of carpeting from floors in the regulated area.
- E. Inspect existing firestopping in the regulated area. Correct as needed.

3.1.3 PRE-ABATEMENT CONSTRUCTION AND OPERATIONS

- A. Perform all preparatory work for the first regulated area in accordance with the approved work schedule and with this specification.
- B. Upon completion of all preparatory work, the CPIH/CIH will inspect the work and systems and will notify the OWNER's representative when the work is completed in accordance with this specification. The OWNER's representative may inspect the regulated area and the systems with the VPIH/CIH and may require that upon satisfactory inspection, the Contractor's employees perform all major aspects of the approved SOP's, especially worker protection, respiratory systems, contingency plans, decontamination procedures, and monitoring to demonstrate satisfactory operation.
- C. The CPIH/CIH shall document the pre-abatement activities described above and deliver a copy to the OWNER's representative.
- D. Upon satisfactory inspection of the installation of and operation of systems the OWNER's representative will notify the Contractor in writing

to proceed with the asbestos abatement work in accordance with this specification.

3.2 REGULATED AREA PREPARATIONS

3.2.1 OSHA DANGER SIGNS

Post OSHA DANGER signs meeting the specifications of OSHA 29 CFR 1926.1101 at any location and approaches to the regulated area where airborne concentrations of asbestos may exceed ambient background levels. Signs shall be posted at a distance sufficiently far enough away from the regulated area to permit any personnel to read the sign and take the necessary measures to avoid exposure. Additional signs will be posted following construction of the regulated area enclosure.

3.2.2 SHUT DOWN - LOCK OUT ELECTRICAL

Shut down and lock out/tag out electric power to the regulated area. Provide temporary power and lighting. Insure safe installation including GFCI of temporary power sources and equipment by compliance with all applicable electrical code requirements and OSHA requirements for temporary electrical systems. Electricity shall be provided by the OWNER.

3.2.3 SHUT DOWN - LOCK OUT HVAC

Shut down and lock out/tag out heating, cooling, and air conditioning system (HVAC) components that are in, supply or pass through the regulated area.

Investigate the regulated area and agree on pre-abatement condition with the OWNER's representative. Seal all intake and exhaust vents in the regulated area with duct tape and 2 layers of 6-mil poly. Also, seal any seams in system components that pass through the regulated area. Remove all contaminated HVAC system filters and place in labeled 6-mil poly disposal bags for disposal as asbestos waste.

3.2.4 SANITARY FACILITIES

The Contractor shall provide sanitary facilities for abatement personnel and maintain them in a clean and sanitary condition throughout the abatement project.

3.2.5 WATER FOR ABATEMENT

The OWNER will provide water for abatement purposes. The Contractor shall connect to the existing OWNER system. The service to the shower(s) shall be supplied with backflow prevention.

3.2.6 PRE-CLEANING MOVABLE OBJECTS

Pre-cleaning of ACM contaminated items shall be performed after the enclosure has been erected and negative pressure has been established in the work area. After items have been pre-cleaned and decontaminated, they may be removed from the work area for storage until the completion of abatement in the work area.

Pre-clean all movable objects within the regulated area using a HEPA filtered vacuum and/or wet cleaning methods as appropriate. After

cleaning, these objects shall be removed from the regulated area and carefully stored in an uncontaminated location.

3.2.7 PRE-CLEANING FIXED OBJECTS

Pre-cleaning of ACM contaminated items shall be performed after the enclosure has been erected and negative pressure has been established in the work area

Pre-clean all fixed objects in the regulated area using HEPA filtered vacuums and/or wet cleaning techniques as appropriate. Careful attention must be paid to machinery behind grills or gratings where access may be difficult but contamination may be significant. Also, pay particular attention to wall, floor and ceiling penetration behind fixed items. After pre-cleaning, enclose fixed objects with 2 layers of 6-mil poly and seal securely in place with duct tape. Objects (e.g., permanent fixtures, shelves, electronic equipment, laboratory tables, sprinklers, alarm systems, closed circuit TV equipment and computer cables) which must remain in the regulated area and that require special ventilation or enclosure requirements should be designated here along with specified means of protection. Contact the manufacturer for special protection requirements.

SPEC WRITER NOTE: Indicate who is responsible for the above pre-cleaning. Control panels, gauges etc., in the regulated area may require OWNER access during abatement. These shall be designated and enclosures constructed with access flaps sealed with waterproof tape.

3.2.8 PRE-CLEANING SURFACES IN THE REGULATED AREA

Pre-cleaning of ACM contaminated items shall be performed after the enclosure has been erected and negative pressure has been established in the work area. PPE must be donned during all pre-cleaning activities.

Pre-clean all surfaces in the regulated area using HEPA filtered vacuums and/or wet cleaning methods as appropriate. Do not use any methods that would raise dust such as dry sweeping or vacuuming with equipment not equipped with HEPA filters. Do not disturb asbestos-containing materials during this pre-cleaning phase.

3.3 CONTAINMENT BARRIERS AND COVERINGS FOR THE REGULATED AREA

3.3.1 GENERAL

Using critical barriers, seal off the perimeter to the regulated area to completely isolate the regulated area from adjacent spaces. All horizontal surfaces in the regulated area must be covered with 2 layers of 6 mil fire retardant poly to prevent contamination and to facilitate clean-up. Should adjacent areas become contaminated, immediately stop work and clean up the contamination at no additional cost to the Government.

3.3.2 PREPARATION PRIOR TO SEALING OFF

Place all tools, scaffolding, materials and equipment needed for working in the regulated area prior to erecting any plastic sheeting. Remove all

uncontaminated removable furniture, equipment and/or supplies from the regulated area before commencing work, or completely cover with 2 layers of 6-mil fire retardant poly sheeting and secure with duct tape. Lock out and tag out any HVAC systems in the regulated area.

3.3.3 CONTROLLING ACCESS TO THE REGULATED AREA

Access to the regulated area is allowed only through the personnel decontamination facility (PDF), if required. All other means of access shall be eliminated and OSHA Danger demarcation signs posted as required by OSHA. If the regulated area is adjacent to or within view of an occupied area, provide a visual barrier of 6 mil opaque fire retardant poly sheeting to prevent building occupant observation. If the adjacent area is accessible to the public, the barrier must be solid.

3.3.4 CRITICAL BARRIERS

Completely separate any openings into the regulated area from adjacent areas using fire retardant poly at least 6 mils thick and duct tape. Individually seal with 2 layers of 6 mil poly and duct tape all HVAC openings into the regulated area. Individually seal all lighting fixtures, clocks, doors, windows, convectors, speakers, or any other objects in the regulated area. Heat must be shut off any objects covered with poly.

3.3.5 EXTENSION OF THE REGULATED AREA

If the enclosure of the regulated area is breached in any way that could allow contamination to occur, the affected area shall be included in the regulated area and constructed as per this section. If the affected area cannot be added to the regulated area, decontamination measures must be started immediately and continue until air monitoring indicates background levels are met.

3.3.6 FLOOR BARRIERS

If floor removal is not being done, all floors in the regulated area shall be covered with 2 layers of 6 mil fire retardant poly and brought up the wall 12 inches.

3.4 REMOVAL OF CLASS II ROOFING

3.4.1 GENERAL

The OWNER must be notified at least 24 hours in advance of any waste removed from the containment. All applicable requirements of OSHA, EPA, and DOT shall be followed during Class II work. Keep materials intact; do not disturb; wet while working with it; wrap as soon as possible with 2 layers of 6 mil plastic for disposal.

3.4.2 OUTDOOR WORK AREAS

On some projects, work must be performed on exterior areas of the building. If outdoor work is to be performed, all applicable OSHA, state and local regulations must be followed to ensure that outdoor work areas are in compliance so that workers, the general public and the environment are protected.

3.4.3 SCAFFOLD FALL PROTECTION

Each employee more than 10 feet above a lower level shall be protected from falls by guardrails or a fall arrest system. Fall arrest system includes harnesses, components of the harness/belt such as Dee-rings, and snap hooks, lifelines, and anchorage points. Lifelines must be independent of supports lines and suspension ropes and not attached to the same anchorage point as the support or suspension rope. OSHA's scaffolding standard defines a competent person as "one who is capable of identifying existing and predictable hazards in the surroundings or working conditions, which are unsanitary, hazardous to employees, and who has authorization to take prompt corrective measures to eliminate them." The competent person will determine if it is safe for employees to work on or from a scaffold or roof during storms or high winds and to ensure that a personal fall arrest system will protect the employees. The competent person will also inspect the scaffold and scaffold components for visible defects before each work shift and after any occurrence which could affect the structural integrity and to authorize prompt corrective measures.

3.4.4 ROOF FALL PROTECTION

The competent person shall determine if the walking/working surfaces on which the employees are to work have the strength and structural integrity to support the employees safely. Each employee on a walking/working surface (horizontal and vertical surface) with an unprotected side or edge which is 6 feet or more above a lower level shall be protected from falling by the use of guardrail systems, safety net systems, or personal fall arrest system.

3.4.5 REMOVAL OF ROOFING

- A. Roofing material shall be removed in an intact state to the extent that it is feasible.
- B. Wet methods shall be used to remove roofing materials that are not intact, or that will be rendered not intact during removal, unless such wet methods are not feasible or will create safety hazards
- C. Cutting machines shall be continuously misted during use, unless a competent person determines that misting substantially decreases worker safe
- D. When removing built-up roofs with asbestos-containing roofing felts and an aggregate surface using a power roof cutter, all dust resulting from the cutting operation shall be collected by a HEPA dust collector, or shall be HEPA vacuumed by vacuuming along the cut line. When removing built-up roofs with asbestos-containing roofing felts and a smooth surface using a power roof cutter, the dust resulting from the cutting operation shall be collected either by a HEPA dust collector or HEPA vacuuming along the cut line, or by gently sweeping and then carefully and completely wiping up the still-wet dust and debris left along the cut line.
- E. Asbestos-containing material that has been removed from a roof shall not be dropped or thrown to the ground. Unless the material is carried or passed to the ground by hand, it shall be lowered to the ground via covered, dust-tight chute, crane or hoist
- F. Any ACM that is not intact shall be lowered to the ground as soon as is practicable, but in any event no later than the end of the work shift. While the material remains on the roof it shall either be kept wet, placed in an impermeable waste bag, or wrapped in plastic sheeting

- G. Intact ACM shall be lowered to the ground as soon as is practicable, but in any event no later than the end of the work shift
- H. Upon being lowered, unwrapped material shall be transferred to a closed receptacle in such manner so as to preclude the dispersion of dust
- I. Roof level heating and ventilation air intake sources shall be isolated or the ventilation system shall be shut down. The sealing of air intake sources shall be coordinated with VA Facility Engineering Personnel and occupant location to ensure acceptable IAQ is maintained within the facility as per ASHRAE Standard 1955.
- J. Notwithstanding any other provision of this section, removal or repair of sections of intact roofing less than 25 square feet in area does not require use of wet methods or HEPA vacuuming as long as manual methods which do not render the material non-intact are used to remove the material and no visible dust is created by the removal method used. In determining whether a job involves less than 25 square feet, the employer shall include all removal and repair work performed on the same roof on the same day.

All waste must be wrapped in two layers of 6 mil poly and lowered carefully to the ground. Roofing may be lowered by way of a dust-tight chute.

3.5 DISPOSAL OF CLASS II WASTE MATERIAL

3.5.1 GENERAL

Dispose of waste ACM and debris which is packaged in accordance with these specifications, OSHA, EPA and DOT. The landfill requirements for packaging must also be met. Transport will be in compliance with 49 CFR 100-185 regulations. Disposal shall be done at an approved landfill. Disposal of non-friable ACM shall be done in accordance with applicable regulations.

3.6 PROJECT DECONTAMINATION

3.6.1 GENERAL

- A. The entire work related to project decontamination shall be performed under the close supervision and monitoring of the CPIH/CIH.
- B. If the asbestos abatement work is in an area which was contaminated prior to the start of abatement, the decontamination will be done by cleaning the primary barrier poly prior to its removal and cleanings of the surfaces of the regulated area after the primary barrier removal.
- C. If the asbestos abatement work is in an area which was uncontaminated prior to the start of abatement, the decontamination will be done by cleaning the primary barrier poly prior to its removal, thus preventing contamination of the building when the regulated area critical barriers are removed.

3.6.2 REGULATED AREA CLEARANCE

Air testing and other requirements which must be met before release of the Contractor and re-occupancy of the regulated area space are specified in Final Testing Procedures.

3.6.3 WORK DESCRIPTION

Decontamination includes the cleaning and clearance of the air in the regulated area and the decontamination and removal of the

enclosures/facilities installed prior to the abatement work including primary/critical barriers, PDF and W/EDF facilities.

3.6.4 PRE-DECONTAMINATION CONDITIONS

- A. Before decontamination starts, all ACM waste from the regulated area shall be removed, all waste collected and removed, and the secondary barrier of poly removal and disposed of along with any gross debris generated by the work.
- B. At the start of decontamination, the following shall be in place:
 - 1. Critical barriers over all openings consisting of two layers of 6 mil poly which is the sole barrier between the regulated area and the rest of the building or outside.
 - 2. Decontamination facilities, if required for personnel and equipment in operating condition.

3.6.5. CLEANING

Carry out a first cleaning of all surfaces of the regulated area including items of remaining poly sheeting, tools, scaffolding, ladders/staging by wet methods and/or HEPA vacuuming. Do not use dry dusting/sweeping/air blowing methods. Use each surface of a wetted cleaning cloth one time only and then dispose of as contaminated waste. Continue this cleaning until there is no visible residue from abated surfaces or poly or other surfaces. Remove all filters in the air handling system and dispose of as ACM waste in accordance with these specifications. The negative pressure system shall remain in operation during this time. Additional cleaning(s) may be needed as determined by the CPIH/VPIH/CIH.

3.7 VISUAL INSPECTION AND AIR CLEARANCE TESTING

3.7.1 GENERAL

Notify the OWNER representative 24 hours in advance for the performance of the final visual inspection and testing. The final visual inspection and testing will be performed by the VPIH/CIH after the cleaning.

3.7.2 VISUAL INSPECTION

Final visual inspection will include the entire regulated area, all poly sheeting, seals over HVAC openings, doorways, windows, and any other openings. If any debris, residue, dust or any other suspect material is detected, the cleaning shall be repeated at no cost to the OWNER. Dust/material samples may be collected and analyzed at no cost to the OWNER at the discretion of the VPIH/CIH to confirm visual findings. When the regulated area is visually clean the final testing can be done.

3.7.3 AIR CLEARANCE TESTING

- A. After an acceptable final visual inspection by the VPIH/CIH and OWNER Representative, the VPIH/CIH will perform the final testing. Air samples will be collected and analyzed in accordance with procedures for PCM in this specification. If the release criteria are not met, the Contractor shall repeat the final cleaning and continue decontamination procedures. **ALL additional inspection and testing will be done at the expense of the Contractor.**

- B. If the results of the PCM are acceptable, remove the critical barriers. Any small quantities of residue material found upon removal of the poly shall be removed with a HEPA vacuum and localized isolation. If significant quantities are found as determined by the VPIH/CIH, then the entire area affected shall be cleaned as specified in the final cleaning.
- C. If release criteria are met, proceed to perform the abatement closeout and to issue the certificate of completion in accordance with these specifications.

3.7.4 FINAL AIR CLEARANCE PROCEDURES

- A. Contractor's Release Criteria: Work in a regulated area is complete when the regulated area is visually clean and airborne fiber levels have been reduced to or below 0.01 f/cc, as measured by PCM methods.
- B. Air Monitoring and Final Clearance Sampling: To determine if the elevated airborne fiber counts encountered during abatement operations have been reduced to the specified level, the VPIH/CIH will secure samples and analyze them according to the following procedures:
 - 1. Fibers Counted: "Fibers" referred to in this section shall be either all fibers regardless of composition as counted in the NIOSH 7400 PCM method.
 - 2. All clearance air testing samples shall be collected on 0.8 μ MCE filters for PCM analysis. Air samples will be collected in areas subject to normal air circulation. A minimum of 5 PCM samples will be collected with at least 1200 Liters of air sampled. All results must be less than 0.01 f/cc for clearance.

3.8 ABATEMENT CLOSEOUT AND CERTIFICATE OF COMPLIANCE

3.8.1 COMPLETION OF ABATEMENT WORK

- A. After thorough decontamination, complete asbestos abatement work upon meeting the regulated area clearance criteria and fulfilling the following:
 - 1. Remove all equipment, materials, and debris from the project area.
 - 2. Package and dispose of all asbestos waste as required.
 - 3. Repair or replace all interior finishes damaged during the abatement work.
 - 4. Fulfill other project closeout requirements as specified elsewhere in this specification.

3.8.2 CERTIFICATE OF COMPLETION BY CONTRACTOR

The CPIH shall complete and sign the "Certificate of Completion" in accordance with Attachment 1 at the completion of the abatement and decontamination of the regulated area.

3.8.3 WORK SHIFTS

All work shall be done during administrative hours (8:00 AM to 4:30 PM) Monday - Friday excluding Federal Holidays. Any change in the work schedule must be approved in writing by the OWNER Representative.

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ATTACHMENT #1

CERTIFICATE OF COMPLETION

DATE: _____ OWNER Project #: _____

PROJECT NAME: _____ Abatement Contractor: _____

OWNER/ADDRESS: _____

1. I certify that I have personally inspected, monitored and supervised the abatement work of (specify regulated area or Building):
which took place from / / to / /
2. That throughout the work all applicable requirements/regulations and the OWNER's specifications were met.
3. That any person who entered the regulated area was protected with the appropriate personal protective equipment and respirator and that they followed the proper entry and exit procedures and the proper operating procedures for the duration of the work.
4. That all employees of the Abatement Contractor engaged in this work were trained in respiratory protection, were experienced with abatement work, had proper medical surveillance documentation, were fit-tested for their respirator, and were not exposed at any time during the work to asbestos without the benefit of appropriate respiratory protection.
5. That I performed and supervised all inspection and testing specified and required by applicable regulations and OWNER specifications.
6. That the conditions inside the regulated area were always maintained in a safe and healthy condition and the maximum fiber count never exceeded 0.5 f/cc, except as described below.
7. That all abatement work was done in accordance with OSHA requirements and the manufacturer's recommendations.

CPIH/CIH Signature/Date: _____

CPIH/CIH Print Name: _____

Abatement Contractor Signature/Date: _____

Abatement Contractor Print Name: _____

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ATTACHMENT #2

CERTIFICATE OF WORKER'S ACKNOWLEDGMENT

PROJECT NAME: _____ DATE: _____

PROJECT ADDRESS: _____

ABATEMENT CONTRACTOR'S NAME: _____

WORKING WITH ASBESTOS CAN BE HAZARDOUS TO YOUR HEALTH. INHALING ASBESTOS HAS BEEN LINKED WITH VARIOUS TYPES OF CANCERS. IF YOU SMOKE AND INHALE ASBESTOS FIBERS, YOUR CHANCES OF DEVELOPING LUNG CANCER IS GREATER THAN THAT OF THE NON-SMOKING PUBLIC.

Your employer's contract with the owner for the above project requires that: You must be supplied with the proper personal protective equipment including an adequate respirator and be trained in its use. You must be trained in safe and healthy work practices and in the use of the equipment found at an asbestos abatement project. You must receive/have a current medical examination for working with asbestos. These things shall be provided at no cost to you. By signing this certificate you are indicating to the owner that your employer has met these obligations.

RESPIRATORY PROTECTION: I have been trained in the proper use of respirators and have been informed of the type of respirator to be used on the above indicated project. I have a copy of the written Respiratory Protection Program issued by my employer. I have been provided for my exclusive use, at no cost, with a respirator to be used on the above indicated project.

TRAINING COURSE: I have been trained by a third party, State/EPA accredited trainer in the requirements for an AHERA/OSHA Asbestos Abatement Worker training course, 32 hours minimum duration. I currently have a valid State accreditation certificate. The topics covered in the course include, as a minimum, the following:

- Physical Characteristics and Background Information on Asbestos
- Potential Health Effects Related to Exposure to Asbestos
- Employee Personal Protective Equipment
- Establishment of a Respiratory Protection Program
- State of the Art Work Practices
- Personal Hygiene
- Additional Safety Hazards
- Medical Monitoring
- Air Monitoring
- Relevant Federal, State and Local Regulatory Requirements, Procedures, and Standards
- Asbestos Waste Disposal

MEDICAL EXAMINATION: I have had a medical examination within the past 12 months which was paid for by my employer. This examination included: health history, occupational history, pulmonary function test, and may have included a chest x-ray evaluation. The physician issued a positive written opinion after the examination.

Signature: _____

Printed Name: _____

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Social Security Number: _____

Witness: _____

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ATTACHMENT #3

AFFIDAVIT OF MEDICAL SURVEILLANCE, RESPIRATORY PROTECTION AND TRAINING/ACCREDITATION

OWNER PROJECT NAME AND NUMBER: _____

OWNER MEDICAL FACILITY: _____

ABATEMENT CONTRACTOR'S NAME AND ADDRESS: _____

1. I verify that the following individual

Name: _____ Social Security Number: _____

who is proposed to be employed in asbestos abatement work associated with the above project by the named Abatement Contractor, is included in a medical surveillance program in accordance with 29 CFR 1926.1101(m), and that complete records of the medical surveillance program as required by 29 CFR 1926.1101 (m)(n) and 29 CFR 1910.20 are kept at the offices of the Abatement Contractor at the following address.

Address: _____

2. I verify that this individual has been trained, fit-tested and instructed in the use of all appropriate respiratory protection systems and that the person is capable of working in safe and healthy manner as expected and required in the expected work environment of this project.

3. I verify that this individual has been trained as required by 29 CFR 1926.1101(k). This individual has also obtained a valid State accreditation certificate. Documentation will be kept on-site.

