BID #2015-88
CONNECTICUT D.O.E. PROJECT NO. TMP-051-GTLZ
ROOF REPLACEMENT
DWIGHT ELEMENTARY SCHOOL
VOLUME 1

TOWN OF FAIRFIELD
PURCHASING AUTHORITY
725 OLD POST ROAD
INDEPENDENCE HALL
FAIRFIELD, CT 06824.

SEALED BIDS are subject to the standard instructions set forth on the attached sheets.
Any modifications must be specifically accepted by the Town of Fairfield, Purchasing Authority.

_____
First Selectman

_____
Director of Purchasing

_____
Date

Date Submitted_____ 20__.
Delivery _____days after receipt or order.
Terms: Cash discount _____%_____ days.

Bidder:

_____
Doing Business as (trade name)

_____
Address

_____
Town State / Zip

_____
Signature and Title

_____
Telephone number

_____
Fax number

_____
Email address

Sealed bids will be received by the Purchasing Authority at the office of the Director of Purchasing, First Floor, Independence Hall, 725 Old Post Road, Fairfield, Connecticut 06824, up to:

11:00 a.m. Tuesday, 9 June 2015

To provide labor, materials, equipment and all else necessary to furnish and install a roof replacement at Dwight Elementary School, 1600 Redding Rd, Fairfield, Connecticut.

NOTES:
1. Bidders are to complete all requested data in the upper right corner of this page and must return this page and the Proposal page with their bid.
2. No bid shall be accepted from, or contracts awarded to, any person/company who is in the arrears to the Town of Fairfield upon debt, or contract or who has been within the prior five (5) years, a defaulter as surety or otherwise upon obligations to the Town of Fairfield.
3. A pre-bid site meeting shall commence at 4:00 pm in the Main Lobby, Dwight Elementary School, 1600 Redding Rd, Fairfield, on Thursday, 28 May 2015.

ROOF REPLACEMENT

DWIGHT ELEMENTARY SCHOOL
1600 Redding Rd
Fairfield, CT 06824

STATE PROJECT NO. TMP-051-GTLZ
BID #2015-88

S/P+A PROJECT NO. 15.082

END OF SECTION

Legal Notice

TOWN OF FAIRFIELD
Office of the Director of Purchasing
725 Old Post Road, Fairfield, CT 06824
Tel (203) 256-3060

INVITATION TO BID

Notice is hereby given that sealed bids by which
the Town of Fairfield will contract for the

Roof Replacement at Dwight Elementary School
BID# 2015-88
CONNECTICUT D.O.E. PROJECT NO. TMP-051-GTLZ

will be received in the Purchasing Director's Office until

11:00 a.m. Tuesday, 9 June 2015

when they will be publicly opened and read aloud.

A pre-bid meeting between prospective bidders and the Architect
will convene in the **main lobby of Dwight Elementary School,**
1600 Redding Rd Fairfield
Thursday, 28 May 2015 at 4:00 p.m.

when project details will be discussed and questions answered.

A bid bond for five percent (5%) of the base bid cost is required and must accompany each proposal. Bids must be held firm for ninety (90) days beyond the bid opening date.

The successful bidder must file a one hundred percent (100%) Performance Bond, a one hundred percent (100%) Labor & Materials Bond and a Certificate of Insurance with the Purchasing Authority within seven (7) days of notice of bid award.

Bid documents may be purchased at Universal Copy, 83 Bank Street, Waterbury, CT 06702 at a cost to the bidder. Call Brian Burke at (203) 757-2100 reserve a set. Prospective bidders are required to call to order documents. Bid documents are also available on the Town of Fairfield's website, www.fairfieldct.org.

The bidder's Workers Compensation Experience Modification Rating (EMR) must be 1.0 or lower. Bidders with an EMR higher than 1.0 are permitted to submit a bid for this project, however, the Town of Fairfield reserves the right to reject any or all bids from bidders with an EMR higher than 1.0. The 1.0 EMR limitation also applies to lower tier subcontractors for the project.

BID #2015-88

PURCHASING AUTHORITY
TOWN OF FAIRFIELD
INSTRUCTIONS FOR BIDDERS
TERMS AND CONDITIONS OF BID

BID PROPOSALS

Bid proposals are to be submitted in a sealed envelope and clearly marked on the outside **"BID #2015-88"**. All prices and notations must be printed in ink or typewritten. No erasures are permitted. Bid proposals are to be in the office of the Purchasing Authority, First Floor, Independence Hall, 725 Old Post Road, Fairfield, Connecticut, prior to date and time specified, at which time they will be publicly opened.

RIGHT TO ACCEPT/REJECT

AFTER REVIEW OF ALL FACTORS, TERMS AND CONDITIONS, INCLUDING PRICE, THE PURCHASING AUTHORITY OF THE TOWN OF FAIRFIELD RESERVES THE RIGHT TO REJECT ANY AND ALL BIDS, OR ANY PART THEREOF, OR WAIVE DEFECTS IN SAME, OR ACCEPT ANY PROPOSAL DEEMED TO BE IN THE BEST INTEREST OF THE TOWN OF FAIRFIELD.

QUESTIONS

Questions concerning conditions and specifications should be directed *in writing* to:

Phillip Ryan, Buyer: Email – PRyan@town.fairfield.ct.us * Fax – (203) 256-3080

Inquiries must reference date of bid opening, requisition or contact number, and must be received no later than seven (7) calendar days prior to date of bid opening. Failure to comply with these conditions will result in the bidder waiving the right to dispute the bid specifications and conditions.

PRICES

Prices quoted must be firm, for acceptance by the Town of Fairfield, for a period of ninety (90) days. Prices shall include all applicable duties. Bidders shall be required to deliver awarded items at prices quoted in their original bid.

F.O.B. DESTINATION

Prices quoted shall be Net – Delivered to destination. Bids quoting other than F.O.B. Destination may be rejected.

BID BOND

The **BID BOND** furnished, as bid security, must be duly executed by the bidder as principal. It must be in the amount equal to five percent (5%) of the total estimated bid, as guarantee that, in case the contract is awarded to the bidder, the bidder will, within ten (10) days thereafter, execute such contract and furnish a Performance Bond and Payment Bond.

Small businesses may elect to obtain an irrevocable letter of credit or cashier's check in lieu of the Bid Bond. Such surety must also be in an amount equal to at least five percent (5%) of the total estimated bid.

NOTE: Failure to provide a Bid Bond or equivalent security is not cause for a waiver defect. Any bid not accompanied by a Bid Bond will be excluded from consideration.

PERMITS

The contractor will be responsible for securing all necessary permits, state and local, as required by the Town of Fairfield. The Town will waive its application and permit fees for Town of Fairfield projects.

PAYMENT PROCEDURES

No voucher, claim or charge against the Town shall be paid without the approval of the Fiscal Officer for correctness and legality. Appropriate checks shall be drawn by the Fiscal Officer for approved claims or charges and they shall be valid without countersignature unless the Board of Selectmen otherwise prescribed.

BID #2015-88

PURCHASING AUTHORITY
TOWN OF FAIRFIELD
INSTRUCTIONS FOR BIDDERS
TERMS AND CONDITIONS OF BID

PAYMENT PERIOD
The Town of Fairfield shall put forth its best effort to make payment within thirty days (30) after delivery of the item acceptance of the work, or receipt of a properly completed invoice, whichever is later. Payment period shall be net thirty days (30) unless otherwise specified. For projects that do not require a performance or bid bond, The Town of Fairfield reserves the right to retain five percent (5%) of total bid amount, which is payable ninety (90) days after final payment or acceptance of the work.

THE CONTRACTOR
The Contractor for the work described shall be thoroughly familiar with the requirements of all specifications, and the actual physical conditions of various job sites. The submission of a proposal shall be construed as evidence that the Contractor has examined the actual job conditions, requirements and specifications. Any claim for labor, equipment or materials required, or difficulties encountered which could have been foreseen had such an examination been carefully made will not be recognized.