4. I verify that I meet the minimum qualifications criteria of the OWNER specifications for a CPIH.

Signature of CPIH/CIH: _____ Date: _____

Printed Name of CPIH/CIH: _____

Signature of Contractor: _____ Date: _____

Printed Name of Contractor: _____

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ATTACHMENT #4

ABATEMENT CONTRACTOR/COMPETENT PERSON(S) REVIEW AND ACCEPTANCE OF THE OWNER'S ASBESTOS SPECIFICATIONS

OWNER Project Location: _____

OWNER Project #: _____

OWNER Project Description: _____

This form shall be signed by the Asbestos Abatement Contractor Owner and the Asbestos Abatement Contractor's Competent Person(s) prior to any start of work at the OWNER related to this Specification. If the Asbestos Abatement Contractor's/Competent Person(s) has not signed this form, they shall not be allowed to work on-site.

I, the undersigned, have read OWNER's Asbestos Specification regarding the asbestos abatement requirements. I understand the requirements of the OWNER's Asbestos Specification and agree to follow these requirements as well as all required rules and regulations of OSHA/EPA/DOT and State/Local requirements. I have been given ample opportunity to read the OWNER's Asbestos Specification and have been given an opportunity to ask any questions regarding the content and have received a response related to those questions. I do not have any further questions regarding the content, intent and requirements of the OWNER's Asbestos Specification.

At the conclusion of the asbestos abatement, I will certify that all asbestos abatement work was done in accordance with the OWNER's Asbestos Specification and all ACM was removed properly and no fibrous residue remains on any abated surfaces.

Abatement Contractor Owner's Signature _____ Date _____

Abatement Contractor Competent Person(s) _____ Date _____

- - END- - - -

SECTION 075419 - POLYVINYL-CHLORIDE (PVC) 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. Section Includes:
 - 1. Adhered PVC membrane roofing system
 - 2. Cover board
 - 3. Roof insulation.

1.3 DEFINITIONS

- A. Roofing Terminology: See ASTM D 1079 and glossary in NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.

1.4 PERFORMANCE REQUIREMENTS

- A. General Performance: Installed membrane roofing and base flashings shall withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Membrane roofing and base flashings shall remain watertight.
- B. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by membrane roofing manufacturer based on testing and field experience.
- C. Roofing System Design: Provide membrane roofing system that is identical to systems that have been successfully tested by a qualified testing and inspecting agency to resist uplift pressure calculated according to ASCE/SEI 7.
 - 1. Corner Uplift Pressure: 105 lbf/sq. ft.
 - 2. Perimeter Uplift Pressure: 105 lbf/sq. ft.
 - 3. Field-of-Roof Uplift Pressure: 75 lbf/sq. ft.
- D. FM Approvals Listing: Provide membrane roofing, base flashings, and component materials that comply with requirements in FM Approvals 4450 and FM Approvals 4470 as part of a

membrane roofing system, and that are listed in FM Approvals' "RoofNav" for Class as applicable. Identify materials with FM Approvals markings.

1. Fire/Windstorm Classification: Class 1A-75
2. Hail Resistance: MH.

E. Solar Reflectance Index: Not less than .85 when calculated according to ASTM E 1980, based on testing identical products by a qualified testing agency.

F. Energy Performance: Provide roofing system with initial solar reflectance not less than .85 and emissivity not less than .86 when tested according to CRRC-1.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other work.

1. Base flashings and membrane terminations.
2. Tapered insulation, including slopes and /or non-tapered including slopes.
3. Roof plan showing orientation of membrane roofing and fastening spacings and patterns for mechanically fastened insulation, coverboard and membrane roofing.
4. Insulation fastening patterns for corner, perimeter, and field-of-roof locations.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified Installer and manufacturer.

B. Warranties: Sample of special warranties.

1.7 CLOSEOUT SUBMITTALS

A. Maintenance Data: For roofing system to include in maintenance manuals.

B. Record Drawings: Contractor may use architect's drawings as a base for record drawings.

1.8 QUALITY ASSURANCE

A. Manufacturer Qualifications: A qualified manufacturer that is UL listed & FM Approvals approved for membrane roofing system identical to that used for this Project.

B. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by membrane roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's special warranty.

- C. Exterior Fire-Test Exposure: ASTM E 108, Class C; for application and roof slopes indicated, as determined by testing identical membrane roofing materials by a qualified testing agency. Materials shall be identified with appropriate markings of applicable testing agency.
- D. Fire-Resistance Ratings: Where indicated, provide fire-resistance-rated roof assemblies identical to those of assemblies tested for fire resistance per ASTM E 119 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, approval or listing agency markings, and directions for storing and mixing with other components.
- B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
 - 1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.
- C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.
- D. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

1.10 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.

1.11 WARRANTY

- A. Special Warranty: Manufacturer's standard or customized form, without monetary limitation, in which manufacturer agrees to repair or replace components of membrane roofing system that fail in materials or workmanship within specified warranty period.
 - 1. Special warranty includes membrane roofing, base flashings, roof insulation, fasteners, cover boards, substrate board, roofing accessories, and other components of membrane roofing system.
 - 2. Warranty Period: 15 years from date of Substantial Completion.

- B. Special Project Warranty: Submit roofing Installer's warranty, on warranty form at end of this Section, signed by Installer, covering the Work of this Section, including all components of membrane roofing system such as membrane roofing, base flashing, roof insulation, fasteners, cover boards, substrate boards, vapor retarders, roof pavers, and walkway products, for the following warranty period:
1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PVC MEMBRANE ROOFING

- A. PVC Sheet: ASTM D 4434, Type III, fabric reinforced.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Carlisle SynTec, Incorporated.
 - b. Duro-Last Roofing, Inc.
 - c. GAF Materials Corporation.
 - d. GenFlex Roofing Systems.
 - e. Johns Manville.
 - f. Sarnafil Inc.
 2. Thickness: 60 mils (1.5 mm), nominal.
 3. Exposed Face Color: White

2.2 AUXILIARY MEMBRANE ROOFING MATERIALS

- A. General: Auxiliary membrane roofing materials recommended by roofing system manufacturer for intended use, and compatible with membrane roofing.
1. Liquid-type auxiliary materials shall comply with VOC limits of authorities having jurisdiction.
 2. Adhesives and sealants that are not on the exterior side of weather barrier shall comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
 - a. Plastic Foam Adhesives: 50 g/L.
 - b. Gypsum Board and Panel Adhesives: 50 g/L.
 - c. Multipurpose Construction Adhesives: 70 g/L.
 - d. Fiberglass Adhesives: 80 g/L.
 - e. Single-Ply Roof Membrane Adhesives: 250 g/L.
 - f. Other Adhesives: 250 g/L.
 - g. PVC Welding Compounds: 510 g/L.
 - h. Adhesive Primer for Plastic: 650 g/L.

- i. Single-Ply Roof Membrane Sealants: 450 g/L.
 - j. Nonmembrane Roof Sealants: 300 g/L.
 - k. Sealant Primers for Nonporous Substrates: 250 g/L.
 - l. Sealant Primers for Porous Substrates: 775 g/L.
- B. Sheet Flashing: Manufacturer's standard sheet flashing of same material, type, reinforcement, thickness, and color as PVC sheet membrane.
- C. Bonding Adhesive: Manufacturer's standard.
- D. Slip Sheet: Manufacturer's standard, of thickness required for application.
- E. Metal Termination Bars: Manufacturer's standard, predrilled stainless-steel bars, approximately 1 by 1/8 inch (25 by 3 mm) thick; with anchors.
- F. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening membrane to substrate, and acceptable to membrane roofing system manufacturer.
- G. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, lap sealants, termination reglets, and other accessories.

2.3 SUBSTRATE BOARDS

- A. Substrate Board: ASTM C 1177/C 1177M, glass-mat, water-resistant gypsum substrate, Type X, 5/8 inch (16 mm) thick.
- 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Georgia-Pacific Corporation; Dens Deck.
- B. Substrate Board: ASTM C 1278/C 1278M, cellulosic-fiber-reinforced, water-resistant gypsum substrate, 5/8 inch (16 mm) thick.
- 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. USG Corporation; Securock.
- C. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening substrate board to roof deck.

2.4 ROOF INSULATION

- A. General: Preformed roof insulation boards manufactured or approved by PVC membrane roofing manufacturer, selected from manufacturer's standard sizes suitable for application, of thicknesses indicated and that produce FM Approvals-approved roof insulation.
- B. Extruded-Polystyrene Board Insulation: ASTM C 578, Type IV, 1.6-lb/cu. ft. (26-kg/cu. m) minimum density, square edged.
- C. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, Class I, Grade 3, felt or glass-fiber mat facer on both major surfaces.
- D. Tapered Insulation: Provide factory-tapered insulation boards fabricated to slope of 1/4 inch per 12 inches (1:48) unless otherwise indicated.
- E. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.

2.5 INSULATION ACCESSORIES

- A. General: Furnish roof insulation accessories recommended by insulation manufacturer for intended use and compatibility with membrane roofing.
- B. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening roof insulation and cover boards to substrate, and acceptable to roofing system manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system:
 - 1. Verify that roof openings and penetrations are in place and curbs are set and braced and that roof drain bodies are securely clamped in place.
 - 2. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.

- B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.
- C. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at the end of the workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.
- D. Install acoustical roof deck rib insulation strips, specified in Section 053100 "Steel Decking," according to acoustical roof deck manufacturer's written instructions, immediately before installation of overlying construction and to remain dry.

3.3 SUBSTRATE BOARD

- A. Install substrate board with long joints in continuous straight lines, perpendicular to roof slopes with end joints staggered between rows. Tightly butt substrate boards together.
 - 1. Fasten substrate board to top flanges of deck according to recommendations in FM Approvals' "RoofNav" and FM Global Loss Prevention Data Sheet 1-29 for specified Windstorm Resistance Classification.
 - 2. Fasten substrate board to top flanges of deck to resist uplift pressure at corners, perimeter, and field of roof according to membrane roofing system manufacturers' written instructions.

3.4 INSULATION INSTALLATION

- A. Coordinate installing membrane roofing system components so insulation is not exposed to precipitation or left exposed at the end of the workday.
- B. Comply with membrane roofing system and insulation manufacturer's written instructions for installing roof insulation.
- C. Install tapered insulation under area of roofing to conform to manufacturer's minimum slope for warranty.
- D. Install insulation under area of roofing to achieve required thickness. Where overall insulation thickness is 2.7 inches (68 mm) or greater, install two or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches (150 mm) in each direction. NOTE: MINIMUM THICKNESS OF TAPERED INSULATION IS 4"; ADJUST ROOF EDGE MATERIAL SIZES AND CONDITIONS TO ACCOUNT FOR SLOPE.
- E. Trim surface of insulation where necessary at roof drains so completed surface is flush and does not restrict flow of water.

- F. Install insulation with long joints of insulation in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch (6 mm) with insulation.
 - 1. Cut and fit insulation within 1/4 inch (6 mm) of nailers, projections, and penetrations.
- G. Mechanically Fastened Insulation: Install each layer of insulation and secure to deck using mechanical fasteners specifically designed and sized for fastening specified board-type roof insulation to deck type.
 - 1. Fasten insulation according to requirements in FM Approvals' "RoofNav" for specified Windstorm Resistance Classification.
 - 2. Fasten insulation to resist uplift pressure at corners, perimeter, and field of roof.
- H. Install cover boards over insulation with long joints in continuous straight lines with end joints staggered between rows. Offset joints of insulation below a minimum of 6 inches (150 mm) in each direction. Loosely butt cover boards together and fasten to roof deck.
 - 1. Fasten cover boards according to requirements in FM Approvals' "RoofNav" for specified Windstorm Resistance Classification.
 - 2. Fasten cover boards to resist uplift pressure at corners, perimeter, and field of roof.
- I. Install slip sheet over cover board and immediately beneath membrane roofing as required by membrane manufacturer.

3.5 ADHERED MEMBRANE ROOFING INSTALLATION

- A. Adhere membrane roofing over area to receive roofing and install according to membrane roofing system manufacturer's written instructions.
 - 1. Install sheet according to ASTM D 5036.
- B. Start installation of membrane roofing in presence of membrane roofing system manufacturer's technical personnel.
- C. Accurately align membrane roofing and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.
- D. Bonding Adhesive: Apply to substrate and underside of membrane roofing at rate required by manufacturer and allow to partially dry before installing membrane roofing. Do not apply to splice area of membrane roofing.
- E. In addition to adhering, mechanically fasten membrane roofing securely at terminations, penetrations, and perimeter of roofing.
- F. Apply membrane roofing with side laps shingled with slope of roof deck where possible.

- G. Seams: Clean seam areas, overlap membrane roofing, and hot-air weld side and end laps of membrane roofing and sheet flashings according to manufacturer's written instructions to ensure a watertight seam installation.
 - 1. Test lap edges with probe to verify seam weld continuity. Apply lap sealant to seal cut edges of sheet membrane.
 - 2. Verify field strength of seams a minimum of twice daily and repair seam sample areas.
 - 3. Repair tears, voids, and lapped seams in roofing that does not comply with requirements.
- H. Spread sealant bed over deck drain flange at roof drains and securely seal membrane roofing in place with clamping ring.
- I. Install membrane roofing and auxiliary materials to tie in to existing roofing to maintain weathertightness of transition.

3.6 BASE FLASHING INSTALLATION

- A. Install sheet flashings and preformed flashing accessories and adhere to substrates according to membrane roofing system manufacturer's written instructions.
- B. Apply bonding adhesive to substrate and underside of sheet flashing at required rate and allow to partially dry. Do not apply to seam area of flashing.
- C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.
- D. Clean seam areas, overlap, and firmly roll sheet flashings into the adhesive. Hot-air weld side and end laps to ensure a watertight seam installation.
- E. Terminate and seal top of sheet flashings .

3.7 FIELD QUALITY CONTROL

- A. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion.
- B. Repair or remove and replace components of membrane roofing system where inspections indicate that they do not comply with specified requirements.
- C. Additional inspections, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.8 PROTECTING AND CLEANING

- A. Protect membrane roofing system from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for

deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.

- B. Correct deficiencies in or remove membrane roofing system that does not comply with requirements; repair substrates; and repair or reinstall membrane roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.
- C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

3.9 ROOFING INSTALLER'S WARRANTY (to be completed at time of contract signing)

- A. WHEREAS <Insert name> of <Insert address>, herein called the "Roofing Installer," has performed roofing and associated work ("work") on the following project:
 - 1. Owner: <Insert name of Owner>.
 - 2. Address: <Insert address>.
 - 3. Building Name/Type: <Insert information>.
 - 4. Address: <Insert address>.
 - 5. Area of Work: <Insert information>.
 - 6. Acceptance Date: <Insert date>.
 - 7. Warranty Period: <Insert time>.
 - 8. Expiration Date: <Insert date>.
- B. AND WHEREAS Roofing Installer has contracted (either directly with Owner or indirectly as a subcontractor) to warrant said work against leaks and faulty or defective materials and workmanship for designated Warranty Period,
- C. NOW THEREFORE Roofing Installer hereby warrants, subject to terms and conditions herein set forth, that during Warranty Period he will, at his own cost and expense, make or cause to be made such repairs to or replacements of said work as are necessary to correct faulty and defective work and as are necessary to maintain said work in a watertight condition.
- D. This Warranty is made subject to the following terms and conditions:
 - 1. Specifically excluded from this Warranty are damages to work and other parts of the building, and to building contents, caused by:
 - a. Lightning;
 - b. Peak gust wind speed exceeding 110 mph (m/sec);
 - c. Fire;
 - d. Failure of roofing system substrate, including cracking, settlement, excessive deflection, deterioration, and decomposition;
 - e. Faulty construction of parapet walls, copings, chimneys, skylights, vents, equipment supports, and other edge conditions and penetrations of the work;
 - f. Vapor condensation on bottom of roofing; and

- g. Activity on roofing by others, including construction contractors, maintenance personnel, other persons, and animals, whether authorized or unauthorized by Owner.
2. When work has been damaged by any of foregoing causes, Warranty shall be null and void until such damage has been repaired by Roofing Installer and until cost and expense thereof have been paid by Owner or by another responsible party so designated.
3. Roofing Installer is responsible for damage to work covered by this Warranty but is not liable for consequential damages to building or building contents resulting from leaks or faults or defects of work.
4. During Warranty Period, if Owner allows alteration of work by anyone other than Roofing Installer, including cutting, patching, and maintenance in connection with penetrations, attachment of other work, and positioning of anything on roof, this Warranty shall become null and void on date of said alterations, but only to the extent said alterations affect work covered by this Warranty. If Owner engages Roofing Installer to perform said alterations, Warranty shall not become null and void unless Roofing Installer, before starting said work, shall have notified Owner in writing, showing reasonable cause for claim, that said alterations would likely damage or deteriorate work, thereby reasonably justifying a limitation or termination of this Warranty.
5. During Warranty Period, if original use of roof is changed and it becomes used for, but was not originally specified for, a promenade, work deck, spray-cooled surface, flooded basin, or other use or service more severe than originally specified, this Warranty shall become null and void on date of said change, but only to the extent said change affects work covered by this Warranty.
6. Owner shall promptly notify Roofing Installer of observed, known, or suspected leaks, defects, or deterioration and shall afford reasonable opportunity for Roofing Installer to inspect work and to examine evidence of such leaks, defects, or deterioration.
7. This Warranty is recognized to be the only warranty of Roofing Installer on said work and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to Owner in cases of roofing failure. Specifically, this Warranty shall not operate to relieve Roofing Installer of responsibility for performance of original work according to requirements of the Contract Documents, regardless of whether Contract was a contract directly with Owner or a subcontract with Owner's General Contractor.

E. IN WITNESS THEREOF, this instrument has been duly executed this <Insert day> day of <Insert month>, <Insert year>.

1. Authorized Signature: <Insert signature>.
2. Name: <Insert name>.
3. Title: <Insert title>.

END OF SECTION 075419

SECTION 221423 - STORM DRAINAGE PIPING SPECIALTIES

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. Roof drains.
 - 2. Miscellaneous storm drainage piping specialties.
 - 3. Flashing materials.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.

1.4 QUALITY ASSURANCE

- A. Drainage piping specialties shall bear label, stamp, or other markings of specified testing agency.

PART 2 - PRODUCTS

2.1 METAL ROOF DRAINS

- A. Cast-Iron, Large-Sump, General-Purpose Roof Drains:
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Zurn or comparable product by one of the following:
 - a. Josam Company.
 - b. Marathon Roofing Products.
 - c. MIFAB, Inc.
 - d. Smith, Jay R. Mfg. Co.
 - e. Tyler Pipe.
 - f. Watts Water Technologies, Inc.
 - 2. Standard: ASME A112.6.4, for general-purpose roof drains.

3. Body Material: Cast iron.
4. Dimension of Body: Match existing diameter.
5. Dome Material: Cast iron.

2.2 FLASHING MATERIALS

- A. Elastic Membrane Sheet: ASTM D 4068, flexible, chlorinated polyethylene, 40-mil (1.01-mm) minimum thickness.
- B. Fasteners: Metal compatible with material and substrate being fastened as indicated on drawings.
- C. Metal Accessories: Sheet metal strips, clamps, anchoring devices, and similar accessory units required for installation; matching or compatible with material being installed.
- D. Solder: ASTM B 32, lead-free alloy.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install roof drains at low points of roof areas according to roof membrane manufacturer's written installation instructions.
 1. Install flashing collar or flange of roof drain to prevent leakage between drain and adjoining roofing. Maintain integrity of waterproof membranes where penetrated.
 2. Install expansion joints, if indicated, in roof drain outlets.
 3. Position roof drains for easy access and maintenance.

3.2 CONNECTIONS

- A. Comply with requirements for piping specified in Section 221413 "Facility Storm Drainage Piping." Drawings indicate general arrangement of piping, fittings, and specialties.

3.3 PROTECTION

- A. Protect drains during remainder of construction period to avoid clogging with dirt or debris and to prevent damage from traffic or construction work.
- B. Place plugs in ends of uncompleted piping at end of each day or when work stops.

END OF SECTION 221423

#	POUND OR NUMBER
&	AND
@	AT
ACT	ACOUSTIC CEILING TILE
AD	AREA DRAIN
AFF	ABOVE FINISHED FLOOR
ALUM	ALUMINUM
ANOD	ANODIZED
BSMT	BASEMENT
BYND	BEYOND
BOT	BOTTOM
BUR	BUILT UP ROOF
CIP	CAST IN PLACE
CHNL	CHANNEL
CJ	CONTROL JOINT
CLG	CEILING
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
COMPR	COMPRESSIBLE
CONC	CONCRETE
CONT	CONTINUOUS
CPT	CARPET
CT	CERAMIC TILE
CTYD	COURTYARD
DBL	DOUBLE
DEMO	DEMOLISH
DIA	DIAMETER
DIMS	DIMENSIONS
DN	DOWN
DR	DOOR
DWG	DRAWING
EA	EACH
EL	ELEVATION
ELEC	ELECTRICAL
ELEV	ELEVATOR/ELEVATION
EPDM	ETHYLENE PROPYLENE DIENE
EQ	EQUAL
EXIST	EXISTING
EXP JT	EXPANSION JOINT
EXT	EXTERIOR
FD	FIRE DEPARTMENT
FLOOR	FLOOR DRAIN
FEC	FIRE EXTINGUISHER CABINET
FIXT	FIXTURE
FLR	FLOOR
FM	FILLED METAL
FO	FACE OF
FND	FOUNDATION
GA	GAUGE
GALV	GALVANIZED
GWB	GYPSUM WALL BOARD
HC	HOLLOW CORE
HI	HIGH
HM	HOLLOW METAL
HP	HIGH POINT
HR	HOOR
HVAC	HEATING, VENTILATING, AND AIR CONDITIONING
IRGWB	IMPACT RESISTANT GYPSUM WALLBOARD
IPO	IN PLACE OF
INSUL	INSULATED
INT	INTERIOR
MAX	MAXIMUM
MO	MASONRY OPENING
MECH	MECHANICAL
MEMB	MEMBRANE
MIN	MINIMUM
MRGWB	MOISTURE-RESISTANT GYPSUM WALL BOARD
MTL	METAL
NIC	NOT IN CONTRACT
NO	NUMBER
NOM	NOMINAL
OC	ON CENTER
OH	OPPOSITE HAND
OZ	OUNCE
PCC	PRE-CAST CONCRETE
PLUMB	PLUMBING
PLYD	PLYWOOD
PT	PRESSURE TREATED
PNT	PAINT/PAINTED
PVC	POLYVINYL CHLORIDE
RBR	RUBBER
RCP	REFLECTED CEILING PLAN
RD	ROOF DRAIN
REQD	REQUIRED
RM	ROOM
SIM	SIMILAR
SPEC	SPECIFIED OR SPECIFICATION
SPK	SPRINKLER
SS	STAINLESS STEEL
STC	SOUND TRANSMISSION COEFFICIENT
STL	STEEL
STRUCT	STRUCTURAL
SYP	SOUTHERN YELLOW PINE
T&G	TONGUE AND GROOVE
TEL	TELEPHONE
TLT	TOILET
TO	TOP OF
TOC	TOP OF CONCRETE
TOS	TOP OF STEEL
TP	TOILET PAPER DISPENSER
T/D	TELEPHONE/DATA
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
U/S	UNDERSIDE
VIF	VERIFY IN FIELD
VP	VISION PANEL
W/	WITH
WD	WOOD

ARCHITECTURAL

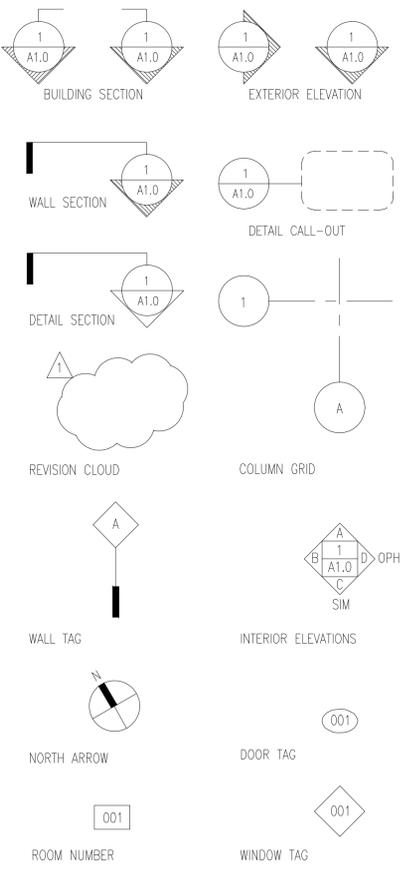
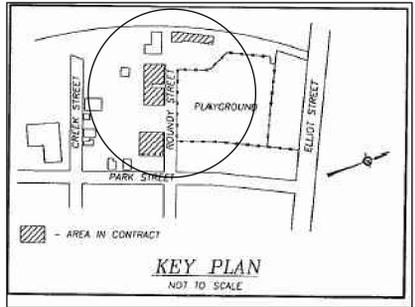
COVER SHEET
A1.0 ROOF PLAN AND DETAILS
A2.0 ROOF DETAILS
A3.0 ROOF PLAN AND DETAILS
A4.0 ROOF PLAN AND DETAILS

MSBC CODE SUMMARY 2009 IBC

CHAPTER 34--REROOF FOR 2 PARTIAL B/ OCCUPANCIES AND 1 S1 OCCUPANCY

NEW SINGLE PLY PVC MEMBRANE ROOF:
110 BASIC WIND SPEED
Uplift Calculations:
75 LBS/SF FIELD
105 LBS/SF PERIMETER AND CORNER

FULLY ADHERED SYSTEM OVER MECHANICALLY FASTENED GLASS-FACED COVER BOARD AND EITHER 4" EXTRUDED POLYSTYRENE OR MIN. 4" TAPERED POLYISOCYANURATE OVER 2" NOM. T&G RANDOM LAYUP WOOD DECKING.



- General Notes:
- PROJECT INCLUDES CLASS II ASBESTOS ABATEMENT; REFER TO SPECIFICATION SECTION 028213 IN THE PROJECT MANUAL.
 - The contractor shall field verify existing conditions against the project documents prior to submitting his bid. It is the contractor's sole responsibility to verify his assumptions prior to submitting his bid. Proposed Change Orders for work required to complete the scope described by the project documents, but not included in or field verified prior to submission of his bid, will be rejected.
 - If a conflict arises between the construction documents and the Contractor's customary procedure or a manufacturer's specifications and/or instructions, it must be brought to the Architect's attention in writing. Specific drawing and/or detail numbers and specification sections must be cited. The Architect shall be the final arbiter on which specification and/or procedure/instruction the Contractor shall follow. No work in question shall commence prior to the Contractor's receipt of the Architect's written direction.
 - All requests for clarification or information must be submitted in writing, and must cite specific drawing and/or detail numbers or specification sections; the Contractor must be in receipt of the Architect's written response prior to execution of any work in question. Field discussions, comments and statements do not constitute approval or direction to proceed under any circumstances.
 - All work noted as non-compliant in a Field Report, Project Memo or Punch List shall be made compliant within seven (7) days and approved in writing by the Architect prior to resumption of similar work, or prior to inclusion on form G702. Delay claims based on time spent to perform remedial work shall be rejected.
 - No work of any kind, including mobilization, may commence until all required preliminary submittals have been reviewed and approved by the Architect; no work within a specified section of the project documents may commence until all submittals from that section have been reviewed and approved by the Architect.
 - All proposed service interruptions must be approved by the Owner or Building Manager 48 hours in advance. All service interruptions shall be minimized to the greatest extent possible.
 - The building shall be made secure and weather tight at the end of each work period, or if inclement weather threatens. Any damages, including those to interior finishes, due to lack of protection or construction activities, shall be repaired or replaced by the contractor at the Owner's discretion, and at no cost to the Owner or Architect.
 - Drive pins are not to be used on the project unless approved in writing by the Architect. There shall be no exposed fasteners on the project UNLESS OTHERWISE NOTED. All exterior fasteners shall be stainless steel.
 - All products to be used on the project must be submitted and approved in writing before delivery to the site.
 - Warranties: all products shall carry the manufacturer's most comprehensive warranty available. All work, including testing, inspections, mockups and samples shall be executed, scheduled, organized and submitted by the contractor as part of the contract at no cost to the Owner or Architect.
 - Colors: all colors for all materials shall be chosen by the Architect or Owner. Full sample sets of stock colors shall be submitted for each material and/or color. If manufacturer's sample substrates do not match project substrates, the contractor shall apply colors to sample substrates that do match project substrates prior to submission. If custom colors are required, the above submittal requirements along with the mixing formula shall be submitted.
 - Attic Stock: attic stock shall be provided for all paint materials and membrane U.N.O. or approved in writing by the architect. All attic stock shall have a visible manufacturing date printed on its container; all attic stock manufacturing dates shall be within 6 months of the warranty date U.N.O. or approved by the Architect. All attic stock shall be provided in undamaged, unopened containers and shall equal 10% of the quantity installed for the project U.N.O. or approved in writing by the Architect.
 - DO NOT SCALE DRAWINGS, especially for accurate material quantity take-offs; notes describing sizes supersede any scaled sizes.

- Sealant Notes:
- Dow 790 silicone sealant shall be approved for this project. Sealant color shall match the finish color of the material(s) being sealed. In the event two differently colored adjacent materials require sealant, consult with the architect for color selection. The project requires a 20 year warranty for sealants. All manufacturer performed field testing must be complete with passing results verified in writing prior to permanent installation of sealant joints.
 - Only closed cell backer rod shall be approved for single stage joints on this project. Bi-cellular foam rods will be rejected. Backer rod shall be installed with a gauge to ensure it is placed at a uniform distance from face of substrates. Do not puncture, fold, over-compress or cut backer rod lengthwise. Sealant shall be tooled to provide a consistent, smooth, slightly concave appearance.
 - All sealant joints shall be adhered on only 2-sided and shall be of consistent 2:1 (W:X) aspect.
 - Sealant joints shall be randomly field tested at the Architect's and manufacturer's discretion. All joints removed for testing shall be replaced by the contractor at no cost to the Owner or Architect. Only a reasonable and necessary number of joints will be tested; however, frequent failures in joint construction, aspect or performance shall increase the number of tested joints.

- Wood Framing Notes:
- All wood shall be pressure treated. Decking shall be 2X6 pressure treated tongue and groove installed per the drawings.
 - All blocking materials shall be minimum 1-1/2" thick and shall be secured with minimum 3" ss screws as indicated on the drawings.
 - All exposed framing shall be painted; all exposed framing joints shall be tight, sealed and finished to provide a continuous, unbroken surface.
 - All equipment, accessories, fixtures and devices shall be mounted on PT blocking or curbs as indicated on the drawings. All blocking shall be prepared, primed and painted per the drawings.

- Flashing Notes:
- All discreet flashing profiles shall match; for example, all roof drip edge profiles shall match, all head flashing profiles shall match. No exceptions.
 - All flashing shall be as noted on the drawings and specifications. All exposed flashing shall be per approved manufacturer's details, and shall be continuous without holes, open ends or gaps. All metal corners and miters shall be shop formed and welded if possible. All flashing shall be lapped to shed water via gravity. All flashing edges shall be terminated with continuous hook and cleat if exposed, or if concealed, with liquid membrane. All cleats and hooks shall be 1" min. All cleats shall be adhered to substrates with minimum 1" wide double-sided butyl tape, and fastened at 8" O.C. with oval head #8-32 stainless steel screws and pre-drilled anchors.
 - All fasteners used to install flashing shall be concealed, installed on non-horizontal surfaces, shall be stainless steel in predrilled anchors, and shall be oval head UNO or approved by the Architect.
 - All metal flashing, including pans and end dams, shall be under-laid with an appropriate, continuous membrane. Membrane flashing shall be installed to bridge no greater than a 3/8" gap. All gaps exceeding 3/8" shall be filled with closed cell polyurethane spray foam, cut flush, to support the membrane.
 - All exposed draining edges of metal flashing shall be terminated at a 45 degree 1" wide hem/hook and continuous cleat. All cleats shall be adhered to substrates with minimum 1" wide double-sided butyl tape, and fastened at 8" O.C. with oval head #8-32 stainless steel screws and pre-drilled anchors.
 - Metal flashing and drip edges shall be pinned in place with minimum two oval head #8-32 304 STAINLESS steel screws and predrilled anchors to maintain alignment while membrane counter flashing is installed. Screws used for pinning and alignment shall be installed on non-horizontal surfaces.
 - All metal flashing pans and end dams shall have minimum 3" high sides and shall be mechanically terminated. All metal flashing pans shall have soldered corners. All flashing shall be interrupted by mechanical loose-lock expansion joints at < 20'-0" O.C.; all other joints shall be riveted.
 - All flashing changes in direction or elevation shall be continuous, lapped 3" minimum, sealed with silicone and riveted.
 - All exposed flashing edges shall be hemmed or hooked onto a continuous cleat. No sheared edges shall be left exposed. Open ends of hooks and hems shall be closed by folded over tab.
 - ALL PENETRATIONS (CONDUITS, DUCTS, PIPES, STACKS) SHALL BE REMOVED TO MIN. 3" BELOW DECKING AND REPLACED WITH COMPATIBLE, APPROVED MATERIALS.

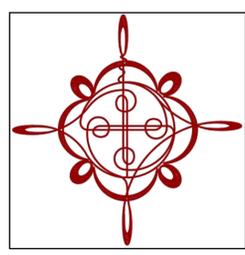
PROJECT:

DPW ROOF PROJECT 148 PARK STREET BEVERLY, MA

CLIENT:

CITY OF BEVERLY, MA

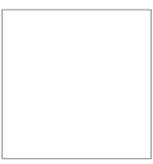
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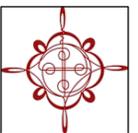


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ISSUE: BIDDING

ISSUE DATE: 07/14/2016





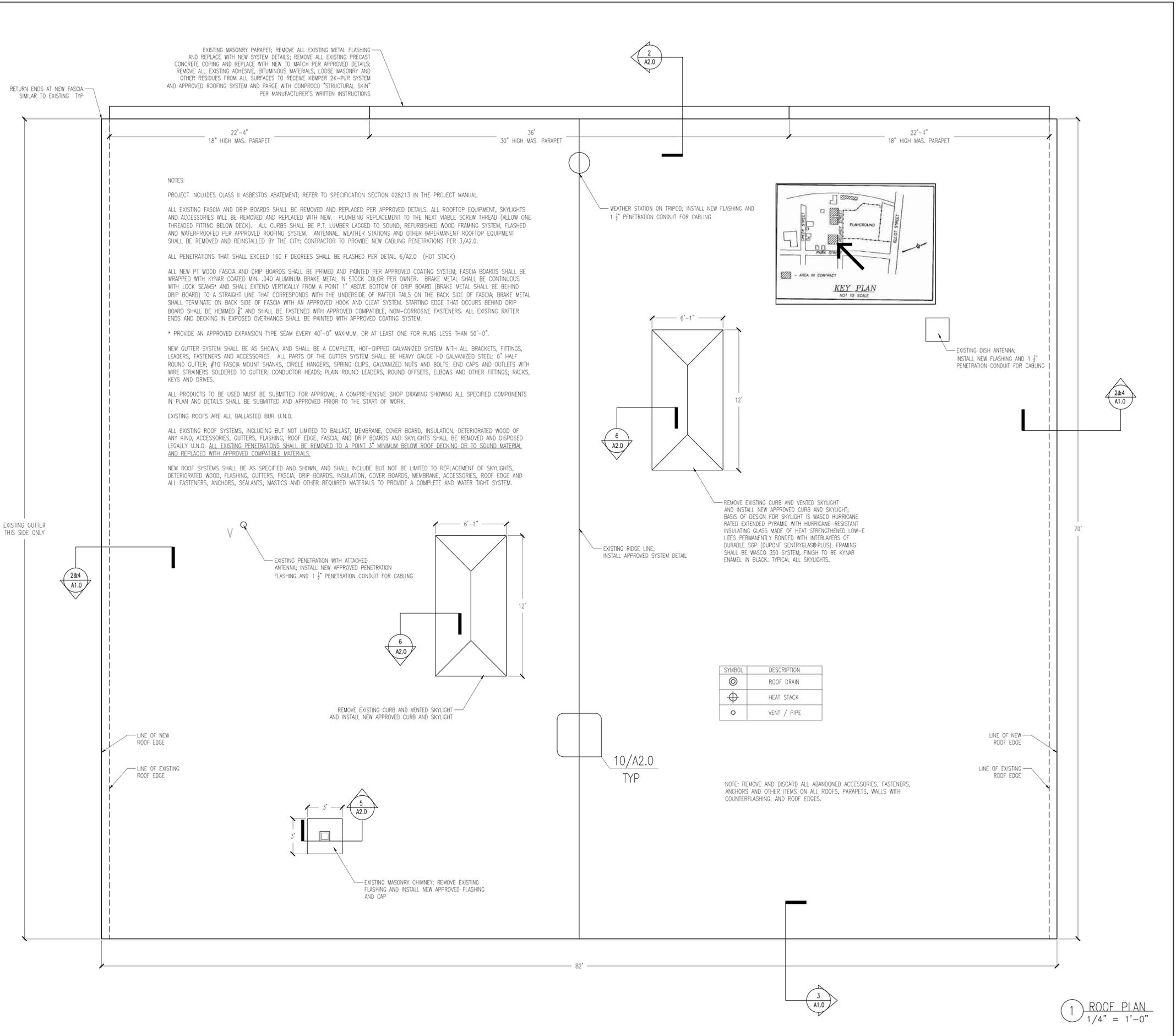
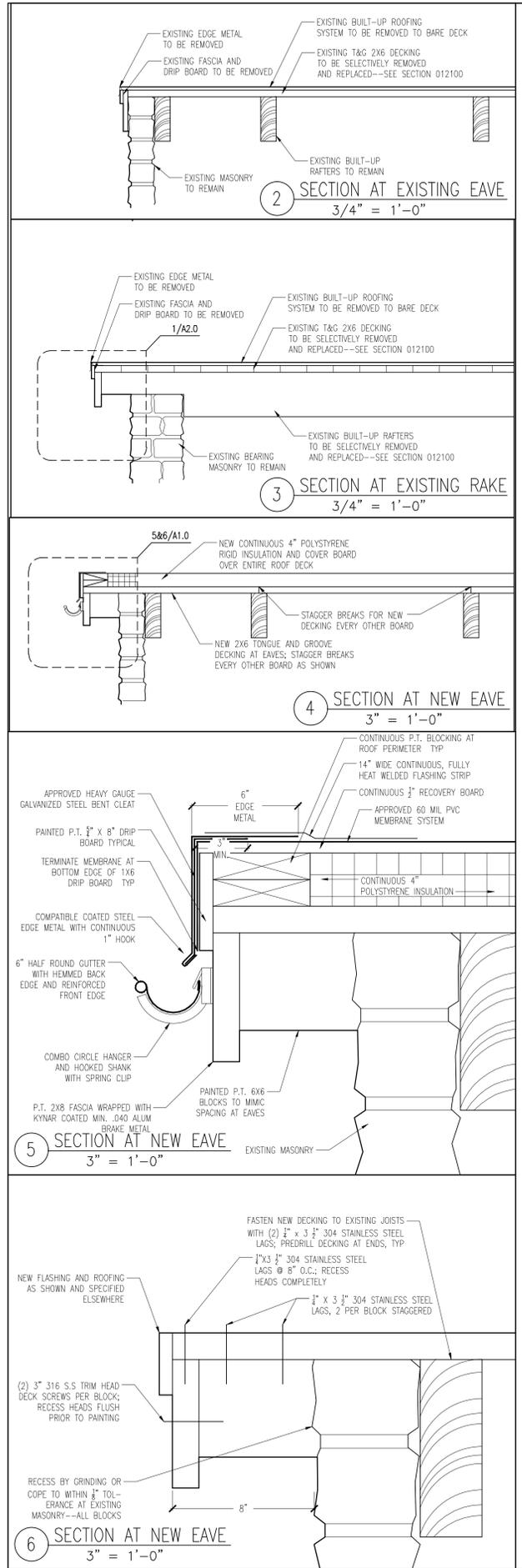
B T A
BRETT THIBAUT ARCHITECT
28 VINCENT ROAD
MENDON, MA 01756
(508) 634 8401

DPW ROOFS
148 PARK STREET
BEVERLY, MASSACHUSETTS
15003

DRAWING TITLE:
ROOF PLAN AND DETAILS

REVISION:	ISSUE:	BIDDING:
REVISION:	SCALE:	AS NOTED
REVISION:	DATE:	07/14/2016

A1.0



NOTES:

PROJECT INCLUDES CLASS II ASBESTOS ABATEMENT; REFER TO SPECIFICATION SECTION 028213 IN THE PROJECT MANUAL.

ALL EXISTING FASCIA AND DRIP BOARDS SHALL BE REMOVED AND REPLACED PER APPROVED DETAILS. ALL ROOFTOP EQUIPMENT, SKYLIGHTS AND ACCESSORIES WILL BE REMOVED AND REPLACED WITH NEW. PLUMBING REPLACEMENT TO THE NEXT VIABLE SCREW THREAD (ALLOW ONE THREADED FITTING BELOW DECK). ALL CURBS SHALL BE P.T. LUMBER LAGGED TO SOUND, REFURBISHED WOOD FRAMING SYSTEM, FLASHED AND WATERPROOFED PER APPROVED ROOFING SYSTEM. ANTENNAE, WEATHER STATIONS AND OTHER IMPERMANENT ROOFTOP EQUIPMENT SHALL BE REMOVED AND REINSTALLED BY THE CITY; CONTRACTOR TO PROVIDE NEW CABLING PENETRATIONS PER 3/A2.0.

ALL PENETRATIONS THAT SHALL EXCEED 160 F DEGREES SHALL BE FLASHED PER DETAIL 6/A2.0 (HOT STACK)

ALL NEW PT WOOD FASCIA AND DRIP BOARDS SHALL BE PRIMED AND PAINTED PER APPROVED COATING SYSTEM; FASCIA BOARDS SHALL BE WRAPPED WITH KYNAR COATED MIN. .040 ALUMINUM BRAKE METAL IN STOCK COLOR PER OWNER. BRAKE METAL SHALL BE CONTINUOUS WITH LOCK SEAMS* AND SHALL EXTEND VERTICALLY FROM A POINT 1" ABOVE BOTTOM OF DRIP BOARD (BRAKE METAL SHALL BE BEHIND DRIP BOARD) TO A STRAIGHT LINE THAT CORRESPONDS WITH THE UNDERSIDE OF RAFTER TAILS ON THE BACK SIDE OF FASCIA; BRAKE METAL SHALL TERMINATE ON BACK SIDE OF FASCIA WITH AN APPROVED HOOK AND CLEAT SYSTEM. STARTING EDGE THAT OCCURS BEHIND DRIP BOARD SHALL BE HEMMED 1/2" AND SHALL BE FASTENED WITH APPROVED COMPATIBLE, NON-CORROSIVE FASTENERS. ALL EXISTING RAFTER ENDS AND DECKING IN EXPOSED OVERHANGS SHALL BE PAINTED WITH APPROVED COATING SYSTEM.

* PROVIDE AN APPROVED EXPANSION TYPE SEAM EVERY 40'-0" MAXIMUM, OR AT LEAST ONE FOR RUNS LESS THAN 50'-0".