ASSIGNMENT OF CONTRACT
No contract may be assigned or transferred without the consent of the Purchasing Authority.

AWARD OF BIDS
Contracts and purchases will be made or entered into with the lowest responsible bidder meeting specifications, except as otherwise specified in the invitation. If more than one (1) item is specified in the invitation, the Town of Fairfield reserves the right to determine the low bidder on an individual basis or on the basis of all items included in the Invitation for Bids, unless otherwise expressed by the Town.

PERFORMANCE AND LABOR AND MATERIAL BOND
The successful bidder, within seven (7) business days after notification of award, will be required to furnish Performance and Labor and Material Bond provided by a company authorized to issue such bonds in the State of Connecticut, or Certified Check or properly executed Irrevocable Letter of Credit equal to a hundred percent (100%) of the award.

In the event that a supplier required to provide evidence of insurance and a performance bond does not do so before beginning work, the Town of Fairfield reserves the right to withhold payment from such supplier until the evidence of insurance and performance bond has been received by the Town.

GUARANTEE
Equipment, materials and/or work executed shall be guaranteed for a minimum period of one (1) year against defective material and workmanship. The cost of all labor, materials, shipping charges and other expenses in conjunction with the replacement of defective equipment, and/or unsatisfactory work, shall be borne by the Contractor.

CATALOGUE REFERENCE
Unless expressly stated otherwise, any and all reference to commercial types, sales, trade names and catalogues are intended to be descriptive only and not restrictive; the intent is to indicate the kind and quality of the articles that will be acceptable. Bids on other equivalent makes, or with reference to other catalogue items will be considered. The bidder is to clearly state exactly what will be furnished. Where possible and feasible, submit an illustration, descriptive material, and/or product sample.

OSHA
The bidder will certify all equipment complies with all regulations and conditions stipulated under the Williams-Steiger Occupational Safety and Health Act of 1971, as amended. The successful bidder will further certify that all items furnished under this project will conform and comply with Federal and State of Connecticut OSHA standards. The successful bidder will agree to indemnify and hold harmless the Town of Fairfield for any and all damages that may be assessed against the Town.

BID #2015-88

PURCHASING AUTHORITY
TOWN OF FAIRFIELD
INSTRUCTIONS FOR BIDDERS
TERMS AND CONDITIONS OF BID

LIFE CYCLE COSTING

Where applicable, Life Cycle Costing will be used as a criterion for awarding bids. This is a method of calculating total cost of ownership of an item over the life of the product, which may include operation and maintenance expenses, transportation, salvage value and/or disposal costs.

INSURANCE COVERAGE

The successful bidder will be required to furnish a Certificate of Insurance naming the Town of Fairfield as the additional insured. The insurance is to be suitable Contractor's Liability and Worker's Compensation, thereby making the Town of Fairfield harmless from all eventualities that may occur relative to this Bid and the resulting purchase order or contract. The Certificates of Insurance will be provided by companies licensed in the State of Connecticut and will be in amounts of $1,000,000 General Aggregate, $1,000,000 Automobile Liability and Worker's Compensation and Employer's Liability $1,000,000 (each accident) to the Town of Fairfield.

FEDERAL, STATE AND LOCAL LAWS

All applicable Federal, State and local laws, rules and regulations of all authorities having jurisdiction over the locality of the project shall apply to the contract and are deemed to be included herein. All work is to be done in accordance with the Davis-Bacon Act as amended; that is conditions of Prevailing Wage shall apply, if the threshold of $100,000.00 for this project is exceeded. All current Davis Bacon wage information may be accessed on-line at no cost: www.ctdol.state.ct.us
NOTE: The Town shall apply the most current wage decision applicable at the time of contract award and is not responsible for providing prevailing wage information.

CONFLICT OF INTEREST

No officer or employee or member of any elective or appointive board, commission or committee of the Town, whether temporary or permanent, shall have or acquire any financial interest gained from a successful bid, direct or indirect, aggregating more than one hundred dollars ($100.00), in any project, matter, contract or business within his/her jurisdiction or the jurisdiction of the board, commission or committee of which he/she is a member. Nor shall the officer/employee/member have any financial interest, direct or indirect, aggregating more than one hundred dollars ($100.00) in any contract or proposed contract for materials or services to be furnished or used in connection with any project, matter or thing which comes under his/her jurisdiction or the jurisdiction of the board, commission, committee of which he/she is a member.

SCOPE OF WORK/SITE INSPECTIONS

The bidder declares that the scope of the work has been thoroughly reviewed and any questions resolved (see above for name and number of individual to contact for questions). If applicable, the bidder further declares that the site has been inspected as called for in the specifications (q.v.).

EXCEPTION TO SPECIFICATIONS

No protest regarding the validity or appropriateness of the specifications or of the Invitation for Bids will be considered, unless the protest is filed in writing with the Purchasing Authority prior to the closing date for the bids. All bid proposals rendered shall be considered meeting the attached specifications unless exceptions are noted on a separate page dated and signed by the bidder.

UNLESS OTHERWISE NOTED

It will be assumed that all terms and conditions and specifications will be complied with and will be considered as part of the Bid Proposal.

TAX EXEMPT

Federal Tax Exemption 06-75-0063-K
Exempt from State Sales Tax under State General Statues Chapter 219-Section 12-412 Subsection A.
No exemption certificates are required and none will be issued.

Provide reference details regarding relevant and completed contracts performed:

REFERENCE #1

COMPANY NAME:_____

NAME/TITLE:_____

ADDRESS:_____

TELEPHONE:_____

E-MAIL:_____

REFERENCE #2

COMPANY NAME:_____

NAME/TITLE:_____

ADDRESS:_____

TELEPHONE:_____

E-MAIL:_____

REFERENCE #3

COMPANY NAME:_____

NAME/TITLE:_____

ADDRESS:_____

TELEPHONE:_____

E-MAIL:_____

A complete list of references for all projects performed for the past three (3) years will be required prior to award of bid.

Provide details of all relevant sub-contractors to be employed on this project (attach separate list if needed):

SUB-CONTRACTOR #1

COMPANY NAME:_____

NAME / TITLE:_____

ADDRESS:_____

PHONE:_____ **FED ID #**:_____

TRADE:_____

SUB-CONTRACTOR #2

COMPANY NAME:_____

NAME/TITLE:_____

ADDRESS:_____

PHONE:_____ **FED ID #**:_____

TRADE:_____

SUB-CONTRACTOR #3

COMPANY NAME:_____

NAME / TITLE:_____

ADDRESS:_____

PHONE:_____ **FED ID #**:_____

TRADE:_____

NOTE: All sub-contractors are subject to approval by the Town of Fairfield and are required to provide Fed ID #.

DRAFT

AIA® Document A701™ – 1997

Instructions to Bidders

for the following PROJECT:
(Name and location or address)

« a»
« »

THE OWNER:
(Name, legal status and address)

« »« »
« »

THE ARCHITECT:
(Name, legal status and address)

« »« »
« »

TABLE OF ARTICLES

ADDITIONS AND DELETIONS: The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

ARTICLE 1 DEFINITIONS

§ 1.1 Bidding Documents include the Bidding Requirements and the proposed Contract Documents. The Bidding Requirements consist of the Advertisement or Invitation to Bid, Instructions to Bidders, Supplementary Instructions to Bidders, the bid form, and other sample bidding and contract forms. The proposed Contract Documents consist of the form of Agreement between the Owner and Contractor, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications and all Addenda issued prior to execution of the Contract.

§ 1.2 Definitions set forth in the General Conditions of the Contract for Construction, AIA Document A201, or in other Contract Documents are applicable to the Bidding Documents.

§ 1.3 Addenda are written or graphic instruments issued by the Architect prior to the execution of the Contract which modify or interpret the Bidding Documents by additions, deletions, clarifications or corrections.

§ 1.4 A Bid is a complete and properly executed proposal to do the Work for the sums stipulated therein, submitted in accordance with the Bidding Documents.

§ 1.5 The Base Bid is the sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents as the base, to which Work may be added or from which Work may be deleted for sums stated in Alternate Bids.

§ 1.6 An Alternate Bid (or Alternate) is an amount stated in the Bid to be added to or deducted from the amount of the Base Bid if the corresponding change in the Work, as described in the Bidding Documents, is accepted.

§ 1.7 A Unit Price is an amount stated in the Bid as a price per unit of measurement for materials, equipment or services or a portion of the Work as described in the Bidding Documents.

§ 1.8 A Bidder is a person or entity who submits a Bid and who meets the requirements set forth in the Bidding Documents.

§ 1.9 A Sub-bidder is a person or entity who submits a bid to a Bidder for materials, equipment or labor for a portion of the Work.

ARTICLE 2 BIDDER'S REPRESENTATIONS

§ 2.1 The Bidder by making a Bid represents that:

§ 2.1.1 The Bidder has read and understands the Bidding Documents or Contract Documents, to the extent that such documentation relates to the Work for which the Bid is submitted, and for other portions of the Project, if any, being bid concurrently or presently under construction.

§ 2.1.2 The Bid is made in compliance with the Bidding Documents.

§ 2.1.3 The Bidder has visited the site, become familiar with local conditions under which the Work is to be performed and has correlated the Bidder's personal observations with the requirements of the proposed Contract Documents.

§ 2.1.4 The Bid is based upon the materials, equipment and systems required by the Bidding Documents without exception.

ARTICLE 3 BIDDING DOCUMENTS

§ 3.1 COPIES

§ 3.1.1 Bidders may obtain complete sets of the Bidding Documents from the issuing office designated in the Advertisement or Invitation to Bid in the number and for the deposit sum, if any, stated therein. The deposit will be refunded to Bidders who submit a bona fide Bid and return the Bidding Documents in good condition within ten days after receipt of Bids. The cost of replacement of missing or damaged documents will be deducted from the deposit. A Bidder receiving a Contract award may retain the Bidding Documents and the Bidder's deposit will be refunded.

§ 3.1.2 Bidding Documents will not be issued directly to Sub-bidders unless specifically offered in the Advertisement or Invitation to Bid, or in supplementary instructions to bidders.

§ 3.1.3 Bidders shall use complete sets of Bidding Documents in preparing Bids; neither the Owner nor Architect assumes responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

§ 3.1.4 The Owner and Architect may make copies of the Bidding Documents available on the above terms for the purpose of obtaining Bids on the Work. No license or grant of use is conferred by issuance of copies of the Bidding Documents.

§ 3.2 INTERPRETATION OR CORRECTION OF BIDDING DOCUMENTS

§ 3.2.1 The Bidder shall carefully study and compare the Bidding Documents with each other, and with other work being bid concurrently or presently under construction to the extent that it relates to the Work for which the Bid is submitted, shall examine the site and local conditions, and shall at once report to the Architect errors, inconsistencies or ambiguities discovered.

§ 3.2.2 Bidders and Sub-bidders requiring clarification or interpretation of the Bidding Documents shall make a written request which shall reach the Architect at least seven days prior to the date for receipt of Bids.

§ 3.2.3 Interpretations, corrections and changes of the Bidding Documents will be made by Addendum. Interpretations, corrections and changes of the Bidding Documents made in any other manner will not be binding, and Bidders shall not rely upon them.

§ 3.3 SUBSTITUTIONS

§ 3.3.1 The materials, products and equipment described in the Bidding Documents establish a standard of required function, dimension, appearance and quality to be met by any proposed substitution.

§ 3.3.2 No substitution will be considered prior to receipt of Bids unless written request for approval has been received by the Architect at least ten days prior to the date for receipt of Bids. Such requests shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitution including drawings, performance and test data, and other information necessary for an evaluation. A statement setting forth changes in other materials, equipment or other portions of the Work, including changes in the work of other contracts that incorporation of the proposed substitution would require, shall be included. The burden of proof of the merit of the proposed substitution is upon the proposer. The Architect's decision of approval or disapproval of a proposed substitution shall be final.

§ 3.3.3 If the Architect approves a proposed substitution prior to receipt of Bids, such approval will be set forth in an Addendum. Bidders shall not rely upon approvals made in any other manner.

§ 3.3.4 No substitutions will be considered after the Contract award unless specifically provided for in the Contract Documents.

§ 3.4 ADDENDA

§ 3.4.1 Addenda will be transmitted to all who are known by the issuing office to have received a complete set of Bidding Documents.

§ 3.4.2 Copies of Addenda will be made available for inspection wherever Bidding Documents are on file for that purpose.

§ 3.4.3 Addenda will be issued no later than four days prior to the date for receipt of Bids except an Addendum withdrawing the request for Bids or one which includes postponement of the date for receipt of Bids.

§ 3.4.4 Each Bidder shall ascertain prior to submitting a Bid that the Bidder has received all Addenda issued, and the Bidder shall acknowledge their receipt in the Bid.

ARTICLE 4 BIDDING PROCEDURES

§ 4.1 PREPARATION OF BIDS

§ 4.1.1 Bids shall be submitted on the forms included with the Bidding Documents.

§ 4.1.2 All blanks on the bid form shall be legibly executed in a non-erasable medium.

§ 4.1.3 Sums shall be expressed in both words and figures. In case of discrepancy, the amount written in words shall govern.

§ 4.1.4 Interlineations, alterations and erasures must be initialed by the signer of the Bid.

§ 4.1.5 All requested Alternates shall be bid. If no change in the Base Bid is required, enter "No Change."

§ 4.1.6 Where two or more Bids for designated portions of the Work have been requested, the Bidder may, without forfeiture of the bid security, state the Bidder's refusal to accept award of less than the combination of Bids stipulated by the Bidder. The Bidder shall make no additional stipulations on the bid form nor qualify the Bid in any other manner.

§ 4.1.7 Each copy of the Bid shall state the legal name of the Bidder and the nature of legal form of the Bidder. The Bidder shall provide evidence of legal authority to perform within the jurisdiction of the Work. Each copy shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid by a corporation shall further give the state of incorporation and have the corporate seal affixed. A Bid submitted by an agent shall have a current power of attorney attached certifying the agent's authority to bind the Bidder.

§ 4.2 BID SECURITY

§ 4.2.1 Each Bid shall be accompanied by a bid security in the form and amount required if so stipulated in the Instructions to Bidders. The Bidder pledges to enter into a Contract with the Owner on the terms stated in the Bid and will, if required, furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder. Should the Bidder refuse to enter into such Contract or fail to furnish such bonds if required, the amount of the bid security shall be forfeited to the Owner as liquidated damages, not as a penalty. The amount of the bid security shall not be forfeited to the Owner in the event the Owner fails to comply with Section 6.2.

§ 4.2.2 If a surety bond is required, it shall be written on AIA Document A310, Bid Bond, unless otherwise provided in the Bidding Documents, and the attorney-in-fact who executes the bond on behalf of the surety shall affix to the bond a certified and current copy of the power of attorney.

§ 4.2.3 The Owner will have the right to retain the bid security of Bidders to whom an award is being considered until either (a) the Contract has been executed and bonds, if required, have been furnished, or (b) the specified time has elapsed so that Bids may be withdrawn or (c) all Bids have been rejected.

§ 4.3 SUBMISSION OF BIDS

§ 4.3.1 All copies of the Bid, the bid security, if any, and any other documents required to be submitted with the Bid shall be enclosed in a sealed opaque envelope. The envelope shall be addressed to the party receiving the Bids and shall be identified with the Project name, the Bidder's name and address and, if applicable, the designated portion of the Work for which the Bid is submitted. If the Bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "SEALED BID ENCLOSED" on the face thereof.

§ 4.3.2 Bids shall be deposited at the designated location prior to the time and date for receipt of Bids. Bids received after the time and date for receipt of Bids will be returned unopened.

§ 4.3.3 The Bidder shall assume full responsibility for timely delivery at the location designated for receipt of Bids.