NEW GUTTER SYSTEM SHALL BE AS SHOWN, AND SHALL BE A COMPLETE, HOT-DIPPED GALVANIZED SYSTEM WITH ALL BRACKETS, FITTINGS, LEADERS, FASTENERS AND ACCESSORIES. ALL PARTS OF THE GUTTER SYSTEM SHALL BE HEAVY GAUGE HD GALVANIZED STEEL: 6" HALF ROUND GUTTER; #10 FASCIA MOUNT SHANKS, CIRCLE HANGERS, SPRING CLIPS, GALVANIZED NUTS AND BOLTS; END CAPS AND OUTLETS WITH WIRE STRAINERS SOLDERED TO GUTTER; CONDUCTOR HEADS; PLAIN ROUND LEADERS, ROUND OFFSETS, ELBOWS AND OTHER FITTINGS; RACKS, KEYS AND DRIVES.

ALL PRODUCTS TO BE USED MUST BE SUBMITTED FOR APPROVAL; A COMPREHENSIVE SHOP DRAWING SHOWING ALL SPECIFIED COMPONENTS IN PLAN AND DETAILS SHALL BE SUBMITTED AND APPROVED PRIOR TO THE START OF WORK.

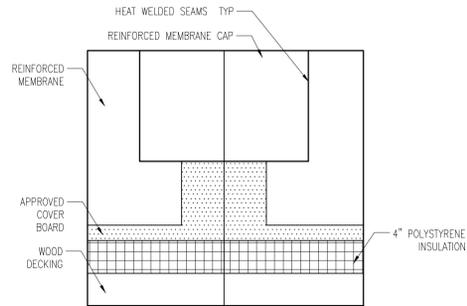
EXISTING ROOFS ARE ALL BALLASTED BUR U.N.O.

ALL EXISTING ROOF SYSTEMS, INCLUDING BUT NOT LIMITED TO BALLAST, MEMBRANE, COVER BOARD, INSULATION, DETERIORATED WOOD OF ANY KIND, ACCESSORIES, GUTTERS, FLASHING, ROOF EDGE, FASCIA, AND DRIP BOARDS AND SKYLIGHTS SHALL BE REMOVED AND DISPOSED LEGALLY U.N.O. ALL EXISTING PENETRATIONS SHALL BE REMOVED TO A POINT 3" MINIMUM BELOW ROOF DECKING OR TO SOUND MATERIAL AND REPLACED WITH APPROVED COMPATIBLE MATERIALS.

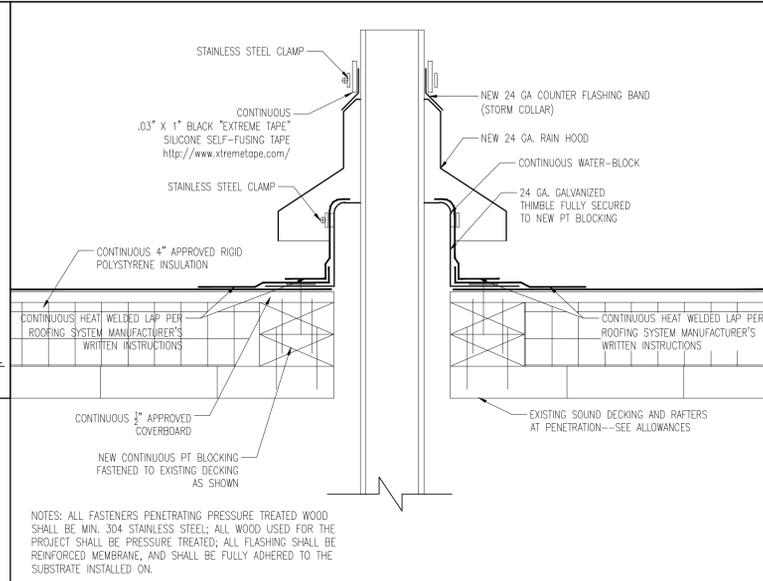
NEW ROOF SYSTEMS SHALL BE AS SPECIFIED AND SHOWN, AND SHALL INCLUDE BUT NOT BE LIMITED TO REPLACEMENT OF SKYLIGHTS, DETERIORATED WOOD, FLASHING, GUTTERS, FASCIA, DRIP BOARDS, INSULATION, COVER BOARDS, MEMBRANE, ACCESSORIES, ROOF EDGE AND ALL FASTENERS, ANCHORS, SEALANTS, MASTICS AND OTHER REQUIRED MATERIALS TO PROVIDE A COMPLETE AND WATER TIGHT SYSTEM.

SYMBOL	DESCRIPTION
⊙	ROOF DRAIN
⊕	HEAT STACK
○	VENT / PIPE

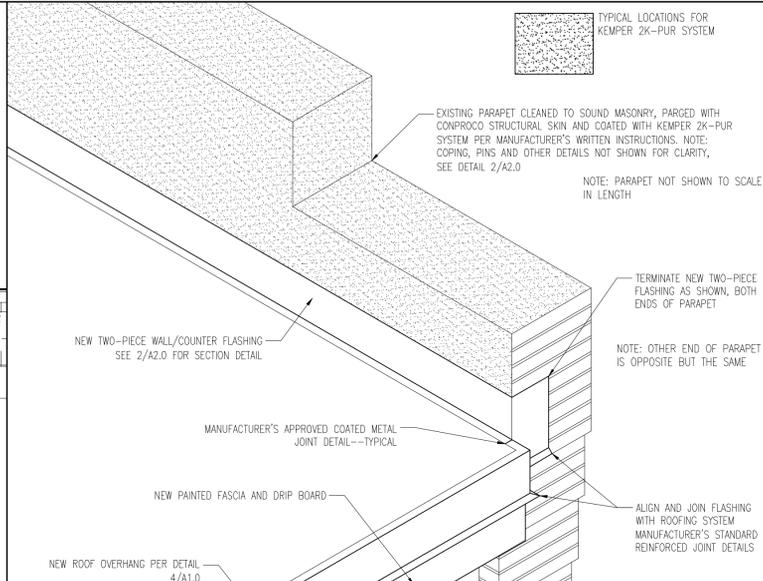
NOTE: REMOVE AND DISCARD ALL ABANDONED ACCESSORIES, FASTENERS, ANCHORS AND OTHER ITEMS ON ALL ROOFS, PARAPETS, WALLS WITH COUNTERFLASHING, AND ROOF EDGES.



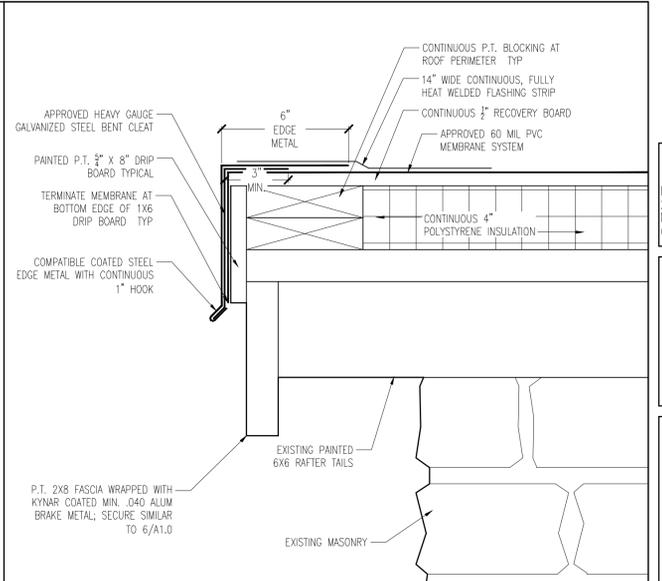
10 RIDGE FLASHING DETAIL
1" = 1'-0"



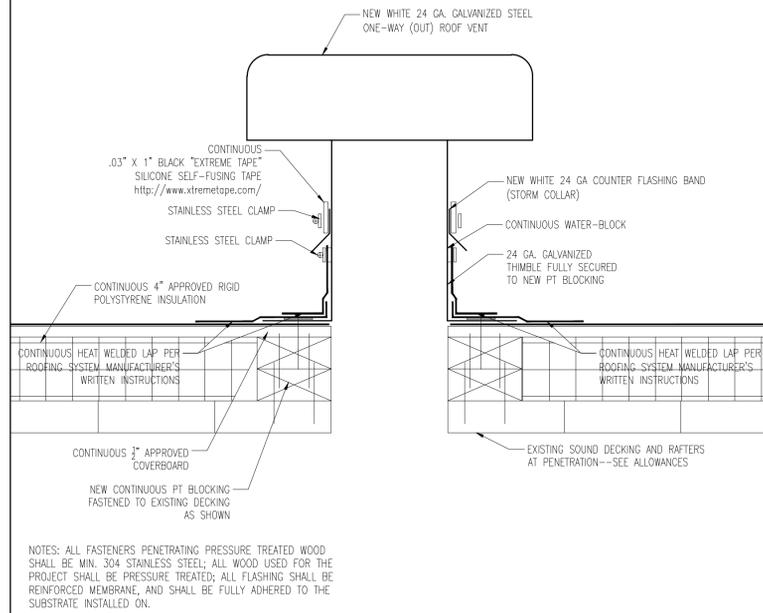
7 HIGH TEMPERATURE PENETRATION DETAIL
3" = 1'-0"



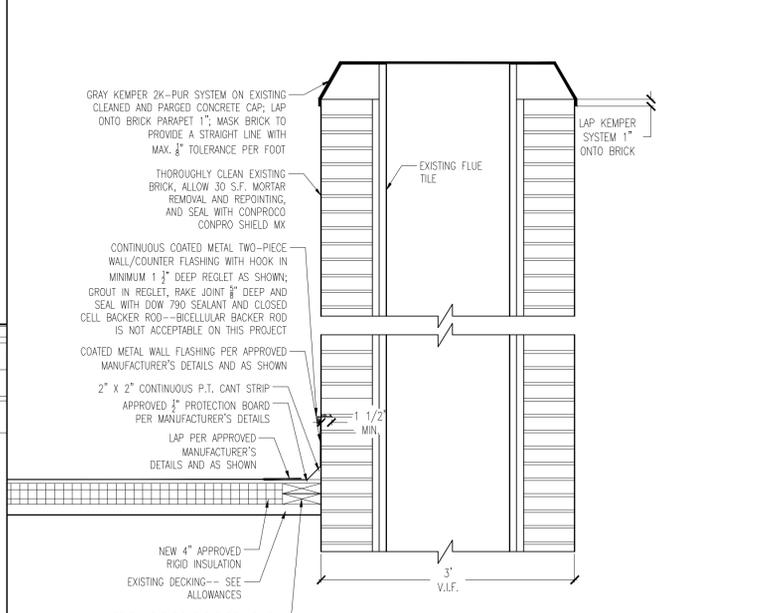
4 AXONOMETRIC
1" = 1'-0"



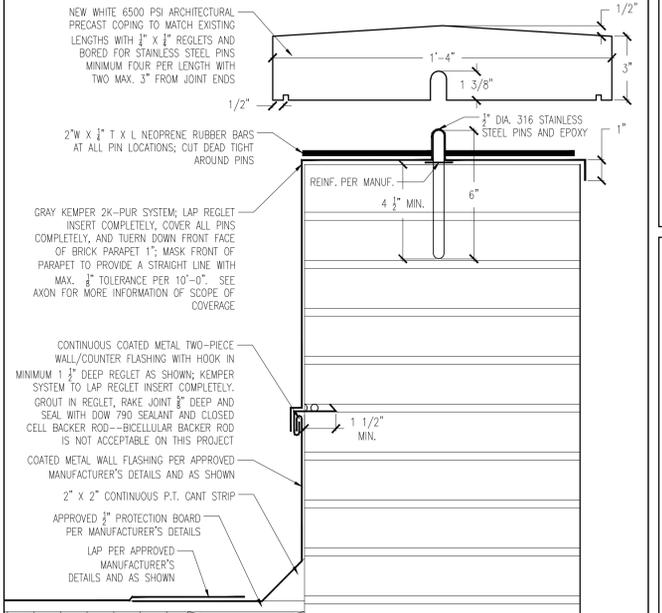
1 SECTION DETAIL AT RAKE
3" = 1'-0"



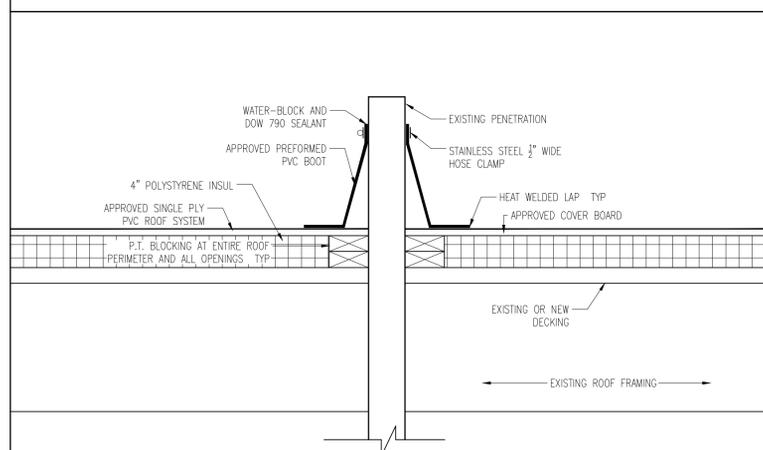
8 ROOF VENT PENETRATION DETAIL
3" = 1'-0"



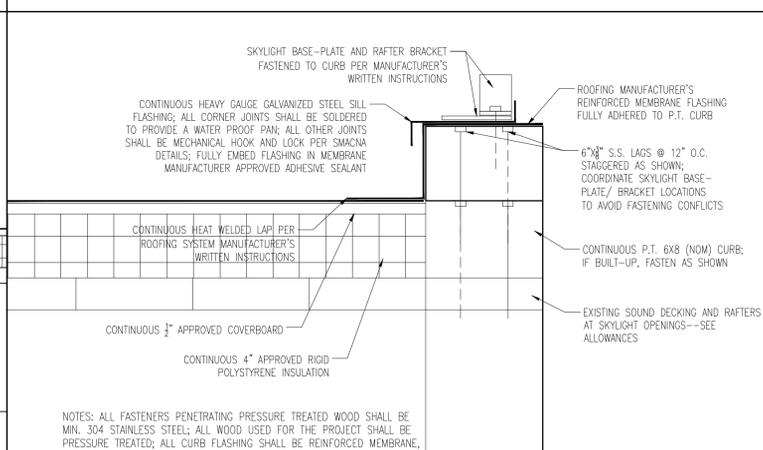
5 CHIMNEY SECTION DETAIL
1" = 1'-0"



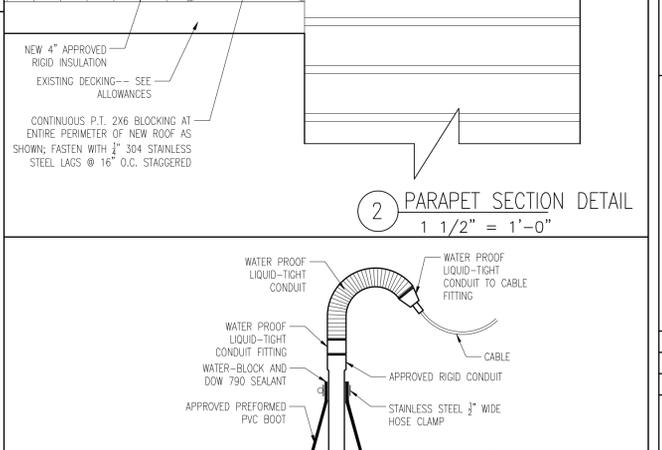
2 PARAPET SECTION DETAIL
1 1/2" = 1'-0"



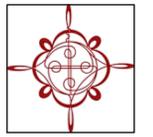
9 TYPICAL PENETRATION DETAIL
1 1/2" = 1'-0"



6 SKYLIGHT SECTION DETAIL
3" = 1'-0"



3 PENETRATION DETAIL
1 1/2" = 1'-0"



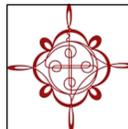
B T A
BRETT THIBAUT ARCHITECT
28 VINCENT ROAD
MENDON, MA 01756
(508) 634 8401

DW ROOFS
148 PARK STREET
BEVERLY, MASSACHUSETTS
15003

DRAWING TITLE:
ROOFING DETAILS

REVISED:	ISSUE	BIDDING
REVISED:	SCALE	AS NOTED
REVISED:	DATE	07/14/2016

A2.0



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DRAWING TITLE:
ROOF PLAN AND DETAILS

REVISED:	REVISED:	REVISED:	REVISED:	REVISED:
ISSUE	BIDDING	AS NOTED		
SCALE	DATE: 07/14/2016			

A3.0

6 DEMOLITION IMAGES

PROJECT INCLUDES CLASS II ASBESTOS ABATEMENT; REFER TO SPECIFICATION SECTION 028213 IN THE PROJECT MANUAL.

NOTES: ALL PENETRATIONS REMOVED IN AREAS INDICATED SHALL BE REINSTALLED PER THE REQUIREMENTS OF THESE DOCUMENTS.

SYMBOL	DESCRIPTION
⊙	ROOF DRAIN
⊕	HEAT STACK
○	VENT / PIPE

1 EXISTING CONDITIONS PLAN
1/8" = 1'-0"

NOTES:
ALL PRODUCTS TO BE USED MUST BE SUBMITTED FOR APPROVAL; A COMPREHENSIVE SHOP DRAWING SHOWING ALL SPECIFIED COMPONENTS IN PLAN AND DETAILS SHALL BE SUBMITTED AND APPROVED PRIOR TO THE START OF WORK.
EXISTING ROOFS ARE ALL BALLASTED BUR U.O.
ALL EXISTING ROOF SYSTEMS, INCLUDING BUT NOT LIMITED TO BALLAST, MEMBRANE, COVER BOARD, INSULATION, DETERIORATED WOOD OF ANY KIND, ACCESSORIES, GUTTERS, FLASHING, ROOF EDGE, FASCIA, AND DRIP BOARDS AND SKYLIGHTS SHALL BE REMOVED AND DISPOSED LEGALLY U.O. ALL EXISTING PENETRATIONS SHALL BE REMOVED TO A POINT 3" MINIMUM BELOW ROOF DECKING OR TO SOUND MATERIAL AND REPLACED WITH APPROVED COMPATIBLE MATERIALS.
NEW ROOF SYSTEMS SHALL BE AS SPECIFIED AND SHOWN, AND SHALL INCLUDE BUT NOT BE LIMITED TO REPLACEMENT OF SKYLIGHTS, DETERIORATED WOOD, FLASHING, GUTTERS, FASCIA, DRIP BOARDS, INSULATION, COVER BOARDS, MEMBRANE, ACCESSORIES, ROOF EDGE AND ALL FASTENERS, ANCHORS, SEALANTS, MASTICS AND OTHER REQUIRED MATERIALS TO PROVIDE A COMPLETE AND WATER TIGHT SYSTEM.

NOTE: REMOVE AND DISCARD ALL ABANDONED ACCESSORIES, FASTENERS, ANCHORS AND OTHER ITEMS ON ALL ROOFS; PARAPETS, WALLS WITH COUNTERFLASHING, AND ROOF EDGES.