§ 4.3.4 Oral, telephonic, telegraphic, facsimile or other electronically transmitted bids will not be considered.

§ 4.4 MODIFICATION OR WITHDRAWAL OF BID

§ 4.4.1 A Bid may not be modified, withdrawn or canceled by the Bidder during the stipulated time period following the time and date designated for the receipt of Bids, and each Bidder so agrees in submitting a Bid.

§ 4.4.2 Prior to the time and date designated for receipt of Bids, a Bid submitted may be modified or withdrawn by notice to the party receiving Bids at the place designated for receipt of Bids. Such notice shall be in writing over the signature of the Bidder. Written confirmation over the signature of the Bidder shall be received, and date- and time-

stamped by the receiving party on or before the date and time set for receipt of Bids. A change shall be so worded as not to reveal the amount of the original Bid.

§ 4.4.3 Withdrawn Bids may be resubmitted up to the date and time designated for the receipt of Bids provided that they are then fully in conformance with these Instructions to Bidders.

§ 4.4.4 Bid security, if required, shall be in an amount sufficient for the Bid as resubmitted.

ARTICLE 5 CONSIDERATION OF BIDS

§ 5.1 OPENING OF BIDS

At the discretion of the Owner, if stipulated in the Advertisement or Invitation to Bid, the properly identified Bids received on time will be publicly opened and will be read aloud. An abstract of the Bids may be made available to Bidders.

§ 5.2 REJECTION OF BIDS

The Owner shall have the right to reject any or all Bids. A Bid not accompanied by a required bid security or by other data required by the Bidding Documents, or a Bid which is in any way incomplete or irregular is subject to rejection.

§ 5.3 ACCEPTANCE OF BID (AWARD)

§ 5.3.1 It is the intent of the Owner to award a Contract to the lowest qualified Bidder provided the Bid has been submitted in accordance with the requirements of the Bidding Documents and does not exceed the funds available. The Owner shall have the right to waive informalities and irregularities in a Bid received and to accept the Bid which, in the Owner's judgment, is in the Owner's own best interests.

§ 5.3.2 The Owner shall have the right to accept Alternates in any order or combination, unless otherwise specifically provided in the Bidding Documents, and to determine the low Bidder on the basis of the sum of the Base Bid and Alternates accepted.

ARTICLE 6 POST-BID INFORMATION

§ 6.1 CONTRACTOR'S QUALIFICATION STATEMENT

Bidders to whom award of a Contract is under consideration shall submit to the Architect, upon request, a properly executed AIA Document A305, Contractor's Qualification Statement, unless such a Statement has been previously required and submitted as a prerequisite to the issuance of Bidding Documents.

§ 6.2 OWNER'S FINANCIAL CAPABILITY

The Owner shall, at the request of the Bidder to whom award of a Contract is under consideration and no later than seven days prior to the expiration of the time for withdrawal of Bids, furnish to the Bidder reasonable evidence that financial arrangements have been made to fulfill the Owner's obligations under the Contract. Unless such reasonable evidence is furnished, the Bidder will not be required to execute the Agreement between the Owner and Contractor.

§ 6.3 SUBMITTALS

§ 6.3.1 The Bidder shall, as soon as practicable or as stipulated in the Bidding Documents, after notification of selection for the award of a Contract, furnish to the Owner through the Architect in writing:

.1 a designation of the Work to be performed with the Bidder's own forces;

.2 names of the manufacturers, products, and the suppliers of principal items or systems of materials and equipment proposed for the Work; and

.3 names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for the principal portions of the Work.

§ 6.3.2 The Bidder will be required to establish to the satisfaction of the Architect and Owner the reliability and responsibility of the persons or entities proposed to furnish and perform the Work described in the Bidding Documents.

§ 6.3.3 Prior to the execution of the Contract, the Architect will notify the Bidder in writing if either the Owner or Architect, after due investigation, has reasonable objection to a person or entity proposed by the Bidder. If the Owner or Architect has reasonable objection to a proposed person or entity, the Bidder may, at the Bidder's option, (1) withdraw the Bid or (2) submit an acceptable substitute person or entity with an adjustment in the Base Bid or

Alternate Bid to cover the difference in cost occasioned by such substitution. The Owner may accept the adjusted bid price or disqualify the Bidder. In the event of either withdrawal or disqualification, bid security will not be forfeited.

§ 6.3.4 Persons and entities proposed by the Bidder and to whom the Owner and Architect have made no reasonable objection must be used on the Work for which they were proposed and shall not be changed except with the written consent of the Owner and Architect.

ARTICLE 7 PERFORMANCE BOND AND PAYMENT BOND

§ 7.1 BOND REQUIREMENTS

§ 7.1.1 If stipulated in the Bidding Documents, the Bidder shall furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder. Bonds may be secured through the Bidder's usual sources.

§ 7.1.2 If the furnishing of such bonds is stipulated in the Bidding Documents, the cost shall be included in the Bid. If the furnishing of such bonds is required after receipt of bids and before execution of the Contract, the cost of such bonds shall be added to the Bid in determining the Contract Sum.

§ 7.1.3 If the Owner requires that bonds be secured from other than the Bidder's usual sources, changes in cost will be adjusted as provided in the Contract Documents.

§ 7.2 TIME OF DELIVERY AND FORM OF BONDS

§ 7.2.1 The Bidder shall deliver the required bonds to the Owner not later than three days following the date of execution of the Contract. If the Work is to be commenced prior thereto in response to a letter of intent, the Bidder shall, prior to commencement of the Work, submit evidence satisfactory to the Owner that such bonds will be furnished and delivered in accordance with this Section 7.2.1.

§ 7.2.2 Unless otherwise provided, the bonds shall be written on AIA Document A312, Performance Bond and Payment Bond. Both bonds shall be written in the amount of the Contract Sum.

§ 7.2.3 The bonds shall be dated on or after the date of the Contract.

§ 7.2.4 The Bidder shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix thereto a certified and current copy of the power of attorney.

ARTICLE 8 FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR

Unless otherwise required in the Bidding Documents, the Agreement for the Work will be written on AIA Document A101, Standard Form of Agreement Between Owner and Contractor Where the Basis of Payment Is a Stipulated Sum.

1 PART 1 – GENERAL

1.1 COMPLETION DATE

A. All work as required by these specifications and drawings shall be completed by the date stipulated in the Contractor's bid form. There is no exception to this contract requirement, unless approved otherwise by contract change order.

B. If the work for this project is not substantially completed by 11:59 pm by the dates stipulated in the Contractor's bid form for each of the bid components requiring durations or deadlines, liquidated damages of Five Hundred Dollars ($500.00) per day or part thereof shall be due for each bid component to the Owner and subtracted from the unpaid contract amount or bond held by the Owner. "Substantial completion" is as defined in the General Conditions of the Contract for Construction, AIA Document A201 included in this project manual. "Substantial completion" is further defined as the date at which the local authorities with jurisdiction over this project grant a temporary or permanent certificate of occupancy (if required for occupancy) for each project area.

1.2 QUESTIONS

A. Questions regarding this bid must be received by 12:00 p.m. on May 25, 2015 and be directed to:

Bid Procedures/Administrative
Mr. Phil Ryan
Buyer
Town of Fairfield
725 Old Post Road
Fairfield, CT 06824
Tel: 203-256-3060
Fax: 203-256-3080
Email: pryan@town.fairfield.ct.us

Technical/Construction
Mr. Kenneth Linsley
Project Architect
Silver/Petrucelli + Associates, Inc.
3190 Whitney Avenue, Bldg. 2
Hamden, CT 06518
Tel: 203-230-9007 x 236
Fax: 203-230-8247
Email: klinsley@silverpetrucelli.com

1.3 RESPONSIBILITY FOR MEASUREMENT OF QUANTITIES

A. The Contractors shall have sole responsibility for the accuracy of all measurements and for estimating the material quantities required to satisfy these specifications.

1.4 DISCREPANCIES AND ADDENDA

A. Should a Bidder find any discrepancies in the Drawings and Specifications, or should they be in doubt as to their meaning, they shall notify the Owner at once, who will post a written Addendum to the Town's website at www.fairfieldct.org. Oral instructions or decisions, unless confirmed by Addenda, will not be considered valid, legal or binding. No change order requests will be authorized or considered because of the failure of the Contractor to include work called for in the Addenda in their bid.

1.5 MODIFICATIONS TO AIA DOCUMENT A701, Instructions to Bidders, Fifth Edition, 1997. The following sections modify the provisions and procedures to the degree listed in the sections and articles listed in these supplementary instructions.

ARTICLE 3 **Make the following changes:**

3.2.2 **Delete** in its entirety.

3.4.1 **Revise** to read as follows: Addenda will be posted to the Town of Fairfield's website, www.fairfieldct.org.

3.4.3 **Revise** to read as follows: Addenda will be issued no later than April 30, 2014, except an Addendum withdrawing the request for Bids or one which includes postponement of the date for receipt of bids.

ARTICLE 4 **Make the following changes:**

4.2.2 **Revise** to read as follows: Bid surety to be furnished on standard forms by Bidder's surety.

4.3.2 **Revise** "be returned unopened" to read "not be opened".

ARTICLE 5 **Make the following changes:**

5.1 **Revise** to read as follows: The properly identified Bids received on time will be publicly opened and read aloud. An abstract of the Bids may be made available to Bidders and will be posted on the Town of Fairfield's website, www.fairfieldct.org.

ARTICLE 6 **Make the following changes:**

6.1 **Delete** the phrase "properly executed AIA Document A305".

Add the following:

6.1.1 The Owner will make investigations as deemed necessary to determine the ability of the Bidder to perform the Work, and the Bidder shall furnish the Owner all such information and data for this purpose as the Owner may request.

6.2 **Delete** in its entirety.

Add the following:

6.4 WORK PHASING SCHEDULE

6.4.1 Bidders to whom award of the Contractor is under consideration shall submit to the Architect within fifteen (15) days of the Contract date, a detailed work Phasing Schedule describing the bodies of work to be undertaken and areas of the project to be addressed in per week periods between the Award of the Contract and the Bidder's proposed date of Substantial Completion.

ARTICLE 7 **Make the following changes:**

7.2.2 **Delete** in its entirety.

Add the following:

7.3 The Contractor and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

7.4 If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except to participate in conferences as provided in Subparagraph 7.5.1.

7.5 If there is no Owner Default, the Surety's obligation under this Bond shall arise after:

7.5.1 The Owner has notified the Contractor and the Surety at its address described in Paragraph 7.12 below that the Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with the Contractor and the Surety to be held not later than fifteen (15) days after receipt of such notice to discuss methods of performing the Construction Contract. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor

Default and

7.5.2 The Owner has declared a Contractor Default and formally terminated the Contractor's right to complete the contract. Such Contractor Default shall not be declared earlier than twenty (20) days after the Contractor and the Surety have received notice as provided in Subparagraph 7.5.1; and

7.5.3 The Owner has agreed to pay the Balance of the Contract Price to the Surety in accordance with the terms of the Construction Contract or to a contractor selected to perform the Construction Contract in accordance with the terms of the contract with the Owner.

7.6 When the Owner has satisfied the conditions of Paragraph 7.5.3, the Surety shall promptly and at the Surety's expense take one of the following actions:

7.6.1 Arrange for the Contractor, with consent of the Owner, to perform and complete the Construction Contract; or

7.6.2 Undertake to perform and complete the Construction Contract itself, through its agents or through independent contractors; or

7.6.3 Obtain bids from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and the contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the owner the amount of damages (as described in Paragraph 7.8) in excess of the Balance of the Contract Price incurred by the Owner resulting from the Contractor's default: or

7.6.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:

7.6.4 (a) After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, tender payment therefore to the Owner; or

7.6.4 (b) Deny liability in whole or in part and notify the Owner citing reasons therefore.

7.7 If the Surety does not proceed as provided in Paragraph 7.6 with reasonable promptness, the Surety shall be deemed to be in default on this Bond fifteen (15) days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Subparagraph 7.6.4, and the Owner refuses the payment rendered or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to

enforce any remedy available to the Owner.

7.8 After the Owner has terminated the Contractor's right to complete the Construction Contract, and if the Surety elects to act under Subparagraph 7.6.1, 7.6.2, or 7.6.3 above, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. To the limit of the amount of this Bond, but subject to commitment by the Owner of the Balance of the Contract Price to mitigation of costs and damages on the Construction Contract, the Surety is obligated without duplication for:

7.8.1 The responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

7.8.2 Additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 7.6; and

7.8.3 Late delivery penalties or if penalties are not specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

7.9 The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, or successors.

7.10 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

7.11 Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after Contractor Default or within two (2) years after the Contractor ceased working or within two (2) years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

7.12 Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the signature page.

7.13 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted

herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

7.14 Definitions.

7.14.1 Balance of the Contract Price: The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

7.14.2 Construction Contract: The agreement between the Owner and the Contractor identified on the signature page, including all Contract Documents and changes thereto.

7.14.3 Contractor Default: Failure of the Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Construction Contract.

7.14.4 Owner Default: Failure of the Owner, which has neither been remedied nor waived, to pay the Contractor as required by the Construction Contract or to perform and complete or comply with the other terms thereof.

Add the following:

ARTICLE 9

9.1 FIELD OFFICE: The Contractor may provide and maintain a suitable field office at the site for his use, that of the Architect and others engaged on the project. Where provided, the field office must be large enough for regular job meetings, plan review areas, submittal storage and other job file and administrative functions.

9.2 JOB TELEPHONE: The Contractor shall maintain at his expense a job telephone, not a "Pay Telephone". The job telephone shall be available to the Architect, the Owner's staff, Municipal Officials or Inspectors and all subcontractors. All calls shall be paid for by the Contractor.

9.3 TEMPORARY STORAGE SHEDS: The Contractor shall provide and maintain on the site, where directed by the Owner, watertight sheds for the storage of all materials which might be damaged by weather. These sheds shall be metal box storage units or have wood floors raised above the ground.

9.4 SANITARY FACILITIES: The Contractor shall provide his own sanitary facilities for

the use of all persons employed on the project. The facility location shall be determined with the Owner and shall be kept in a sanitary condition by the Contractor at all times.

9.5 WATCHMAN: The employment of continuous watchman service to guard the property during any and all hours shall be at the discretion of the Contractor. However, the Contractor shall remove and restore all work or temporary structures damaged by fire, vandalism or similar acts at no extra cost to the Owner.

9.6 CLEANING UP: The Contractor shall provide all project cleaning and removal of materials, along with protection of the work and existing conditions. In a dispute between the Owner and the Contractor concerning rubbish and orderliness on the site, the Owner may have the rubbish removed and charge the cost to the Contractor. Upon written notification from the Architect that the project requires cleaning, the Contractor shall within twenty-four (24) hours remove all rubbish and hazards from the project and shall arrange all material and equipment in an orderly manner on the site. If this cleaning is not completed within twenty-four (24) hours, the Owner may engage labor to clean up the projects to his satisfaction and deduct the costs from any monies due the Contractor.

9.7 REMOVAL OF MATERIALS: All removed materials and rubbish shall be constantly sprinkled with water or other dusting agent to mitigate dust. Provide drop cloths or other type of coverings to prevent infiltration of dust to other parts of the existing building.

9.8 PROTECTION OF EXISTING UTILITIES AND SERVICES: The Contractor shall locate and mark the exact locations of the utilities or services and adequately protect them from damage during the work. In the event that any are accidentally disturbed, the Contractor shall repair or replace such damage immediately and restore service as promptly as possible.

9.9 POWER SERVICE: The Contractor shall be permitted to use the Owner's power service for work related to the project. The Contractor shall provide for the disconnection/removal of any temporary utility service.