SYMBOL	DESCRIPTION
⊙	ROOF DRAIN
⊕	HEAT STACK
○	VENT / PIPE

7 ROOF EDGE DETAIL
3" = 1'-0"

APPROVED HEAVY GAUGE GALVANIZED STEEL BENT CLEAT
PAINTED P.T. 3/8" X 8" DRIP BOARD TYPICAL
TERMINATE MEMBRANE AT BOTTOM EDGE OF 1X6 DRIP BOARD TYP
COMPATIBLE COATED STEEL EDGE METAL WITH CONTINUOUS 1" HOOK
EXISTING ROLL ROOFING TO REMAIN
P.T. 2X8 FASCIA WRAPPED WITH KYNAR COATED MIN. .040 ALUM BRASS METAL SECURE SIMILAR TO 6/A1.0
EXISTING DECKING
CONTINUOUS 4" POLYSTYRENE INSULATION
APPROVED 60 MIL PVC MEMBRANE SYSTEM
CONTINUOUS 3" RECOVERY BOARD
14" WIDE CONTINUOUS, FULLY HEAT WELDED FLASHING STRIP
CONTINUOUS P.T. BLOCKING AT ROOF PERIMETER TYP
6" EDGE METAL

2 NEW ROOF PLAN
1/8" = 1'-0"

NOTES:
1. CENTER OF CRICKET RIDGE IS APPROXIMATELY 16" ABOVE THE INTERSECTION POINT BELOW ALL ENDS OF ALL NEW FRAMING MEMBERS SHALL BE FASTENED TO EXISTING OR NEW STRUCTURAL COMPONENTS VIA GALVANIZED STEEL FRAMING CLIPS; B.O.D. SIMPSON STRONG TIE ML24Z & ML26Z AND 10D RING SHANK 304 STAINLESS STEEL NAILS.
2. ALL EXISTING FASCIA AND DRIP BOARDS SHALL BE REMOVED AND REPLACED WITH 2X12 PT AND 3/4" X 8 P.T.
3. ALL NEW FASCIA AND DRIP BOARDS SHALL BE PRIMED AND PAINTED PER THESE DOCUMENTS
4. ALL GALVANIZED STEEL CLIPS SHALL BE FASTENED PER MANUFACTURER'S INSTRUCTIONS WITH SIMPSON "STRONG DRIVE" CONNECTORS

SYMBOL	DESCRIPTION
⊙	ROOF DRAIN
⊕	HEAT STACK
○	VENT / PIPE

KEY PLAN
NOT TO SCALE

- AREA IN CONTRACT

5 EXISTING ROOF EDGE DETAIL
1" = 1'-0"

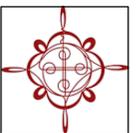
EXISTING RAFTER END TO REMAIN; RECOAT WITH APPROVED PAINT SYSTEM ALL EXISTING RAFTER ENDS AND UNDERSIDE OF DECKING TYP
REMOVE EXISTING DRIP BOARD
REMOVE EXISTING FASCIA

4 NEW BEAM DETAIL
1" = 1'-0"

NEW (2) 2X12 BEAM
10D RING SHANK 304 SS NAILS
REMOVE EXISTING ROOFING SYSTEM

3 NEW FRAMING DETAIL
1" = 1'-0"

ML24Z CLIP TYP BOTH SIDES EACH EXISTING RAFTER END
NEW PT 2X12 FASTENED TOGETHER WITH 3" 10D RING SHANK NAILS AT 6" O.C. STAGGERED PER DETAIL 4/3.0
ML 26Z CLIP TYP BOTH SIDES EACH RAFTER
NEW 2X6 T&G PT DECKING INSTALLED IN CONTROLLED RANDOM LAYOUT PER A1C 112-93; INSTALL TOP FACE OF DECKING FLUSH WITH EXISTING TO REMAIN



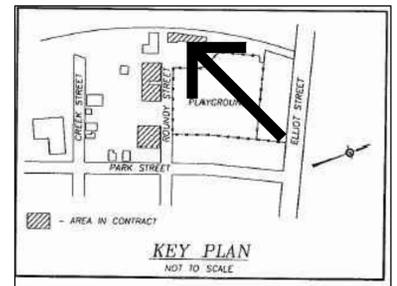
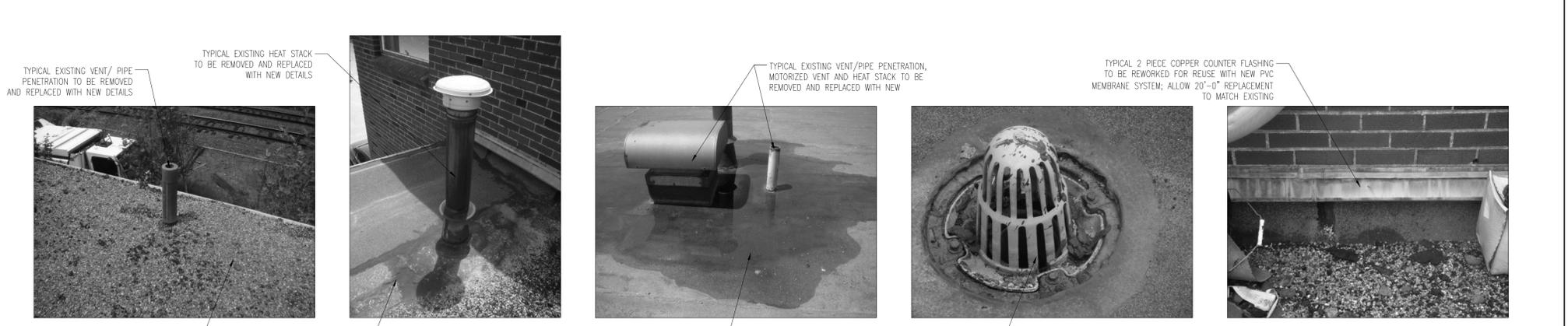
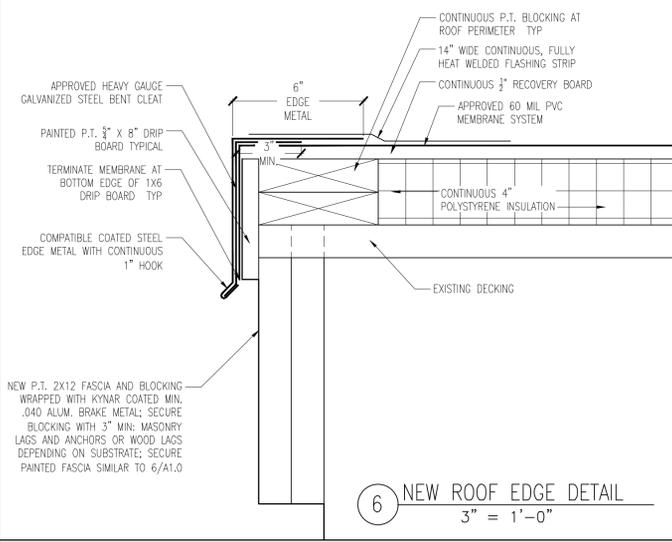
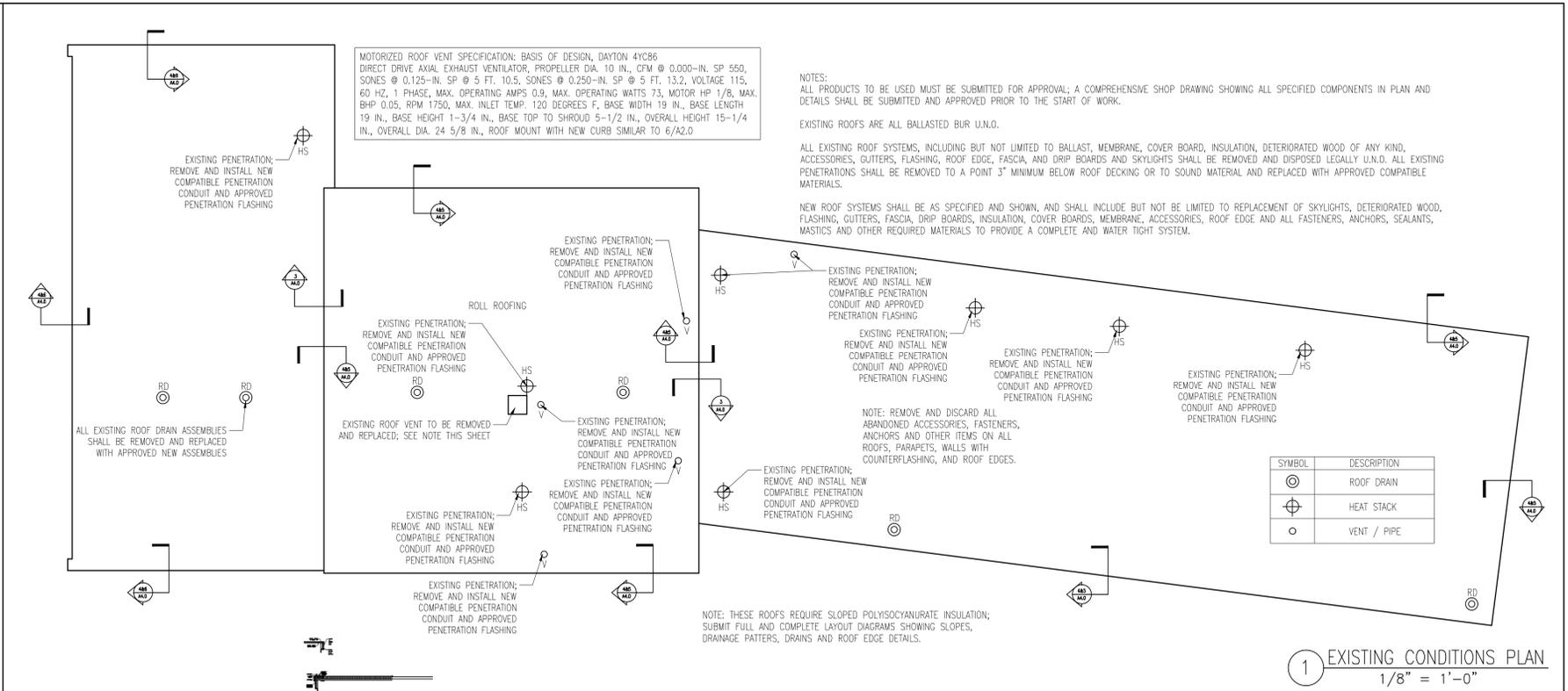
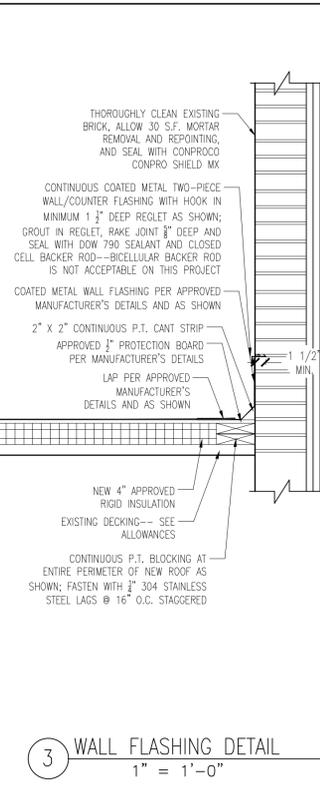
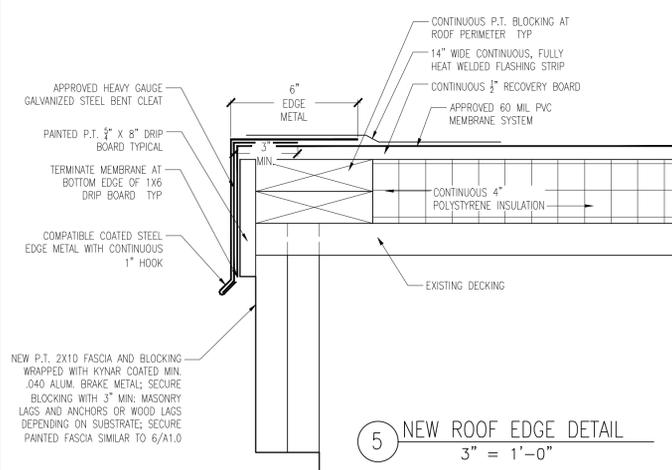
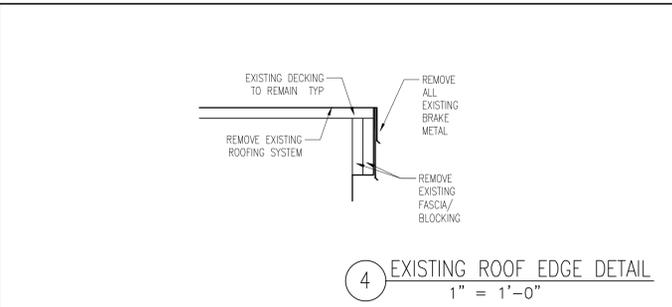
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 BEVERLY, MASSACHUSETTS
 15003

DRAWING TITLE:
ROOF PLAN AND DETAILS

REVISED:	ISSUE
REVISED:	BIDDING
REVISED:	SCALE AS NOTED
REVISED:	DATE 07/14/2016

A4.0



PROJECT INCLUDES CLASS II ASBESTOS ABATEMENT; REFER TO SPECIFICATION SECTION 028213 IN THE PROJECT MANUAL.

2 DEMOLITION IMAGES



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

Prevailing Wage Rates

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

RONALD L. WALKER, II
Secretary

WILLIAM D MCKINNEY
Director

CHARLES D. BAKER
Governor

KARYN E. POLITO
Lt. Governor

Awarding Authority: City of Beverly
Contract Number: 16-035 **City/Town:** BEVERLY
Description of Work: Complete removal and replacement of roofing systems on three buildings at the Department of Public Works facility.
Job Location: 148 Park Street, Beverly

Information about Prevailing Wage Schedules for Awarding Authorities and Contractors

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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Construction						
(2 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	06/01/2016	\$32.15	\$10.41	\$10.08	\$0.00	\$52.64
	08/01/2016	\$32.15	\$10.91	\$10.08	\$0.00	\$53.14
	12/01/2016	\$32.15	\$10.91	\$10.89	\$0.00	\$53.95
(3 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	06/01/2016	\$32.22	\$10.41	\$10.08	\$0.00	\$52.71
	08/01/2016	\$32.22	\$10.91	\$10.08	\$0.00	\$53.21
	12/01/2016	\$32.22	\$10.91	\$10.89	\$0.00	\$54.02
(4 & 5 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	06/01/2016	\$32.34	\$10.41	\$10.08	\$0.00	\$52.83
	08/01/2016	\$32.34	\$10.91	\$10.08	\$0.00	\$53.33
	12/01/2016	\$32.34	\$10.91	\$10.89	\$0.00	\$54.14
ADS/SUBMERSIBLE PILOT <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2015	\$88.29	\$9.80	\$19.23	\$0.00	\$117.32
For apprentice rates see "Apprentice- PILE DRIVER"						
AIR TRACK OPERATOR <i>LABORERS - ZONE 2</i>	06/01/2016	\$32.40	\$7.45	\$12.65	\$0.00	\$52.50
	12/01/2016	\$33.15	\$7.45	\$12.65	\$0.00	\$53.25
For apprentice rates see "Apprentice- LABORER"						
ASBESTOS REMOVER - PIPE / MECH. EQUIPT. <i>HEAT & FROST INSULATORS LOCAL 6 (BOSTON)</i>	12/01/2015	\$34.38	\$10.40	\$5.95	\$0.00	\$50.73
ASPHALT RAKER <i>LABORERS - ZONE 2</i>	06/01/2016	\$31.90	\$7.45	\$12.65	\$0.00	\$52.00
	12/01/2016	\$32.65	\$7.45	\$12.65	\$0.00	\$52.75
For apprentice rates see "Apprentice- LABORER"						
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2016	\$44.23	\$10.00	\$15.15	\$0.00	\$69.38
	12/01/2016	\$45.48	\$10.00	\$15.15	\$0.00	\$70.63
	06/01/2017	\$46.48	\$10.00	\$15.15	\$0.00	\$71.63
	12/01/2017	\$47.48	\$10.00	\$15.15	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BACKHOE/FRONT-END LOADER <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2016	\$44.23	\$10.00	\$15.15	\$0.00	\$69.38
	12/01/2016	\$45.48	\$10.00	\$15.15	\$0.00	\$70.63
	06/01/2017	\$46.48	\$10.00	\$15.15	\$0.00	\$71.63
	12/01/2017	\$47.48	\$10.00	\$15.15	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BARCO-TYPE JUMPING TAMPER <i>LABORERS - ZONE 2</i>	06/01/2016	\$31.90	\$7.45	\$12.65	\$0.00	\$52.00
	12/01/2016	\$32.65	\$7.45	\$12.65	\$0.00	\$52.75
For apprentice rates see "Apprentice- LABORER"						
BLOCK PAVER, RAMMER / CURB SETTER <i>LABORERS - ZONE 2</i>	06/01/2016	\$32.40	\$7.45	\$12.65	\$0.00	\$52.50
	12/01/2016	\$33.15	\$7.45	\$12.65	\$0.00	\$53.25
For apprentice rates see "Apprentice- LABORER"						
BOILER MAKER <i>BOILERMAKERS LOCAL 29</i>	01/01/2016	\$41.62	\$6.97	\$16.21	\$0.00	\$64.80
	01/01/2017	\$42.92	\$6.97	\$16.21	\$0.00	\$66.10

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - BOILERMAKER - Local 29

Effective Date - 01/01/2016

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

Effective Date - 01/01/2017

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

Notes:

Apprentice to Journeyworker Ratio:1:5

BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING)	02/01/2016	\$49.86	\$10.18	\$19.14	\$0.00	\$79.18
BRICKLAYERS LOCAL 3 (LYNN)	08/01/2016	\$50.76	\$10.18	\$19.22	\$0.00	\$80.16
	02/01/2017	\$51.33	\$10.18	\$19.22	\$0.00	\$80.73

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

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

Effective Date - 02/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.93	\$10.18	\$19.14	\$0.00	\$54.25
2	60	\$29.92	\$10.18	\$19.14	\$0.00	\$59.24
3	70	\$34.90	\$10.18	\$19.14	\$0.00	\$64.22
4	80	\$39.89	\$10.18	\$19.14	\$0.00	\$69.21
5	90	\$44.87	\$10.18	\$19.14	\$0.00	\$74.19

Effective Date - 08/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.38	\$10.18	\$19.22	\$0.00	\$54.78
2	60	\$30.46	\$10.18	\$19.22	\$0.00	\$59.86
3	70	\$35.53	\$10.18	\$19.22	\$0.00	\$64.93
4	80	\$40.61	\$10.18	\$19.22	\$0.00	\$70.01
5	90	\$45.68	\$10.18	\$19.22	\$0.00	\$75.08

Notes:

Apprentice to Journeyworker Ratio:1:5

BULLDOZER/GRADER/SCRAPER <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2016	\$43.81	\$10.00	\$15.15	\$0.00	\$68.96
	12/01/2016	\$45.04	\$10.00	\$15.15	\$0.00	\$70.19
	06/01/2017	\$46.03	\$10.00	\$15.15	\$0.00	\$71.18
	12/01/2017	\$47.02	\$10.00	\$15.15	\$0.00	\$72.17

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

CAISSON & UNDERPINNING BOTTOM MAN <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2016	\$36.95	\$7.45	\$14.00	\$0.00	\$58.40
	12/01/2016	\$37.95	\$7.45	\$14.00	\$0.00	\$59.40

For apprentice rates see "Apprentice- LABORER"

CAISSON & UNDERPINNING LABORER <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2016	\$35.80	\$7.45	\$14.00	\$0.00	\$57.25
	12/01/2016	\$36.80	\$7.45	\$14.00	\$0.00	\$58.25

For apprentice rates see "Apprentice- LABORER"

CAISSON & UNDERPINNING TOP MAN <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2016	\$35.80	\$7.45	\$14.00	\$0.00	\$57.25
	12/01/2016	\$36.80	\$7.45	\$14.00	\$0.00	\$58.25

For apprentice rates see "Apprentice- LABORER"

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

For apprentice rates see "Apprentice- LABORER"

CARPENTER <i>CARPENTERS -ZONE 2 (Eastern Massachusetts)</i>	03/01/2016	\$37.10	\$9.80	\$16.82	\$0.00	\$63.72
	09/01/2016	\$38.08	\$9.80	\$16.82	\$0.00	\$64.70
	03/01/2017	\$39.05	\$9.80	\$16.82	\$0.00	\$65.67
	09/01/2017	\$40.06	\$9.80	\$16.82	\$0.00	\$66.68
	03/01/2018	\$41.06	\$9.80	\$16.82	\$0.00	\$67.68
	09/01/2018	\$42.10	\$9.80	\$16.82	\$0.00	\$68.72
	03/01/2019	\$43.13	\$9.80	\$16.82	\$0.00	\$69.75

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - CARPENTER - Zone 2 Eastern MA

Effective Date - 03/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$18.55	\$9.80	\$1.63	\$0.00	\$29.98
2	60	\$22.26	\$9.80	\$1.63	\$0.00	\$33.69
3	70	\$25.97	\$9.80	\$11.93	\$0.00	\$47.70
4	75	\$27.83	\$9.80	\$11.93	\$0.00	\$49.56
5	80	\$29.68	\$9.80	\$13.56	\$0.00	\$53.04
6	80	\$29.68	\$9.80	\$13.56	\$0.00	\$53.04
7	90	\$33.39	\$9.80	\$15.19	\$0.00	\$58.38
8	90	\$33.39	\$9.80	\$15.19	\$0.00	\$58.38

Effective Date - 09/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.04	\$9.80	\$1.63	\$0.00	\$30.47
2	60	\$22.85	\$9.80	\$1.63	\$0.00	\$34.28
3	70	\$26.66	\$9.80	\$11.93	\$0.00	\$48.39
4	75	\$28.56	\$9.80	\$11.93	\$0.00	\$50.29
5	80	\$30.46	\$9.80	\$13.56	\$0.00	\$53.82
6	80	\$30.46	\$9.80	\$13.56	\$0.00	\$53.82
7	90	\$34.27	\$9.80	\$15.19	\$0.00	\$59.26
8	90	\$34.27	\$9.80	\$15.19	\$0.00	\$59.26

Notes:

Apprentice to Journeyworker Ratio:1:5

CEMENT MASONRY/PLASTERING BRICKLAYERS LOCAL 3 (LYNN)	01/01/2016	\$46.44	\$10.90	\$18.71	\$1.30	\$77.35
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Apprentice - CEMENT MASONRY/PLASTERING - Eastern Mass (Lynn)

Effective Date - 01/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.22	\$10.90	\$12.21	\$0.00	\$46.33
2	60	\$27.86	\$10.90	\$13.71	\$1.30	\$53.77
3	65	\$30.19	\$10.90	\$14.71	\$1.30	\$57.10
4	70	\$32.51	\$10.90	\$15.71	\$1.30	\$60.42
5	75	\$34.83	\$10.90	\$16.71	\$1.30	\$63.74
6	80	\$37.15	\$10.90	\$17.71	\$1.30	\$67.06
7	90	\$41.80	\$10.90	\$18.71	\$1.30	\$72.71

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

Apprentice to Journeyworker Ratio:1:3

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

Apprentice - PAINTER Local 35 - BRIDGES/TANKS

Effective Date - 07/01/2016

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

Effective Date - 01/01/2017

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

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DEMO: BACKHOE/LOADER/HAMMER OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2015	\$36.50	\$7.45	\$13.55	\$0.00	\$57.50
For apprentice rates see "Apprentice- LABORER"						
DEMO: BURNERS <i>LABORERS - ZONE 2</i>	12/01/2015	\$36.25	\$7.45	\$13.55	\$0.00	\$57.25
For apprentice rates see "Apprentice- LABORER"						
DEMO: CONCRETE CUTTER/SAWYER <i>LABORERS - ZONE 2</i>	12/01/2015	\$36.50	\$7.45	\$13.55	\$0.00	\$57.50
For apprentice rates see "Apprentice- LABORER"						
DEMO: JACKHAMMER OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2015	\$36.25	\$7.45	\$13.55	\$0.00	\$57.25
For apprentice rates see "Apprentice- LABORER"						
DEMO: WRECKING LABORER <i>LABORERS - ZONE 2</i>	12/01/2015	\$35.50	\$7.45	\$13.55	\$0.00	\$56.50
For apprentice rates see "Apprentice- LABORER"						
DIRECTIONAL DRILL MACHINE OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2016	\$43.81	\$10.00	\$15.15	\$0.00	\$68.96
	12/01/2016	\$45.04	\$10.00	\$15.15	\$0.00	\$70.19
	06/01/2017	\$46.03	\$10.00	\$15.15	\$0.00	\$71.18
	12/01/2017	\$47.02	\$10.00	\$15.15	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DIVER <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2015	\$58.86	\$9.80	\$19.23	\$0.00	\$87.89
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2015	\$42.04	\$9.80	\$19.23	\$0.00	\$71.07
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2015	\$63.06	\$9.80	\$19.23	\$0.00	\$92.09
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER/SLURRY (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2015	\$88.23	\$9.80	\$19.23	\$0.00	\$117.26
For apprentice rates see "Apprentice- PILE DRIVER"						
DRAWBRIDGE OPERATOR (Construction) <i>ELECTRICIANS LOCAL 103</i>	03/01/2016	\$46.17	\$13.00	\$16.39	\$0.00	\$75.56
For apprentice rates see "Apprentice- ELECTRICIAN"						
ELECTRICIAN <i>ELECTRICIANS LOCAL 103</i>	03/01/2016	\$46.17	\$13.00	\$16.39	\$0.00	\$75.56