9.10 TEMPORARY HEAT: The Contractor shall provide and pay for their temporary heating and ventilation for work related to the project. The Contractor shall provide for the disconnection/removal of any temporary utility service.

9.11 HAZARDOUS MATERIALS: It will be the responsibility of the Contractor to remove all hazardous materials encountered during the project. It will be the responsibility of the Contractor to identify and notify on a timely basis, any existing conditions that might contain hazardous materials in order to coordinate its removal expediently.

9.12 OVERTIME: The Contractor must include within their base price all overtime, nights, holidays and weekends as required to meet the Project Completion date.

9.13 PERMITS: The Contractor must obtain their own town and building permits at no additional charge to the Owner. Town of Fairfield permits can be obtained from the Town of Fairfield at No Cost to the Contractor except for the State Education permit cost of $0.26/$1,000 value.

9.14 SUPERVISION: The Contractor must provide full-time, properly qualified on-site supervision for the entire duration of the project, while workpersons are on site.

9.15 GUARANTEES: The workmanship and materials for this project shall be guaranteed by the Contractor in writing on the Contractor's letterhead, for one (1) year from the date of Substantial Completion except as modified by the Contract Documents.

9.16 SCHOOL SCHEDULE/WORK LIMITATIONS AND COMPLETION:

A. Work for the project can begin as soon as possible in the school, after dismissal in June 2015. No roofing work can take place during the school year. Unrestricted work can begin on the site after the schools are dismissed for the summer on June 18, 2015, with work substantially complete on or before August 25, 2015 when the teachers and administrative staff return to school. The Contractor shall indicate on the Bid Form the number of days required to substantially complete their work.

9.18 The bidder’s Workers Compensation Experience Modification Rating (EMR) must be 1.0 or lower. Bidders with an EMR higher than 1.0 are permitted to submit a bid for this project, however, the Town of Fairfield [and/or its construction manager] reserves the right to reject any or all bids from bidders with an EMR higher than 1.0. the 1.0 EMR limitation also applies to lower tier trade subcontractors for the project.

ARTICLE 10

10.1 BIDDERS REPRESENTATION: Each bidder shall be fully acquainted with conditions as they exist, and fully understand the complexities and restrictions attending the execution of the Work included in the Bid Documents.

The failure to receive or examine any form, instrument, or document, or to visit the site to become acquainted with field conditions, shall in no way relieve the Bidder from any obligation with respect to the Bidder's proposal.

END OF SECTION

BIDDER: _____
Name

_____
Address

To: **Town of Fairfield**
c/o Purchasing Department
725 Old Post Road
Fairfield, CT 06824

Project: **Roof Replacement**
DWIGHT ELEMENTARY SCHOOL
1600 Redding Rd
Fairfield, CT 06824
BID #2015-88

In preparing this bid, we have carefully examined the Bidding Documents for this Project. We have visited the site and noted the conditions affecting the Work.

The Bidding Documents referred to include Drawings and Project Manual dated April 27, 2015 for the above referenced project, prepared by Silver/Petrucelli + Associates, Inc., Hamden, Connecticut.

We propose to perform the work described in the Bidding Documents, negotiate and execute an AIA Owner-Contractor agreement, in keeping with definitions of Article 1 of the Instructions to Bidders, for the Base Bid Sum of:

Base Bid:

The Entire Project, Modified Bitumen Roofing System, the entire project for the Total Cost of

$ _____ Dollars ($ .00).
written figure

We will commence work on _____ calendar days after receipt of "Notice to Proceed" or signing of Contract. We will be able to substantially complete the project within _____ calendar days thereafter (see SIB-1, 1.1.B).

Bid Alternates:

The undersigned proposes to furnish all Labor, Materials, Equipment and Services necessary to construct the items listed in the Alternates described in Section 01030 for the stipulated sum of:

ADD ALTERNATE NO. 1: Skylight Replacement (See Section 01030):

Add to the Base Bid a Total of: _____
_____Dollars ($ .00)
written figure

DEDUCT ALTERNATE NO. 2: TPO Roofing System (See Section 01030):

Deduct from the Base Bid a Total of: _____
_____Dollars ($ .00)
written figure

If written notice of the acceptance of this Bid is mailed, telegraphed or delivered to the undersigned at the Address designated below, within 90 days after the date of Bid Opening, or any time thereafter before this Bid is withdrawn, the undersigned will, within 10 days after the date of mailing, telegraphing or delivering of the notice, execute and deliver a contract in the Standard Form of Agreement Between the Owner and Contractor, AIA Document A101, or similar contract modified as may be mutually agree upon.

The undersigned acknowledges that he/she has examined the documents, visited and examined the site as required under "Instructions to Bidders", examined the availability of labor and materials and further agrees to comply with all the requirements as to the conditions of employment and wage rates set forth in the Contract Documents.

Unit Prices:
As required by the Base Bid, should deteriorated or damaged materials be required to be removed as determined by the Architect or Owner, the cost to remove and replace the referenced material, (or credit for specified material not provided or installed) including all labor, material, equipment and related furnishings is as follows:

1. Containment Area – Set up of containment area (up to 400 square feet area) as described in these specifications $_____/ea
2. Inaccessible Roof Drain Insulation per 02080-4 $_____/sf
4. Mudded Pipe Fitting Insulation $_____/sf

Addenda:

The undersigned acknowledges receipt of the following addenda to the Contract Documents, listed by number and date:

Number , Dated: _____
Number , Dated: _____
Number , Dated: _____
Number , Dated: _____

Exceptions: _____
_____
_____
_____

NON-COLLUSIVE BID STATEMENT

The undersigned bidder certifies that this bid is made independently and without collusion, agreement, understanding or planned course of action with any other bidder and that the contents of the bid shall not be disclosed to anyone other than employees, agents or sureties prior to the official bid opening.

Date: _____

Name of Firm: _____

Address: _____

Signature: _____

Printed Name and
Title of Agent submitting bid: _____

Telephone Number: _____

Fax Number: _____

Email: _____

This Bid may be withdrawn prior to the scheduled Bid Opening or any postponement thereof.

HOURLY RATES: Contractor shall attach hourly rates for any additional work that may be requested by the Town of Fairfield.

DRAFT

AIA® Document A101™ – 2007

Standard Form of Agreement Between Owner and Contractor

where the basis of payment is a Stipulated Sum

AGREEMENT made as of the « » day of « » in the year « »
(In words, indicate day, month and year.)

BETWEEN the Owner:
(Name, legal status, address and other information)

and the Contractor:
(Name, legal status, address and other information)

for the following Project:
(Name, location and detailed description)

The Architect:
(Name, legal status, address and other information)

The Owner and Contractor agree as follows.

ADDITIONS AND DELETIONS: The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

AIA Document A201™–2007, General Conditions of the Contract for Construction, is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

ELECTRONIC COPYING of any portion of this AIA® Document to another electronic file is prohibited and constitutes a violation of copyright laws as set forth in the footer of this document.

TABLE OF ARTICLES

ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. An enumeration of the Contract Documents, other than a Modification, appears in Article 9.

ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be the date of this Agreement unless a different date is stated below or provision is made for the date to be fixed in a notice to proceed issued by the Owner.
(Insert the date of commencement if it differs from the date of this Agreement or, if applicable, state that the date will be fixed in a notice to proceed.)

If, prior to the commencement of the Work, the Owner requires time to file mortgages and other security interests, the Owner's time requirement shall be as follows:

§ 3.2 The Contract Time shall be measured from the date of commencement.

§ 3.3 The Contractor shall achieve Substantial Completion of the entire Work not later than « » (« ») days from the date of commencement, or as follows:
(Insert number of calendar days. Alternatively, a calendar date may be used when coordinated with the date of commencement. If appropriate, insert requirements for earlier Substantial Completion of certain portions of the Work.)

« »

Portion of Work	Substantial Completion Date

, subject to adjustments of this Contract Time as provided in the Contract Documents.

(Insert provisions, if any, for liquidated damages relating to failure to achieve Substantial Completion on time or for bonus payments for early completion of the Work.)

ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be « » ($ « »), subject to additions and deductions as provided in the Contract Documents.

§ 4.2 The Contract Sum is based upon the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner: The Owner and Contractor agree that add Alternate No. 1 shall remain valid for potential selection up to 120 days from the date of this agreement.

(State the numbers or other identification of accepted alternates. If the bidding or proposal documents permit the Owner to accept other alternates subsequent to the execution of this Agreement, attach a schedule of such other alternates showing the amount for each and the date when that amount expires.)

§ 4.3 Unit prices, if any:
(Identify and state the unit price; state quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price Per Unit ($0.00)

ARTICLE 5 PAYMENTS

§ 5.1 PROGRESS PAYMENTS

§ 5.1.1 Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month.

§ 5.1.3 Provided that an Application for Payment is received by the Architect not later than the « » day of a month, the Owner shall make payment of the certified amount to the Contractor not later than the « » day of the « » month. If an Application for Payment is received by the Architect after the application date fixed above, payment shall be made by the Owner not later than « » (« ») days after the Architect receives the Application for Payment.
(Federal, state or local laws may require payment within a certain period of time.)

§ 5.1.4 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form and supported by such data to substantiate its accuracy as the Architect may require. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.5 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 5.1.6 Subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

.1 Take that portion of the Contract Sum properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the Contract Sum allocated to that portion of the Work in the schedule of values, less retainage of « » percent (« » %). Pending final determination of cost to the Owner of changes in the Work, amounts not in dispute shall be included as provided in Section 7.3.9 of AIA Document A201™–2007, General Conditions of the Contract for Construction;

.2 Add that portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction (or, if approved

in advance by the Owner, suitably stored off the site at a location agreed upon in writing), less retainage of « » percent (« » %);

.3 Subtract the aggregate of previous payments made by the Owner; and

.4 Subtract amounts, if any, for which the Architect has withheld or nullified a Certificate for Payment as provided in Section 9.5 of AIA Document A201–2007.

§ 5.1.7 The progress payment amount determined in accordance with Section 5.1.6 shall be further modified under the following circumstances:

.1 Add, upon Substantial Completion of the Work, a sum sufficient to increase the total payments to the full amount of the Contract Sum, less such amounts as the Architect shall determine for incomplete Work, retainage applicable to such work and unsettled claims; and
(Section 9.8.5 of AIA Document A201–2007 requires release of applicable retainage upon Substantial Completion of Work with consent of surety, if any.)

.2 Add, if final completion of the Work is thereafter materially delayed through no fault of the Contractor, any additional amounts payable in accordance with Section 9.10.3 of AIA Document A201–2007.

§ 5.1.8 Reduction or limitation of retainage, if any, shall be as follows:
(If it is intended, prior to Substantial Completion of the entire Work, to reduce or limit the retainage resulting from the percentages inserted in Sections 5.1.6.1 and 5.1.6.2 above, and this is not explained elsewhere in the Contract Documents, insert here provisions for such reduction or limitation.)

« »

§ 5.1.9 Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

§ 5.2 FINAL PAYMENT

§ 5.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

.1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Section 12.2.2 of AIA Document A201–2007, and to satisfy other requirements, if any, which extend beyond final payment; and

.2 a final Certificate for Payment has been issued by the Architect.

§ 5.2.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the Architect's final Certificate for Payment, or as follows:

« »

ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201–2007.

§ 7.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201–2007.

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201–2007 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.
(Insert rate of interest agreed upon, if any.)

§ 8.3 The Owner's representative:
(Name, address and other information)

§ 8.4 The Contractor's representative:
(Name, address and other information)

§ 8.5 Neither the Owner's nor the Contractor's representative shall be changed without ten days written notice to the other party.

§ 8.6 Other provisions:

« »

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 The Contract Documents, except for Modifications issued after execution of this Agreement, are enumerated in the sections below.

§ 9.1.1 The Agreement is this executed AIA Document A101–2007, Standard Form of Agreement Between Owner and Contractor.

§ 9.1.2 The General Conditions are AIA Document A201–2007, General Conditions of the Contract for Construction; deleting Section 11.3.7 Waiver Of Subrogation.

§ 9.1.3 The Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages

§ 9.1.4 The Specifications:
(Either list the Specifications here or refer to an exhibit attached to this Agreement.)
« Exhibit 'B', attached to this agreement. »

Section	Title	Date	Pages

§ 9.1.5 The Drawings:
(Either list the Drawings here or refer to an exhibit attached to this Agreement.)
« »

Number	Title	Date

§ 9.1.6 The Addenda, if any:

Number	Date	Pages

Portions of Addenda relating to bidding requirements are not part of the Contract Documents unless the bidding requirements are also enumerated in this Article 9.

§ 9.1.7 Additional documents, if any, forming part of the Contract Documents:

.2 Other documents, if any, listed below:
(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A201–2007 provides that bidding requirements such as advertisement or invitation to bid, Instructions to Bidders, sample forms and the Contractor's bid are not part of the Contract

Documents unless enumerated in this Agreement. They should be listed here only if intended to be part of the Contract Documents.)

This Agreement entered into as of the day and year first written above.

OWNER *(Signature)*

« »

(Printed name and title)

CONTRACTOR *(Signature)*

«»

(Printed name and title)

OWNER *(Signature)*

(Printed name and title)

DRAFT

AIA® Document A201™ – 2007

General Conditions of the Contract for Construction

for the following PROJECT:
(Name and location or address)

« a»
« »

THE OWNER:
(Name, legal status and address)

« »« »
« »

THE ARCHITECT:
(Name, legal status and address)

« »« »
« »

TABLE OF ARTICLES

ADDITIONS AND DELETIONS: The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

INDEX
(Topics and numbers in bold are section headings.)

ARTICLE 1 GENERAL PROVISIONS

§ 1.1 BASIC DEFINITIONS

§ 1.1.1 THE CONTRACT DOCUMENTS

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding requirements.

§ 1.1.2 THE CONTRACT

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

§ 1.1.3 THE WORK

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

§ 1.1.4 THE PROJECT

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

§ 1.1.5 THE DRAWINGS

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules and diagrams.

§ 1.1.6 THE SPECIFICATIONS

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

§ 1.1.7 INSTRUMENTS OF SERVICE

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.1.8 INITIAL DECISION MAKER

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2 and certify termination of the Agreement under Section 14.2.2.

§ 1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

§ 1.3 CAPITALIZATION

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles or (3) the titles of other documents published by the American Institute of Architects.

§ 1.4 INTERPRETATION

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

§ 1.5 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS AND OTHER INSTRUMENTS OF SERVICE

§ 1.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and will retain all common law, statutory and other reserved rights, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors and material or equipment suppliers are authorized to use and reproduce the Instruments of Service provided to them solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers may not use the Instruments of Service on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Architect and the Architect's consultants.

§ 1.6 TRANSMISSION OF DATA IN DIGITAL FORM

If the parties intend to transmit Instruments of Service or any other information or documentation in digital form, they shall endeavor to establish necessary protocols governing such transmissions, unless otherwise already provided in the Agreement or the Contract Documents.