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - ELECTRICIAN - Local 103

Effective Date - 03/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$18.47	\$13.00	\$0.55	\$0.00	\$32.02
2	40	\$18.47	\$13.00	\$0.55	\$0.00	\$32.02
3	45	\$20.78	\$13.00	\$12.34	\$0.00	\$46.12
4	45	\$20.78	\$13.00	\$12.34	\$0.00	\$46.12
5	50	\$23.09	\$13.00	\$12.71	\$0.00	\$48.80
6	55	\$25.39	\$13.00	\$13.07	\$0.00	\$51.46
7	60	\$27.70	\$13.00	\$13.44	\$0.00	\$54.14
8	65	\$30.01	\$13.00	\$13.81	\$0.00	\$56.82
9	70	\$32.32	\$13.00	\$14.18	\$0.00	\$59.50
10	75	\$34.63	\$13.00	\$14.55	\$0.00	\$62.18

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

Apprentice to Journeyworker Ratio:2:3***

ELEVATOR CONSTRUCTOR	01/01/2016	\$54.53	\$14.43	\$14.96	\$0.00	\$83.92
ELEVATOR CONSTRUCTORS LOCAL 4	01/01/2017	\$55.86	\$15.28	\$15.71	\$0.00	\$86.85

Apprentice - ELEVATOR CONSTRUCTOR - Local 4

Effective Date - 01/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$27.27	\$14.43	\$0.00	\$0.00	\$41.70
2	55	\$29.99	\$14.43	\$14.96	\$0.00	\$59.38
3	65	\$35.44	\$14.43	\$14.96	\$0.00	\$64.83
4	70	\$38.17	\$14.43	\$14.96	\$0.00	\$67.56
5	80	\$43.62	\$14.43	\$14.96	\$0.00	\$73.01

Effective Date - 01/01/2017

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$27.93	\$15.28	\$0.00	\$0.00	\$43.21
2	55	\$30.72	\$15.28	\$15.71	\$0.00	\$61.71
3	65	\$36.31	\$15.28	\$15.71	\$0.00	\$67.30
4	70	\$39.10	\$15.28	\$15.71	\$0.00	\$70.09
5	80	\$44.69	\$15.28	\$15.71	\$0.00	\$75.68

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

Apprentice to Journeyworker Ratio:1:1

ELEVATOR CONSTRUCTOR HELPER	01/01/2016	\$38.17	\$14.43	\$14.96	\$0.00	\$67.56
ELEVATOR CONSTRUCTORS LOCAL 4	01/01/2017	\$39.10	\$15.28	\$15.71	\$0.00	\$70.09

For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FENCE & GUARD RAIL ERECTOR <i>LABORERS - ZONE 2</i>	06/01/2016	\$31.90	\$7.45	\$12.65	\$0.00	\$52.00
	12/01/2016	\$32.65	\$7.45	\$12.65	\$0.00	\$52.75
For apprentice rates see "Apprentice- LABORER"						
FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	05/01/2016	\$41.03	\$10.00	\$14.90	\$0.00	\$65.93
	11/01/2016	\$41.62	\$10.00	\$14.90	\$0.00	\$66.52
	05/01/2017	\$42.50	\$10.00	\$14.90	\$0.00	\$67.40
	11/01/2017	\$43.23	\$10.00	\$14.90	\$0.00	\$68.13
	05/01/2018	\$43.94	\$10.00	\$14.90	\$0.00	\$68.84
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	05/01/2016	\$42.47	\$10.00	\$14.90	\$0.00	\$67.37
	11/01/2016	\$43.07	\$10.00	\$14.90	\$0.00	\$67.97
	05/01/2017	\$43.96	\$10.00	\$14.90	\$0.00	\$68.86
	11/01/2017	\$44.69	\$10.00	\$14.90	\$0.00	\$69.59
	05/01/2018	\$45.41	\$10.00	\$14.90	\$0.00	\$70.31
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	05/01/2016	\$21.88	\$10.00	\$14.90	\$0.00	\$46.78
	11/01/2016	\$22.23	\$10.00	\$14.90	\$0.00	\$47.13
	05/01/2017	\$22.76	\$10.00	\$14.90	\$0.00	\$47.66
	11/01/2017	\$23.18	\$10.00	\$14.90	\$0.00	\$48.08
	05/01/2018	\$23.61	\$10.00	\$14.90	\$0.00	\$48.51
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIRE ALARM INSTALLER <i>ELECTRICIANS LOCAL 103</i>	03/01/2016	\$46.17	\$13.00	\$16.39	\$0.00	\$75.56
For apprentice rates see "Apprentice- ELECTRICIAN"						
FIRE ALARM REPAIR / MAINTENANCE / COMMISSIONING <i>ELECTRICIANS LOCAL 103</i>	03/01/2016	\$34.63	\$13.00	\$14.55	\$0.00	\$62.18
For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"						
FIREMAN (ASST. ENGINEER) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2016	\$36.71	\$10.00	\$15.15	\$0.00	\$61.86
	12/01/2016	\$37.75	\$10.00	\$15.15	\$0.00	\$62.90
	06/01/2017	\$38.59	\$10.00	\$15.15	\$0.00	\$63.74
	12/01/2017	\$39.42	\$10.00	\$15.15	\$0.00	\$64.57
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FLAGGER & SIGNALER <i>LABORERS - ZONE 2</i>	06/01/2016	\$20.50	\$7.45	\$12.65	\$0.00	\$40.60
	12/01/2016	\$20.50	\$7.45	\$12.65	\$0.00	\$40.60
For apprentice rates see "Apprentice- LABORER"						
FLOORCOVERER <i>FLOORCOVERERS LOCAL 2168 ZONE 1</i>	03/01/2016	\$42.13	\$9.80	\$17.62	\$0.00	\$69.55

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - FLOORCOVERER - Local 2168 Zone I

Effective Date - 03/01/2016

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

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

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

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

GENERATOR/LIGHTING PLANT/HEATERS <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2016	\$30.40	\$10.00	\$15.15	\$0.00	\$55.55
	12/01/2016	\$31.27	\$10.00	\$15.15	\$0.00	\$56.42
	06/01/2017	\$31.96	\$10.00	\$15.15	\$0.00	\$57.11
	12/01/2017	\$32.65	\$10.00	\$15.15	\$0.00	\$57.80

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS) <i>GLAZIERS LOCAL 35 (ZONE 2)</i>	07/01/2016	\$39.96	\$7.85	\$16.10	\$0.00	\$63.91
	01/01/2017	\$40.91	\$7.85	\$16.10	\$0.00	\$64.86

Apprentice - GLAZIER - Local 35 Zone 2

Effective Date - 07/01/2016

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

Effective Date - 01/01/2017

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

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

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

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - OPERATING ENGINEERS - Local 4

Effective Date - 06/01/2016

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

Effective Date - 12/01/2016

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

Notes:

Apprentice to Journeyworker Ratio:1:6

HVAC (DUCTWORK) <i>SHEETMETAL WORKERS LOCAL 17 - A</i>	02/01/2016	\$43.31	\$10.70	\$21.95	\$2.28	\$78.24
	08/01/2016	\$44.46	\$10.70	\$21.95	\$2.28	\$79.39
	02/01/2017	\$45.56	\$10.70	\$21.95	\$2.28	\$80.49
	08/01/2017	\$46.66	\$10.70	\$21.95	\$2.28	\$81.59
	02/01/2018	\$47.81	\$10.70	\$21.95	\$2.28	\$82.74

For apprentice rates see "Apprentice- SHEET METAL WORKER"

HVAC (ELECTRICAL CONTROLS) <i>ELECTRICIANS LOCAL 103</i>	03/01/2016	\$46.17	\$13.00	\$16.39	\$0.00	\$75.56
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For apprentice rates see "Apprentice- ELECTRICIAN"

HVAC (TESTING AND BALANCING - AIR) <i>SHEETMETAL WORKERS LOCAL 17 - A</i>	02/01/2016	\$43.31	\$10.70	\$21.95	\$2.28	\$78.24
	08/01/2016	\$44.46	\$10.70	\$21.95	\$2.28	\$79.39
	02/01/2017	\$45.56	\$10.70	\$21.95	\$2.28	\$80.49
	08/01/2017	\$46.66	\$10.70	\$21.95	\$2.28	\$81.59
	02/01/2018	\$47.81	\$10.70	\$21.95	\$2.28	\$82.74

For apprentice rates see "Apprentice- SHEET METAL WORKER"

HVAC (TESTING AND BALANCING - WATER) <i>PIPEFITTERS LOCAL 537 (Local 138)</i>	03/01/2016	\$46.86	\$9.70	\$16.14	\$0.00	\$72.70
	09/01/2016	\$47.86	\$9.70	\$16.14	\$0.00	\$73.70
	03/01/2017	\$48.86	\$9.70	\$16.14	\$0.00	\$74.70

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

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
HVAC MECHANIC <i>PIPEFITTERS LOCAL 537 (Local 138)</i>	03/01/2016	\$46.86	\$9.70	\$16.14	\$0.00	\$72.70
	09/01/2016	\$47.86	\$9.70	\$16.14	\$0.00	\$73.70
	03/01/2017	\$48.86	\$9.70	\$16.14	\$0.00	\$74.70

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

HYDRAULIC DRILLS <i>LABORERS - ZONE 2</i>	06/01/2016	\$32.40	\$7.45	\$12.65	\$0.00	\$52.50
	12/01/2016	\$33.15	\$7.45	\$12.65	\$0.00	\$53.25

For apprentice rates see "Apprentice- LABORER"

INSULATOR (PIPES & TANKS) <i>HEAT & FROST INSULATORS LOCAL 6 (BOSTON)</i>	09/01/2015	\$43.81	\$11.50	\$13.80	\$0.00	\$69.11
	09/01/2016	\$45.81	\$11.50	\$13.80	\$0.00	\$71.11
	09/01/2017	\$47.81	\$11.50	\$13.80	\$0.00	\$73.11
	09/01/2018	\$50.06	\$11.50	\$13.80	\$0.00	\$75.36
	09/01/2019	\$52.56	\$11.50	\$13.80	\$0.00	\$77.86

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

Effective Date - 09/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.91	\$11.50	\$10.05	\$0.00	\$43.46
2	60	\$26.29	\$11.50	\$10.80	\$0.00	\$48.59
3	70	\$30.67	\$11.50	\$11.55	\$0.00	\$53.72
4	80	\$35.05	\$11.50	\$12.30	\$0.00	\$58.85

Effective Date - 09/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.91	\$11.50	\$10.05	\$0.00	\$44.46
2	60	\$27.49	\$11.50	\$10.80	\$0.00	\$49.79
3	70	\$32.07	\$11.50	\$11.55	\$0.00	\$55.12
4	80	\$36.65	\$11.50	\$12.30	\$0.00	\$60.45

Notes:

Steps are 1 year

Apprentice to Journeyworker Ratio:1:4

IRONWORKER/WELDER <i>IRONWORKERS LOCAL 7 (BOSTON AREA)</i>	03/16/2016	\$43.40	\$7.80	\$20.85	\$0.00	\$72.05
	09/16/2016	\$44.05	\$7.80	\$20.85	\$0.00	\$72.70
	03/16/2017	\$44.65	\$7.80	\$20.85	\$0.00	\$73.30

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - IRONWORKER - Local 7 Boston

Effective Date - 03/16/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$26.04	\$7.80	\$20.85	\$0.00	\$54.69
2	70	\$30.38	\$7.80	\$20.85	\$0.00	\$59.03
3	75	\$32.55	\$7.80	\$20.85	\$0.00	\$61.20
4	80	\$34.72	\$7.80	\$20.85	\$0.00	\$63.37
5	85	\$36.89	\$7.80	\$20.85	\$0.00	\$65.54
6	90	\$39.06	\$7.80	\$20.85	\$0.00	\$67.71

Effective Date - 09/16/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$26.43	\$7.80	\$20.85	\$0.00	\$55.08
2	70	\$30.84	\$7.80	\$20.85	\$0.00	\$59.49
3	75	\$33.04	\$7.80	\$20.85	\$0.00	\$61.69
4	80	\$35.24	\$7.80	\$20.85	\$0.00	\$63.89
5	85	\$37.44	\$7.80	\$20.85	\$0.00	\$66.09
6	90	\$39.65	\$7.80	\$20.85	\$0.00	\$68.30

Notes:

** Structural 1:6; Ornamental 1:4

Apprentice to Journeyworker Ratio:**

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

Apprentice - LABORER - Zone 2

Effective Date - 06/01/2016

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

Effective Date - 12/01/2016

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

Notes:

Apprentice to Journeyworker Ratio:1:5

LABORER: CARPENTER TENDER LABORERS - ZONE 2	06/01/2016	\$31.65	\$7.45	\$12.65	\$0.00	\$51.75
	12/01/2016	\$32.40	\$7.45	\$12.65	\$0.00	\$52.50

For apprentice rates see "Apprentice- LABORER"

LABORER: CEMENT FINISHER TENDER LABORERS - ZONE 2	06/01/2016	\$31.65	\$7.45	\$12.65	\$0.00	\$51.75
	12/01/2016	\$32.40	\$7.45	\$12.65	\$0.00	\$52.50

For apprentice rates see "Apprentice- LABORER"

LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER LABORERS - ZONE 2	12/01/2015	\$31.35	\$7.45	\$12.60	\$0.00	\$51.40
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For apprentice rates see "Apprentice- LABORER"

LABORER: MASON TENDER LABORERS - ZONE 2	06/01/2016	\$31.90	\$7.45	\$12.65	\$0.00	\$52.00
	12/01/2016	\$32.65	\$7.45	\$12.65	\$0.00	\$52.75

For apprentice rates see "Apprentice- LABORER"

LABORER: MULTI-TRADE TENDER LABORERS - ZONE 2	06/01/2016	\$31.65	\$7.45	\$12.65	\$0.00	\$51.75
	12/01/2016	\$32.40	\$7.45	\$12.65	\$0.00	\$52.50

For apprentice rates see "Apprentice- LABORER"

LABORER: TREE REMOVER LABORERS - ZONE 2	06/01/2016	\$31.65	\$7.45	\$12.65	\$0.00	\$51.75
	12/01/2016	\$32.40	\$7.45	\$12.65	\$0.00	\$52.50

This classification applies to all tree work associated with the removal of standing trees, and trimming and removal of branches and limbs when the work is not done for a utility company for the purpose of operation, maintenance or repair of utility company equipment. For apprentice rates see "Apprentice- LABORER"

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

For apprentice rates see "Apprentice- LABORER"

MARBLE & TILE FINISHERS BRICKLAYERS LOCAL 3 - MARBLE & TILE	02/01/2016	\$38.08	\$10.18	\$17.70	\$0.00	\$65.96
	08/01/2016	\$38.78	\$10.18	\$17.78	\$0.00	\$66.74
	02/01/2017	\$39.24	\$10.18	\$17.78	\$0.00	\$67.20

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

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

Effective Date - 02/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$19.04	\$10.18	\$17.70	\$0.00	\$46.92
2	60	\$22.85	\$10.18	\$17.70	\$0.00	\$50.73
3	70	\$26.66	\$10.18	\$17.70	\$0.00	\$54.54
4	80	\$30.46	\$10.18	\$17.70	\$0.00	\$58.34
5	90	\$34.27	\$10.18	\$17.70	\$0.00	\$62.15

Effective Date - 08/01/2016

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

Notes:

Apprentice to Journeyworker Ratio:1:3

MARBLE MASONS, TILELAYERS & TERRAZZO MECH BRICKLAYERS LOCAL 3 - MARBLE & TILE	02/01/2016	\$49.90	\$10.18	\$19.14	\$0.00	\$79.22
	08/01/2016	\$50.80	\$10.18	\$19.22	\$0.00	\$80.20
	02/01/2017	\$51.37	\$10.18	\$19.22	\$0.00	\$80.77

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

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

Effective Date - 02/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.95	\$10.18	\$19.14	\$0.00	\$54.27
2	60	\$29.94	\$10.18	\$19.14	\$0.00	\$59.26
3	70	\$34.93	\$10.18	\$19.14	\$0.00	\$64.25
4	80	\$39.92	\$10.18	\$19.14	\$0.00	\$69.24
5	90	\$44.91	\$10.18	\$19.14	\$0.00	\$74.23

Effective Date - 08/01/2016

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

Notes:

Apprentice to Journeyworker Ratio:1:5

MECH. SWEEPER OPERATOR (ON CONST. SITES) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2016	\$43.81	\$10.00	\$15.15	\$0.00	\$68.96
	12/01/2016	\$45.04	\$10.00	\$15.15	\$0.00	\$70.19
	06/01/2017	\$46.03	\$10.00	\$15.15	\$0.00	\$71.18
	12/01/2017	\$47.02	\$10.00	\$15.15	\$0.00	\$72.17

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

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

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

MILLWRIGHT (Zone 2) <i>MILLWRIGHTS LOCAL 1121 - Zone 2</i>	04/01/2015	\$34.69	\$9.80	\$16.21	\$0.00	\$60.70
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Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - MILLWRIGHT - Local 1121 Zone 2

Effective Date - 04/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$19.08	\$9.80	\$4.48	\$0.00	\$33.36
2	65	\$22.55	\$9.80	\$13.36	\$0.00	\$45.71
3	75	\$26.02	\$9.80	\$14.18	\$0.00	\$50.00
4	85	\$29.49	\$9.80	\$14.99	\$0.00	\$54.28

Notes:
 Steps are 2,000 hours
Apprentice to Journeyworker Ratio:1:5

MORTAR MIXER <i>LABORERS - ZONE 2</i>	06/01/2016	\$31.90	\$7.45	\$12.65	\$0.00	\$52.00
For apprentice rates see "Apprentice- LABORER"	12/01/2016	\$32.65	\$7.45	\$12.65	\$0.00	\$52.75

OILER (OTHER THAN TRUCK CRANES,GRADALLS) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2016	\$22.41	\$10.00	\$15.15	\$0.00	\$47.56
For apprentice rates see "Apprentice- OPERATING ENGINEERS"	12/01/2016	\$23.06	\$10.00	\$15.15	\$0.00	\$48.21
	06/01/2017	\$23.57	\$10.00	\$15.15	\$0.00	\$48.72
	12/01/2017	\$24.09	\$10.00	\$15.15	\$0.00	\$49.24

OILER (TRUCK CRANES, GRADALLS) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2016	\$26.29	\$10.00	\$15.15	\$0.00	\$51.44
For apprentice rates see "Apprentice- OPERATING ENGINEERS"	12/01/2016	\$27.04	\$10.00	\$15.15	\$0.00	\$52.19
	06/01/2017	\$27.64	\$10.00	\$15.15	\$0.00	\$52.79
	12/01/2017	\$28.25	\$10.00	\$15.15	\$0.00	\$53.40

OTHER POWER DRIVEN EQUIPMENT - CLASS II <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2016	\$43.81	\$10.00	\$15.15	\$0.00	\$68.96
For apprentice rates see "Apprentice- OPERATING ENGINEERS"	12/01/2016	\$45.04	\$10.00	\$15.15	\$0.00	\$70.19
	06/01/2017	\$46.03	\$10.00	\$15.15	\$0.00	\$71.18
	12/01/2017	\$47.02	\$10.00	\$15.15	\$0.00	\$72.17

PAINTER (BRIDGES/TANKS) <i>PAINTERS LOCAL 35 - ZONE 2</i>	07/01/2016	\$50.46	\$7.85	\$16.10	\$0.00	\$74.41
	01/01/2017	\$51.41	\$7.85	\$16.10	\$0.00	\$75.36

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER Local 35 - BRIDGES/TANKS

Effective Date - 07/01/2016

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

Effective Date - 01/01/2017

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

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

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

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

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

Effective Date - 07/01/2016

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

Effective Date - 01/01/2017

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

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

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

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

Effective Date - 07/01/2016

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

Effective Date - 01/01/2017

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

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

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

For Apprentice rates see "Apprentice- LABORER"

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

Apprentice - PAINTER - Local 35 Zone 2 - BRUSH NEW

Effective Date - 07/01/2016

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

Effective Date - 01/01/2017

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

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

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

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER Local 35 Zone 2 - BRUSH REPAINT

Effective Date - 07/01/2016

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

Effective Date - 01/01/2017

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

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

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

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PILE DRIVER - Local 56 Zone 1

Effective Date - 08/01/2015

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

Notes:

Apprentice to Journeyworker Ratio:1:3

PIPEFITTER & STEAMFITTER	03/01/2016	\$46.86	\$9.70	\$16.14	\$0.00	\$72.70
PIPEFITTERS LOCAL 537 (Local 138)	09/01/2016	\$47.86	\$9.70	\$16.14	\$0.00	\$73.70
	03/01/2017	\$48.86	\$9.70	\$16.14	\$0.00	\$74.70

Apprentice - PIPEFITTER Local 537 (Local 138)

Effective Date - 03/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$18.74	\$9.70	\$5.50	\$0.00	\$33.94
2	45	\$21.09	\$9.70	\$16.14	\$0.00	\$46.93
3	60	\$28.12	\$9.70	\$16.14	\$0.00	\$53.96
4	70	\$32.80	\$9.70	\$16.14	\$0.00	\$58.64
5	80	\$37.49	\$9.70	\$16.14	\$0.00	\$63.33

Effective Date - 09/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$19.14	\$9.70	\$5.50	\$0.00	\$34.34
2	45	\$21.54	\$9.70	\$16.14	\$0.00	\$47.38
3	60	\$28.72	\$9.70	\$16.14	\$0.00	\$54.56
4	70	\$33.50	\$9.70	\$16.14	\$0.00	\$59.34
5	80	\$38.29	\$9.70	\$16.14	\$0.00	\$64.13

Notes:

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

Apprentice to Journeyworker Ratio:**

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

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PLUMBER	03/01/2016	\$47.28	\$11.07	\$15.14	\$0.00	\$73.49
<i>PLUMBERS & GASFITTERS LOCAL 12 (Local 138)</i>	09/01/2016	\$48.33	\$11.07	\$15.14	\$0.00	\$74.54
	03/01/2017	\$49.33	\$11.07	\$15.14	\$0.00	\$75.54

Apprentice - PLUMBER/GASFITTER - Local 12 (Local 138)

Effective Date - 03/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$16.55	\$11.07	\$5.63	\$0.00	\$33.25
2	40	\$18.91	\$11.07	\$6.37	\$0.00	\$36.35
3	55	\$26.00	\$11.07	\$8.56	\$0.00	\$45.63
4	65	\$30.73	\$11.07	\$10.03	\$0.00	\$51.83
5	75	\$35.46	\$11.07	\$11.48	\$0.00	\$58.01

Effective Date - 09/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$16.92	\$11.07	\$5.63	\$0.00	\$33.62
2	40	\$19.33	\$11.07	\$6.37	\$0.00	\$36.77
3	55	\$26.58	\$11.07	\$8.56	\$0.00	\$46.21
4	65	\$31.41	\$11.07	\$10.03	\$0.00	\$52.51
5	75	\$36.25	\$10.82	\$11.48	\$0.00	\$58.55

Notes:

Steps are 1 yr
Step 4 with lic\$54.93 Step5 with lic\$61.10

Apprentice to Journeyworker Ratio:1:5

PNEUMATIC CONTROLS (TEMP.)	03/01/2016	\$46.86	\$9.70	\$16.14	\$0.00	\$72.70
<i>PIPEFITTERS LOCAL 537 (Local 138)</i>	09/01/2016	\$47.86	\$9.70	\$16.14	\$0.00	\$73.70
	03/01/2017	\$48.86	\$9.70	\$16.14	\$0.00	\$74.70

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

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

For apprentice rates see "Apprentice- LABORER"

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

For apprentice rates see "Apprentice- LABORER"

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

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

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

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PUMP OPERATOR (DEWATERING, OTHER) <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2016	\$30.40	\$10.00	\$15.15	\$0.00	\$55.55
	12/01/2016	\$31.27	\$10.00	\$15.15	\$0.00	\$56.42
	06/01/2017	\$31.96	\$10.00	\$15.15	\$0.00	\$57.11
	12/01/2017	\$32.65	\$10.00	\$15.15	\$0.00	\$57.80
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
READY-MIX CONCRETE DRIVER <i>TEAMSTERS LOCAL 42</i>	05/01/2016	\$24.15	\$8.49	\$10.68	\$0.00	\$43.32
	04/30/2017	\$24.15	\$8.49	\$11.07	\$0.00	\$43.71
	05/01/2017	\$24.21	\$8.49	\$11.54	\$0.00	\$44.24
	04/30/2018	\$24.21	\$8.49	\$11.96	\$0.00	\$44.66
	05/01/2018	\$24.24	\$8.49	\$12.46	\$0.00	\$45.19
	04/30/2019	\$24.24	\$8.49	\$12.92	\$0.00	\$45.65
RECLAIMERS <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2016	\$43.81	\$10.00	\$15.15	\$0.00	\$68.96
	12/01/2016	\$45.04	\$10.00	\$15.15	\$0.00	\$70.19
	06/01/2017	\$46.03	\$10.00	\$15.15	\$0.00	\$71.18
	12/01/2017	\$47.02	\$10.00	\$15.15	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
RESIDENTIAL WOOD FRAME (All Other Work) <i>CARPENTERS -ZONE 2 (Residential Wood)</i>	04/01/2011	\$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> As of 9/1/09 Carpentry work on wood-frame residential WEATHERIZATION projects shall be paid the RESIDENTIAL WOOD FRAME CARPENTER rate.	05/01/2011	\$24.24	\$6.34	\$6.23	\$0.00	\$36.81

Apprentice - CARPENTER (Residential Wood Frame) - Zone 2

Effective Date - 05/01/2011

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$14.54	\$6.34	\$0.00	\$0.00	\$20.88
2	60	\$14.54	\$6.34	\$6.23	\$0.00	\$27.11
3	65	\$15.76	\$6.34	\$6.23	\$0.00	\$28.33
4	70	\$16.97	\$6.34	\$6.23	\$0.00	\$29.54
5	75	\$18.18	\$6.34	\$6.23	\$0.00	\$30.75
6	80	\$19.39	\$6.34	\$6.23	\$0.00	\$31.96
7	85	\$20.60	\$6.34	\$6.23	\$0.00	\$33.17
8	90	\$21.82	\$6.34	\$6.23	\$0.00	\$34.39

Notes:

Apprentice to Journeyworker Ratio:1:5

RIDE-ON MOTORIZED BUGGY OPERATOR <i>LABORERS - ZONE 2</i>	06/01/2016	\$31.90	\$7.45	\$12.65	\$0.00	\$52.00
	12/01/2016	\$32.65	\$7.45	\$12.65	\$0.00	\$52.75

For apprentice rates see "Apprentice- LABORER"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
ROLLER/SPREADER/MULCHING MACHINE <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2016	\$43.81	\$10.00	\$15.15	\$0.00	\$68.96
	12/01/2016	\$45.04	\$10.00	\$15.15	\$0.00	\$70.19
	06/01/2017	\$46.03	\$10.00	\$15.15	\$0.00	\$71.18
	12/01/2017	\$47.02	\$10.00	\$15.15	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
ROOFER (Inc.Roofing Waterproofing &Roofing Damproofg) <i>ROOFERS LOCAL 33</i>	02/01/2016	\$40.11	\$11.00	\$12.90	\$0.00	\$64.01

Apprentice - ROOFER - Local 33

Effective Date - 02/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$20.06	\$11.00	\$3.39	\$0.00	\$34.45
2	60	\$24.07	\$11.00	\$12.90	\$0.00	\$47.97
3	65	\$26.07	\$11.00	\$12.90	\$0.00	\$49.97
4	75	\$30.08	\$11.00	\$12.90	\$0.00	\$53.98
5	85	\$34.09	\$11.00	\$12.90	\$0.00	\$57.99

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

Apprentice to Journeyworker Ratio:**

ROOFER SLATE / TILE / PRECAST CONCRETE <i>ROOFERS LOCAL 33</i>	02/01/2016	\$40.36	\$11.00	\$12.90	\$0.00	\$64.26
For apprentice rates see "Apprentice- ROOFER"						
SHEETMETAL WORKER <i>SHEETMETAL WORKERS LOCAL 17 - A</i>	02/01/2016	\$43.31	\$10.70	\$21.95	\$2.28	\$78.24
	08/01/2016	\$44.46	\$10.70	\$21.95	\$2.28	\$79.39
	02/01/2017	\$45.56	\$10.70	\$21.95	\$2.28	\$80.49
	08/01/2017	\$46.66	\$10.70	\$21.95	\$2.28	\$81.59
	02/01/2018	\$47.81	\$10.70	\$21.95	\$2.28	\$82.74

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - SHEET METAL WORKER - Local 17-A

Effective Date - 02/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$17.32	\$10.70	\$4.90	\$0.00	\$32.92
2	40	\$17.32	\$10.70	\$4.90	\$0.00	\$32.92
3	45	\$19.49	\$10.70	\$9.79	\$1.20	\$41.18
4	45	\$19.49	\$10.70	\$9.79	\$1.20	\$41.18
5	50	\$21.66	\$10.70	\$10.65	\$1.29	\$44.30
6	50	\$21.66	\$10.70	\$10.90	\$1.30	\$44.56
7	60	\$25.99	\$10.70	\$12.37	\$1.47	\$50.53
8	65	\$28.15	\$10.70	\$13.24	\$1.56	\$53.65
9	75	\$32.48	\$10.70	\$14.97	\$1.74	\$59.89
10	85	\$36.81	\$10.70	\$16.18	\$1.91	\$65.60

Effective Date - 08/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$17.78	\$10.70	\$4.90	\$0.00	\$33.38
2	40	\$17.78	\$10.70	\$4.90	\$0.00	\$33.38
3	45	\$20.01	\$10.70	\$9.79	\$1.22	\$41.72
4	45	\$20.01	\$10.70	\$9.79	\$1.22	\$41.72
5	50	\$22.23	\$10.70	\$10.65	\$1.31	\$44.89
6	50	\$22.23	\$10.70	\$10.90	\$1.31	\$45.14
7	60	\$26.68	\$10.70	\$12.37	\$1.49	\$51.24
8	65	\$28.90	\$10.70	\$13.24	\$1.59	\$54.43
9	75	\$33.35	\$10.70	\$14.97	\$1.77	\$60.79
10	85	\$37.79	\$10.70	\$16.18	\$1.94	\$66.61

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>	06/01/2016	\$32.44	\$10.41	\$10.08	\$0.00	\$52.93
	08/01/2016	\$32.44	\$10.91	\$10.08	\$0.00	\$53.43
	12/01/2016	\$32.44	\$10.91	\$10.89	\$0.00	\$54.24
SPECIALIZED EARTH MOVING EQUIP > 35 TONS <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	06/01/2016	\$32.73	\$10.41	\$10.08	\$0.00	\$53.22
	08/01/2016	\$32.73	\$10.91	\$10.08	\$0.00	\$53.72
	12/01/2016	\$32.73	\$10.91	\$10.89	\$0.00	\$54.53
SPRINKLER FITTER <i>SPRINKLER FITTERS LOCAL 550 - (Section B) Zone 2</i>	03/01/2016	\$48.99	\$8.67	\$16.80	\$0.00	\$74.46
	10/01/2016	\$49.98	\$8.67	\$16.80	\$0.00	\$75.45
	03/01/2017	\$50.88	\$8.67	\$16.80	\$0.00	\$76.35

Apprentice - SPRINKLER FITTER - Local 550 (Section B) Zone 2

Effective Date - 03/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$17.15	\$8.67	\$8.55	\$0.00	\$34.37
2	40	\$19.60	\$8.67	\$8.55	\$0.00	\$36.82
3	45	\$22.05	\$8.67	\$8.55	\$0.00	\$39.27
4	50	\$24.50	\$8.67	\$8.55	\$0.00	\$41.72
5	55	\$26.94	\$8.67	\$8.55	\$0.00	\$44.16
6	60	\$29.39	\$8.67	\$8.55	\$0.00	\$46.61
7	65	\$31.84	\$8.67	\$8.55	\$0.00	\$49.06
8	70	\$34.29	\$8.67	\$8.55	\$0.00	\$51.51
9	75	\$36.74	\$8.67	\$8.55	\$0.00	\$53.96
10	80	\$39.19	\$8.67	\$8.55	\$0.00	\$56.41

Effective Date - 10/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$17.49	\$8.67	\$8.55	\$0.00	\$34.71
2	40	\$19.99	\$8.67	\$8.55	\$0.00	\$37.21
3	45	\$22.49	\$8.67	\$8.55	\$0.00	\$39.71
4	50	\$24.99	\$8.67	\$8.55	\$0.00	\$42.21
5	55	\$27.49	\$8.67	\$8.55	\$0.00	\$44.71
6	60	\$29.99	\$8.67	\$8.55	\$0.00	\$47.21
7	65	\$32.49	\$8.67	\$8.55	\$0.00	\$49.71
8	70	\$34.99	\$8.67	\$8.55	\$0.00	\$52.21
9	75	\$37.49	\$8.67	\$8.55	\$0.00	\$54.71
10	80	\$39.98	\$8.67	\$8.55	\$0.00	\$57.20

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

Apprentice to Journeyworker Ratio:1:3

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

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

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

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

TELECOMMUNICATION TECHNICIAN <i>ELECTRICIANS LOCAL 103</i>	03/01/2016	\$34.63	\$13.00	\$14.55	\$0.00	\$62.18
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Apprentice - TELECOMMUNICATION TECHNICIAN - Local 103

Effective Date - 03/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$13.85	\$13.00	\$0.42	\$0.00	\$27.27
2	40	\$13.85	\$13.00	\$0.42	\$0.00	\$27.27
3	45	\$15.58	\$13.00	\$11.52	\$0.00	\$40.10
4	45	\$15.58	\$13.00	\$11.52	\$0.00	\$40.10
5	50	\$17.32	\$13.00	\$11.79	\$0.00	\$42.11
6	55	\$19.05	\$13.00	\$12.06	\$0.00	\$44.11
7	60	\$20.78	\$13.00	\$12.34	\$0.00	\$46.12
8	65	\$22.51	\$13.00	\$12.62	\$0.00	\$48.13
9	70	\$24.24	\$13.00	\$12.90	\$0.00	\$50.14
10	75	\$25.97	\$13.00	\$13.17	\$0.00	\$52.14

Notes:

Apprentice to Journeyworker Ratio:1:1

TERRAZZO FINISHERS	02/01/2016	\$48.80	\$10.18	\$19.14	\$0.00	\$78.12
BRICKLAYERS LOCAL 3 - MARBLE & TILE	08/01/2016	\$49.70	\$10.18	\$19.22	\$0.00	\$79.10
	02/01/2017	\$50.27	\$10.18	\$19.22	\$0.00	\$79.67

Apprentice - TERRAZZO FINISHER - Local 3 Marble & Tile

Effective Date - 02/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.40	\$10.18	\$19.14	\$0.00	\$53.72
2	60	\$29.28	\$10.18	\$19.14	\$0.00	\$58.60
3	70	\$34.16	\$10.18	\$19.14	\$0.00	\$63.48
4	80	\$39.04	\$10.18	\$19.14	\$0.00	\$68.36
5	90	\$43.92	\$10.18	\$19.14	\$0.00	\$73.24

Effective Date - 08/01/2016

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

Notes:

Apprentice to Journeyworker Ratio:1:3

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TEST BORING DRILLER <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2016	\$37.20	\$7.45	\$14.00	\$0.00	\$58.65
	12/01/2016	\$38.20	\$7.45	\$14.00	\$0.00	\$59.65
For apprentice rates see "Apprentice- LABORER"						
TEST BORING DRILLER HELPER <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2016	\$35.92	\$7.45	\$14.00	\$0.00	\$57.37
	12/01/2016	\$36.92	\$7.45	\$14.00	\$0.00	\$58.37
For apprentice rates see "Apprentice- LABORER"						
TEST BORING LABORER <i>LABORERS - FOUNDATION AND MARINE</i>	06/01/2016	\$35.80	\$7.45	\$14.00	\$0.00	\$57.25
	12/01/2016	\$36.80	\$7.45	\$14.00	\$0.00	\$58.25
For apprentice rates see "Apprentice- LABORER"						
TRACTORS/PORTABLE STEAM GENERATORS <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2016	\$43.81	\$10.00	\$15.15	\$0.00	\$68.96
	12/01/2016	\$45.04	\$10.00	\$15.15	\$0.00	\$70.19
	06/01/2017	\$46.03	\$10.00	\$15.15	\$0.00	\$71.18
	12/01/2017	\$47.02	\$10.00	\$15.15	\$0.00	\$72.17
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TRAILERS FOR EARTH MOVING EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	06/01/2016	\$33.02	\$10.41	\$10.08	\$0.00	\$53.51
	08/01/2016	\$33.02	\$10.91	\$10.08	\$0.00	\$54.01
	12/01/2016	\$33.02	\$10.91	\$10.89	\$0.00	\$54.82
TUNNEL WORK - COMPRESSED AIR <i>LABORERS (COMPRESSED AIR)</i>	06/01/2016	\$48.08	\$7.45	\$14.40	\$0.00	\$69.93
	12/01/2016	\$49.08	\$7.45	\$14.40	\$0.00	\$70.93
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE) <i>LABORERS (COMPRESSED AIR)</i>	06/01/2016	\$50.08	\$7.45	\$14.40	\$0.00	\$71.93
	12/01/2016	\$51.08	\$7.45	\$14.40	\$0.00	\$72.93
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR <i>LABORERS (FREE AIR TUNNEL)</i>	06/01/2016	\$40.15	\$7.45	\$14.40	\$0.00	\$62.00
	12/01/2016	\$41.15	\$7.45	\$14.40	\$0.00	\$63.00
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR (HAZ. WASTE) <i>LABORERS (FREE AIR TUNNEL)</i>	06/01/2016	\$42.15	\$7.45	\$14.40	\$0.00	\$64.00
	12/01/2016	\$43.15	\$7.45	\$14.40	\$0.00	\$65.00
For apprentice rates see "Apprentice- LABORER"						
VAC-HAUL <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	06/01/2016	\$32.44	\$10.41	\$10.08	\$0.00	\$52.93
	08/01/2016	\$32.44	\$10.91	\$10.08	\$0.00	\$53.43
	12/01/2016	\$32.44	\$10.91	\$10.89	\$0.00	\$54.24
WAGON DRILL OPERATOR <i>LABORERS - ZONE 2</i>	06/01/2016	\$31.90	\$7.45	\$12.65	\$0.00	\$52.00
	12/01/2016	\$32.65	\$7.45	\$12.65	\$0.00	\$52.75
For apprentice rates see "Apprentice- LABORER"						
WASTE WATER PUMP OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	06/01/2016	\$44.23	\$10.00	\$15.15	\$0.00	\$69.38
	12/01/2016	\$45.48	\$10.00	\$15.15	\$0.00	\$70.63
	06/01/2017	\$46.48	\$10.00	\$15.15	\$0.00	\$71.63
	12/01/2017	\$47.48	\$10.00	\$15.15	\$0.00	\$72.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
WATER METER INSTALLER <i>PLUMBERS & GASFITTERS LOCAL 12 (Local 138)</i>	03/01/2016	\$47.28	\$11.07	\$15.14	\$0.00	\$73.49
	09/01/2016	\$48.33	\$11.07	\$15.14	\$0.00	\$74.54
	03/01/2017	\$49.33	\$11.07	\$15.14	\$0.00	\$75.54
For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"						
Outside Electrical - East						
CABLE TECHNICIAN (Power Zone) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/30/2015	\$26.11	\$7.25	\$1.78	\$0.00	\$35.14
	08/28/2016	\$26.61	\$7.50	\$1.80	\$0.00	\$35.91
	09/03/2017	\$27.14	\$7.75	\$1.81	\$0.00	\$36.70

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- LINEMAN"						
CABLEMAN (Underground Ducts & Cables) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/30/2015	\$36.98	\$7.25	\$8.12	\$0.00	\$52.35
	08/28/2016	\$37.70	\$7.50	\$8.87	\$0.00	\$54.07
	09/03/2017	\$38.45	\$7.75	\$9.53	\$0.00	\$55.73
For apprentice rates see "Apprentice- LINEMAN"						
DRIVER / GROUNDMAN CDL <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/30/2015	\$30.46	\$7.25	\$8.34	\$0.00	\$46.05
	08/28/2016	\$31.05	\$7.50	\$8.89	\$0.00	\$47.44
	09/03/2017	\$31.66	\$7.75	\$9.44	\$0.00	\$48.85
For apprentice rates see "Apprentice- LINEMAN"						
DRIVER / GROUNDMAN -Inexperienced (<2000 Hrs) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/30/2015	\$23.93	\$7.25	\$1.72	\$0.00	\$32.90
	08/28/2016	\$24.39	\$7.50	\$1.73	\$0.00	\$33.62
	09/03/2017	\$24.88	\$7.75	\$1.75	\$0.00	\$34.38
For apprentice rates see "Apprentice- LINEMAN"						
EQUIPMENT OPERATOR (Class A CDL) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/30/2015	\$36.98	\$7.25	\$12.29	\$0.00	\$56.52
	08/28/2016	\$37.70	\$7.50	\$12.95	\$0.00	\$58.15
	09/03/2017	\$38.45	\$7.75	\$13.61	\$0.00	\$59.81
For apprentice rates see "Apprentice- LINEMAN"						
EQUIPMENT OPERATOR (Class B CDL) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/30/2015	\$32.63	\$7.25	\$9.05	\$0.00	\$48.93
	08/28/2016	\$33.26	\$7.50	\$9.63	\$0.00	\$50.39
	09/03/2017	\$33.92	\$7.75	\$10.21	\$0.00	\$51.88
For apprentice rates see "Apprentice- LINEMAN"						
GROUNDMAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/30/2015	\$23.93	\$7.25	\$1.72	\$0.00	\$32.90
	08/28/2016	\$24.39	\$7.50	\$1.73	\$0.00	\$33.62
	09/03/2017	\$24.88	\$7.75	\$1.75	\$0.00	\$34.38
For apprentice rates see "Apprentice- LINEMAN"						
GROUNDMAN -Inexperienced (<2000 Hrs.) <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/30/2015	\$19.58	\$7.25	\$1.59	\$0.00	\$28.42
	08/28/2016	\$19.96	\$7.50	\$1.60	\$0.00	\$29.06
	09/03/2017	\$20.35	\$7.75	\$1.61	\$0.00	\$29.71
For apprentice rates see "Apprentice- LINEMAN"						
JOURNEYMAN LINEMAN <i>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104</i>	08/30/2015	\$43.51	\$7.25	\$15.06	\$0.00	\$65.82
	08/28/2016	\$44.35	\$7.50	\$15.83	\$0.00	\$67.68
	09/03/2017	\$45.23	\$7.75	\$16.61	\$0.00	\$69.59

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - LINEMAN (Outside Electrical) - East Local 104

Effective Date - 08/30/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$26.11	\$7.25	\$3.28	\$0.00	\$36.64
2	65	\$28.28	\$7.25	\$3.35	\$0.00	\$38.88
3	70	\$30.46	\$7.25	\$3.41	\$0.00	\$41.12
4	75	\$32.63	\$7.25	\$4.98	\$0.00	\$44.86
5	80	\$34.81	\$7.25	\$5.04	\$0.00	\$47.10
6	85	\$36.98	\$7.25	\$5.11	\$0.00	\$49.34
7	90	\$39.16	\$7.25	\$7.17	\$0.00	\$53.58

Effective Date - 08/28/2016

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

Notes:

Apprentice to Journeyworker Ratio:1:2

TELEDATA CABLE SPLICER
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104 01/01/2016 \$28.98 \$4.25 \$3.12 \$0.00 \$36.35

TELEDATA LINEMAN/EQUIPMENT OPERATOR
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104 01/01/2016 \$27.31 \$4.25 \$3.07 \$0.00 \$34.63

TELEDATA WIREMAN/INSTALLER/TECHNICIAN
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104 01/01/2016 \$27.31 \$4.25 \$3.07 \$0.00 \$34.63

TREE TRIMMER
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104 01/31/2016 \$18.51 \$3.55 \$0.00 \$0.00 \$22.06

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

TREE TRIMMER GROUNDMAN
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104 01/31/2016 \$16.32 \$3.55 \$0.00 \$0.00 \$19.87

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

Additional Apprentices Information:

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

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

All steps are six months (1000 hours.)

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

** Multiple ratios are listed in the comment field.

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

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

EXHIBIT A

Asbestos Report



September 27, 2015

Mr. Mike Collins
 City of Beverly
 191 Cabot Street
 2nd Floor
 Beverly, MA 01915

Re: Pre-Renovation Asbestos Inspection Report for
 Roofing-148 Park Street, Beverly, MA
 Project # 16-298

Dear Mr. Collins:

At your request *Test-All Environmental Services, Inc.* conducted an inspection for suspect asbestos containing roofing materials @ 148 Park Street, Beverly, MA. As part of the inspection a total of seventy-one (71) bulk samples of suspect materials were collected and analyzed for asbestos content. The inspection was conducted by Carl Pennor, MA DOS Asbestos Inspector License #AI 001719 & Lou Dias on March 30, 2016. This report outlines the initial visual survey, sampling, and summary of analytical results provided by *Test-All*.

A. Summary of Asbestos Containing Building Materials:

1. The following building materials and general location were identified as **asbestos-Containing materials**:

Asbestos Containing Material Summary Table Main Building				
Material (ACM)	General Location	Conditions F/NF	Estimated Quantity	Sample #s
Roofing Repair	Center, Right Rear, Left Rear, Front @ Parapet Wall, Left Side @ Front	Good NF	700 SF	298-07, 08, 09, 10, 11, 12, 13 10% chrysotile
Flashing Cement	Parapet Wall, Perimeter Edges, & Penetrations	Good NF	610 SF	298-14, 15, 16, 17 3% chrysotile
Skylight Glazing	Left & Right Side	Damaged F	2 Units	298-18, 19 3% chrysotile

Note: Chrysotile & Amosite are types of asbestos
 SF = square feet ND= Not Determined
 F = Friable NF = Nonfriable

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Asbestos Containing Material Summary Table Small Building				
Material (ACM)	General Location	Conditions F/NF	Estimated Quantity	Sample #s
Flashing Cement	Roof Perimeter, Penetrations, Parapet Wall	Good NF	400 SF	298-22, 23, 28, 29 10% chrysotile

Asbestos Containing Material Summary Table Garage Building #01				
Material (ACM)	General Location	Conditions F/NF	Estimated Quantity	Sample #s
Flashing Cement	Roof Perimeter, Penetrations	Good NF	320 SF	298-35, 36, 37 10% chrysotile
Skylight Glazing	Rear Center	Good NF	1 Unit	298-41, 42 3% chrysotile
Transite Exhaust Vent	Front Left Corner	Good NF	3 LF	Assumed

Asbestos Containing Material Summary Table Garage Building #02				
Material (ACM)	General Location	Conditions F/NF	Estimated Quantity	Sample #s
Asphalt Roofing & Flashing Cement	Entire Roof & Gable End	Good NF	960 SF	298-43 thru 50 20% chrysotile

Asbestos Containing Material Summary Table Garage Building #03				
Material (ACM)	General Location	Conditions F/NF	Estimated Quantity	Sample #s
Flashing Cement	Entire Roof	Good NF	300 SF	298-51, 52, 53, 54 20% chrysotile

Asbestos Containing Material Summary Table Water Division Building				
Material (ACM)	General Location	Conditions F/NF	Estimated Quantity	Sample #s
No Asbestos Containing Materials Identified				

B. Summary of Non Asbestos Building Materials:

1. The suspect materials listed below were sampled, analyzed and found **not to contain asbestos or less than (<1%)**. The exact sampling location and analytical results are provided in the analytical data table appendix. These materials may be classified and treated as non-asbestos materials.

Non-Asbestos Material Summary Table Main Building		
Material (Non-ACM)	General Location	Sample #s
Multi-Layered Asphalt Roofing	Roof Field	298-01, 03, 05
Paper Beneath Asphalt Roofing	Roof Field	298-02, 04, 06

Non-Asbestos Material Summary Table Small Building		
Material (Non-ACM)	General Location	Sample #s
Multi-Layered Asphalt Roofing	Roof Field	298-20, 21
Tar on Foam & Tar on Roof Deck	Beneath Asphalt Roofing	298-24, 25, 26, 27
Parapet Wall Cap Seam Caulk	Roof Perimeter	298-30, 31

Non-Asbestos Material Summary Table Garage Building #01		
Material (Non-ACM)	General Location	Sample #s
Multi-Layered Asphalt Roofing	Roof Field	298-32, 33, 34
Roof Repair	Roof Field	298-38, 39, 40

Non-Asbestos Material Summary Table Garage Building #03		
Material (Non-ACM)	General Location	Sample #s
Multi-Layered Asphalt Roofing	Roof Field	298-55, 56, 57, 58

Non-Asbestos Material Summary Table Water Division Building Left Side, Center, & Right Side		
Material (Non-ACM)	General Location	Sample #s
Multi-Layered Asphalt Roofing	Roof Field	298-59, 63, 68
Flashing Cement	Roof Perimeter & Penetrations	298-60, 61, 62, 64, 65, 69
Paper Beneath Sulfur Block	Roof Field	298-66, 70
Tar on Roof Deck	Roof Field	298-67, 71

C. Bulk Sampling:

1. Bulk samples were collected in a random manner and transported via chain of custody to EMSL Analytical Laboratory located in Woburn, Massachusetts. Samples were analyzed by Polarized Light Microscopy per EPA method 600/R-93-116, July 1993. The detection limit of the EPA recommended method is one percent asbestos by weight. Materials containing greater than one per cent asbestos are treated as asbestos-containing as determined by the EPA. The laboratory is certified by the National Institute of Standards and Technologies NIST/NVLAP Program (NVLAP# 102079-0) and the Massachusetts Department of Occupational Safety (DOS), # 000162.

D. Conclusions and Recommendations:

1. Test-All recommends that all asbestos containing materials be removed and disposed of by a MA Licensed Asbestos Abatement Contractor.
2. This inspection report is not intended to be used in place of an asbestos abatement specification/work plan. Test-All recommends that a plan be drafted by a MA Licensed Project Designer for bidding purposes.

E. Remarks:

1. Any additional suspect materials not identified in this report which become exposed during building renovation and maintenance and should be sampled and analyzed for asbestos content.

Asbestos Inspection Report for
148 Park Street
Beverly, MA

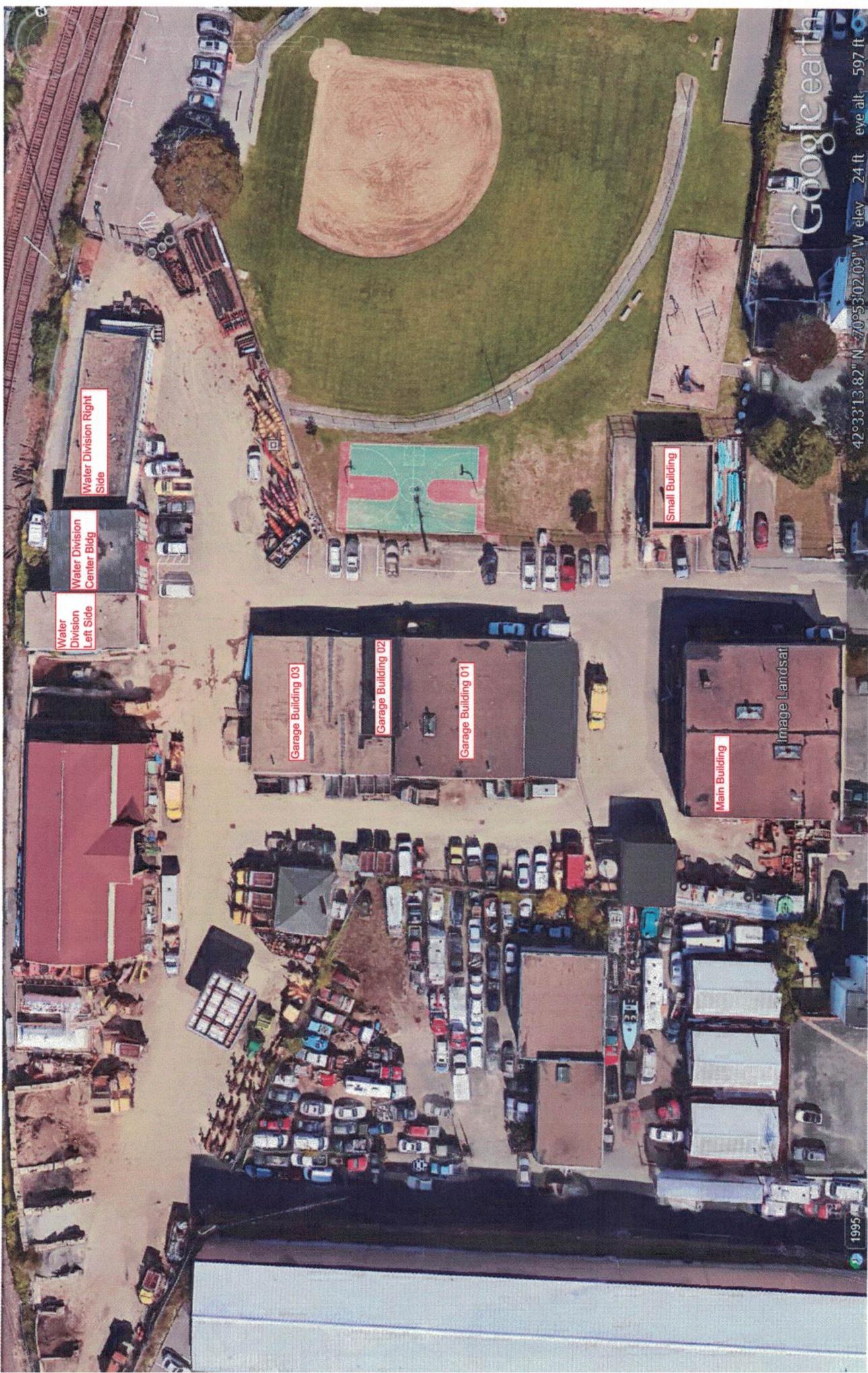
April 24, 2016
Project #16-298
Page 5

Attached please find sample analytical results. Please contact me at your convenience with questions or if you need additional information. Thank you for the opportunity to provide you with our services.

Sincerely,
Test All Environmental Services, Inc.

A handwritten signature in black ink, appearing to read 'CP' followed by a long horizontal flourish.

Carl Pennor



Water Division
Left Side

Water Division
Center Bldg

Water Division
Right Side

Garage Building 03

Garage Building 02

Garage Building 01

Main Building

Image Landsat

Small Building

1995

42°33'13.82" N - 70°53'02.09" W elev 24 ft eye alt 597 ft

Google earth

Carl Pennor
 Test-All
 96 Lancaster Farm Rd.
 Salem, NH 03079

Project Number:

Project Name: 148 Park Street, Beverly, MA

Date Sampled: 2016-03-30

Work Received: 2016-04-04

Analysis Method: BULK PLM ANALYSIS EPA/600/R-93/116

FieldID	Material	Location	Color	Non-Asbestos %	Asbestos %
LabID					
01	Multi Layered Asphalt	Main Bldg @ Street	black	Cellulose Non-Fibrous	60 None Detected 40
136179					
02	Paper Beneath #01	Main Bldg @ Street	brown	Cellulose Non-Fibrous	95 None Detected 5
136180					
03	Multi Layered Asphalt	Main Bldg @ Street	black	Cellulose Non-Fibrous	55 None Detected 45
136181					
04	Paper Beneath #03	Main Bldg @ Street	brown	Cellulose Non-Fibrous	90 None Detected 10
136182					
05	Multi Layered Asphalt	Main Bldg @ Street	black	Cellulose Non-Fibrous	50 None Detected 50
136183					
06	Paper Beneath #05	Main Bldg @ Street	brown	Cellulose Non-Fibrous	95 None Detected 5
136184					
07	Center Roof Repair	Main Bldg @ Street	black	Fiberglass Cellulose Non-Fibrous	30 None Detected 20 50
136185					
08	Center Roof Repair	Main Bldg @ Street	black	Fiberglass Cellulose Non-Fibrous	30 None Detected 30 40
136186					
09	Center Roof Repair	Main Bldg @ Street	black	Fiberglass Cellulose Non-Fibrous	10 None Detected 40 50
136187					
10	R Rear Corner Repair	Main Bldg @ Street	black	Non-Fibrous	95 Detected Chrysotile 5
136188					
11	R Rear Corner Repair	Main Bldg @ Street	black	Cellulose Non-Fibrous	18 Detected Chrysotile 2 80
136189					
12	Parapet Wall Repair	Main Bldg @ Street	black	Non-Fibrous	90 Detected Chrysotile 10
136190					
13	Parapet Wall Repair	Main Bldg @ Street	black	Non-Fibrous	90 Detected Chrysotile 10
136191					
14	Rear Flashing Cement	Main Bldg @ Street	black	Cellulose Non-Fibrous	18 Detected Chrysotile 2 80
136192					

FieldID	Material	Location	Color	Non-Asbestos %	Asbestos %
LabID					
15	L Side Flashing Cement	Main Bldg @ Street	black	Cellulose Non-Fibrous	17 Detected 80 Chrysotile 3
136193					
16	L Side Flashing Cement	Main Bldg @ Street	black	Cellulose Non-Fibrous	18 Detected 80 Chrysotile 2
136194					
17	Rear Flashing Cement	Main Bldg @ Street	black	Cellulose Non-Fibrous	28 Detected 70 Chrysotile 2
136195					
18	Skylight Glazing	Main Bldg @ Street	gray	Non-Fibrous	100 None Detected
136196					
19	Skylight Glazing	Main Bldg @ Street	gray	Non-Fibrous	100 None Detected
136197					
20	Multi Layered Asphalt	Small Building	black	Fiberglass Non-Fibrous	30 None Detected 70
136198					
21	Multi Layered Asphalt	Small Building	black	Fiberglass Non-Fibrous	35 None Detected 65
136199					
22	Flashing Cement	Small Building	black	Non-Fibrous	90 Detected Chrysotile 10
136200					
23	Flashing Cement	Small Building	black	Fiberglass Cellulose Non-Fibrous	20 Detected 12 Chrysotile 3 65
136201					
24	Tar on Foam	Small Building	black	Non-Fibrous	100 None Detected
136202					
25	Tar on Foam	Small Building	black	Non-Fibrous	100 None Detected
136203					
26	Tar on Roof Deck	Small Building	black	Cellulose Non-Fibrous	10 None Detected 90
136204					
27	Tar on Roof Deck	Small Building	black	Non-Fibrous	100 None Detected
136205					
28	Parapet Wall Repair	Small Building	black	Non-Fibrous	95 Detected Chrysotile 5
136206					
29	Parapet Wall Repair	Small Building	black	Non-Fibrous	90 Detected Chrysotile 10
136207					
30	Parapet Wall Cap Caulk	Small Building	gray	Non-Fibrous	100 None Detected
136208					
31	Parapet Wall Cap Caulk	Small Building	gray	Non-Fibrous	100 None Detected
136209					
32	Multi Layered Asphalt	Garage Bldg #01	black	Cellulose Non-Fibrous	50 None Detected 50
136210					

FieldID	Material	Location	Color	Non-Asbestos %	Asbestos %
LabID					
33	Multi Layered Asphalt	Garage Bldg #01	black	Cellulose Non-Fibrous	45 None Detected 55
136211					
34	Multi Layered Asphalt	Garage Bldg #01	black	Cellulose Non-Fibrous	40 None Detected 60
136212					
35	Flashing Cement	Garage Bldg #01	black	Cellulose Non-Fibrous	10 None Detected 90
136213					
36	Flashing Cement	Garage Bldg #01	black	Cellulose Non-Fibrous	5 None Detected 95
136214					
37	Flashing Cement	Garage Bldg #01	black	Non-Fibrous	90 Detected Chrysotile 10
136215					
38	Roof Repair	Garage Bldg #01	black	Cellulose Non-Fibrous	10 None Detected 90
136216					
39	Roof Repair	Garage Bldg #01	black	Cellulose Non-Fibrous	10 None Detected 90
136217					
40	Roof Repair	Garage Bldg #01	black	Cellulose Non-Fibrous	10 None Detected 90
136218					
41	Skylight Glazing	Garage Bldg #01	gray	Non-Fibrous	98 Detected Chrysotile 2
136219					
42	Skylight Glazing	Garage Bldg #01	gray	Non-Fibrous	97 Detected Chrysotile 3
136220					
43	Multi Layered Asphalt	Garage Bldg #02	black	Fiberglass Non-Fibrous	30 None Detected 70
136221					
44	Multi Layered Asphalt	Garage Bldg #02	black	Fiberglass Cellulose Non-Fibrous	20 Detected Chrysotile < 1 5 75
136222					
45	Multi Layered Asphalt	Garage Bldg #02	black	Fiberglass Cellulose Non-Fibrous	30 Detected Chrysotile 2 3 65
136223					
46	Flashing Cement	Garage Bldg #02	black	Non-Fibrous	90 Detected Chrysotile 10
136224					
47	Flashing Cement	Garage Bldg #02	black	Cellulose Non-Fibrous	20 None Detected 80
136225					
48	Flashing Cement	Garage Bldg #02	black	Cellulose Non-Fibrous	25 None Detected 75
136226					
49	Gable End Sealant	Garage Bldg #02	black	Cellulose Non-Fibrous	20 None Detected 80
136227					
50	Gable End Sealant	Garage Bldg #02	black	Non-Fibrous	80 Detected Chrysotile 20
136228					

FieldID	Material	Location	Color	Non-Asbestos %	Asbestos %
LabID					
51	Flashing Cement	Garage Bldg #03	black	Non-Fibrous	80 Detected Chrysotile 20
136229					
52	Flashing Cement	Garage Bldg #03	black	Non-Fibrous	90 Detected Chrysotile 10
136230					
53	Flashing Cement	Garage Bldg #03	black	Cellulose Non-Fibrous	20 None Detected 80
136231					
54	Flashing Cement	Garage Bldg #03	black	Non-Fibrous	80 Detected Chrysotile 20
136232					
55	Multi Layered Asphalt	Garage Bldg #03	black	Cellulose Non-Fibrous	50 None Detected 50
136233					
56	Multi Layered Asphalt	Garage Bldg #03	black	Cellulose Non-Fibrous	40 None Detected 60
136234					
57	Multi Layered Asphalt	Garage Bldg #03	black	Cellulose Non-Fibrous	40 None Detected 60
136235					
58	Multi Layered Asphalt	Garage Bldg #03	black	Fiberglass Non-Fibrous	40 None Detected 60
136236					
59	Multi Layered Asphalt	Water Division L Side	black	Fiberglass Non-Fibrous	35 None Detected 65
136237					
60	Flashing Cement	Water Division L Side	black	Fiberglass Non-Fibrous	20 None Detected 80
136238					
61	Flashing Cement	Water Division L Side	black	Cellulose Non-Fibrous	15 None Detected 85
136239					
62	Flashing Cement	Water Division L Side	black	Fiberglass Non-Fibrous	20 None Detected 80
136240					
63	Multi Layered Asphalt	Water Division Center Bldg	black	Fiberglass Cellulose Non-Fibrous	15 None Detected 15 70
136241					
64	Flashing Cement	Water Division Center Bldg	black	Cellulose Non-Fibrous	15 None Detected 85
136242					
65	Flashing Cement	Water Division Center Bldg	black	Cellulose Non-Fibrous	10 None Detected 90
136243					
66	Paper Beneath Sulfur Block	Water Division Center Bldg	multi	Cellulose Non-Fibrous	5 None Detected 95
136244					
67	Tar on Roof Deck	Water Division Center Bldg	black	Cellulose Non-Fibrous	5 None Detected 95
136245					
68	Multi Layered Asphalt	Water Division Center Bldg	black	Cellulose Non-Fibrous	40 None Detected 60
136246					

FieldID	Material	Location	Color	Non-Asbestos %	Asbestos %
LabID					
69	Flashing Cement	Water Division Center Bldg	black	Cellulose Non-Fibrous	5 None Detected 95
136247					
70	Paper Beneath Sulfur Block	Water Division Center Bldg	black	Cellulose Non-Fibrous	25 None Detected 75
136248					
71	Tar on Roof Deck	Water Division Center Bldg	black	Cellulose Non-Fibrous	30 None Detected 70
136249					
Friday 08 April 2016	<i>Michael Thumming</i>	End of Report			Page 5 of 5
Analyzed by:		Batch: 12615			