ARTICLE 2 OWNER

§ 2.1 GENERAL

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.1.2 The Owner shall furnish to the Contractor within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

§ 2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

§ 2.2.1 Prior to commencement of the Work, the Contractor may request in writing that the Owner provide reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. Thereafter, the Contractor may only request such evidence if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) a change in the Work materially changes the Contract Sum; or (3) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due. The Owner shall furnish such evidence as a condition precedent to commencement or continuation of the Work or the portion of the Work affected by a material change. After the Owner furnishes the evidence, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.2 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 2.2.3 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.2.4 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.2.5 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

§ 2.3 OWNER'S RIGHT TO STOP THE WORK

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

§ 2.4 OWNER'S RIGHT TO CARRY OUT THE WORK

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such deficiencies. In such case an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect or failure. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

ARTICLE 3 CONTRACTOR

§ 3.1 GENERAL

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

§ 3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed and correlated personal observations with requirements of the Contract Documents.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.2.3, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall make Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract, unless the Contract Documents give other specific instructions concerning these matters. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences or procedures, the Contractor shall evaluate the jobsite safety thereof and, except as stated below, shall be fully and solely responsible for the jobsite safety of such means, methods, techniques, sequences or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely written notice to the Owner and Architect and shall not proceed with that portion of the Work without further written instructions from the Architect. If the Contractor is then instructed to proceed with the required means, methods, techniques, sequences or procedures without acceptance of changes proposed by the Contractor, the Owner shall be solely responsible for any loss or damage arising solely from those Owner-required means, methods, techniques, sequences or procedures.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.4 LABOR AND MATERIALS

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 3.4.2 Except in the case of minor changes in the Work authorized by the Architect in accordance with Sections 3.12.8 or 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

§ 3.5 WARRANTY

The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

§ 3.6 TAXES

The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

§ 3.7 PERMITS, FEES, NOTICES AND COMPLIANCE WITH LAWS

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7.4 **Concealed or Unknown Conditions.** If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature, that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 21 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend an equitable adjustment in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor in writing, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may proceed as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

§ 3.8 ALLOWANCES

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct,

but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents,

.1 Allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;

.2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and

.3 Whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.9 SUPERINTENDENT

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Architect the name and qualifications of a proposed superintendent. The Architect may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Architect has reasonable objection to the proposed superintendent or (2) that the Architect requires additional time to review. Failure of the Architect to reply within the 14 day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.10 CONTRACTOR'S CONSTRUCTION SCHEDULES

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall prepare and submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work.

§ 3.10.2 The Contractor shall prepare a submittal schedule, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, and shall submit the schedule(s) for the Architect's approval. The Architect's approval shall not unreasonably be delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect.

§ 3.11 DOCUMENTS AND SAMPLES AT THE SITE

The Contractor shall maintain at the site for the Owner one copy of the Drawings, Specifications, Addenda, Change Orders and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and one copy of approved Shop Drawings, Product Data, Samples and similar required submittals. These shall be available to the Architect and shall be delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

§ 3.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents. Their purpose is to demonstrate the way by which the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve and submit to the Architect Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Architect in writing of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or similar submittals by the Architect's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such written notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. The Contractor shall not be required to provide professional services in violation of applicable law. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall cause such services or certifications to be provided by a properly licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled

to rely upon the adequacy, accuracy and completeness of the services, certifications and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor all performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review, approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Contractor shall not be responsible for the adequacy of the performance and design criteria specified in the Contract Documents.

§ 3.13 USE OF SITE

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.14 CUTTING AND PATCHING

§ 3.14.1 The Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting and patching shall be restored to the condition existing prior to the cutting, fitting and patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or separate contractors by cutting, patching or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter such construction by the Owner or a separate contractor except with written consent of the Owner and of such separate contractor; such consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold from the Owner or a separate contractor the Contractor's consent to cutting or otherwise altering the Work.

§ 3.15 CLEANING UP

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery and surplus materials from and about the Project.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 ACCESS TO WORK

The Contractor shall provide the Owner and Architect access to the Work in preparation and progress wherever located.

§ 3.17 ROYALTIES, PATENTS AND COPYRIGHTS

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for such defense or loss when a particular design, process or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications or other documents prepared by the Owner or Architect. However, if the Contractor has reason to believe that the required design, process or product is an infringement of a copyright or a patent, the Contractor shall be responsible for such loss unless such information is promptly furnished to the Architect.

§ 3.18 INDEMNIFICATION

§ 3.18.1 To the fullest extent permitted by law the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce

other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

ARTICLE 4 ARCHITECT

§ 4.1 GENERAL

§ 4.1.1 The Owner shall retain an architect lawfully licensed to practice architecture or an entity lawfully practicing architecture in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 4.1.2 Duties, responsibilities and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified or extended without written consent of the Owner, Contractor and Architect. Consent shall not be unreasonably withheld.

§ 4.1.3 If the employment of the Architect is terminated, the Owner shall employ a successor architect as to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

§ 4.2 ADMINISTRATION OF THE CONTRACT

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for, the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents, except as provided in Section 3.3.1.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and report to the Owner (1) known deviations from the Contract Documents and from the most recent construction schedule submitted by the Contractor, and (2) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of and will not be responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 4.2.4 COMMUNICATIONS FACILITATING CONTRACT ADMINISTRATION

Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to communicate with each other through the Architect about matters arising out of or relating to the Contract. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with separate contractors shall be through the Owner.

§ 4.2.5 Based on the Architect's evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the

Work in accordance with Sections 13.5.2 and 13.5.3, whether or not such Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5 and 3.12. The Architect's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the Architect, of any construction means, methods, techniques, sequences or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may authorize minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 If the Owner and Architect agree, the Architect will provide one or more project representatives to assist in carrying out the Architect's responsibilities at the site. The duties, responsibilities and limitations of authority of such project representatives shall be as set forth in an exhibit to be incorporated in the Contract Documents.

§ 4.2.11 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.12 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either and will not be liable for results of interpretations or decisions rendered in good faith.

§ 4.2.13 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 DEFINITIONS

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a separate contractor or subcontractors of a separate contractor.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

§ 5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

§ 5.2.1 Unless otherwise stated in the Contract Documents or the bidding requirements, the Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Architect the names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each principal portion of the Work. The Architect may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Architect has reasonable objection to any such proposed person or entity or (2) that the Architect requires additional time for review. Failure of the Owner or Architect to reply within the 14-day period shall constitute notice of no reasonable objection.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person or entity previously selected if the Owner or Architect makes reasonable objection to such substitution.

§ 5.3 SUBCONTRACTUAL RELATIONS

By appropriate agreement, written where legally required for validity, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work, which the Contractor, by these Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

§ 5.4 CONTINGENT ASSIGNMENT OF SUBCONTRACTS

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

.1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor in writing; and

.2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon such assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. If the Owner assigns the subcontract to a successor contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 OWNER'S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS

§ 6.1.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other construction or operations on the site under Conditions of the Contract identical or substantially similar to these including those portions related to insurance and waiver of subrogation. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, the Contractor shall make such Claim as provided in Article 15.

§ 6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

§ 6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each separate contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with other separate contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to the construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, separate contractors and the Owner until subsequently revised.

§ 6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces, the Owner shall be deemed to be subject to the same obligations and to have the same rights that apply to the Contractor under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6 and Articles 10, 11 and 12.

§ 6.2 MUTUAL RESPONSIBILITY

§ 6.2.1 The Contractor shall afford the Owner and separate contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a separate contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly report to the Architect apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results. Failure of the Contractor so to report shall constitute an acknowledgment that the Owner's or separate contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work, except as to defects not then reasonably discoverable.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a separate contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a separate contractor's delays, improperly timed activities, damage to the Work or defective construction.

§ 6.2.4 The Contractor shall promptly remedy damage the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or separate contractors as provided in Section 10.2.5.

§ 6.2.5 The Owner and each separate contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 OWNER'S RIGHT TO CLEAN UP

If a dispute arises among the Contractor, separate contractors and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Architect will allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 GENERAL

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor and Architect; a Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor; an order for a minor change in the Work may be issued by the Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents, and the Contractor shall proceed promptly, unless otherwise provided in the Change Order, Construction Change Directive or order for a minor change in the Work.

§ 7.2 CHANGE ORDERS

§ 7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor and Architect stating their agreement upon all of the following:

.1 The change in the Work;
.2 The amount of the adjustment, if any, in the Contract Sum; and
.3 The extent of the adjustment, if any, in the Contract Time.

§ 7.3 CONSTRUCTION CHANGE DIRECTIVES

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

.1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
.2 Unit prices stated in the Contract Documents or subsequently agreed upon;
.3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
.4 As provided in Section 7.3.7.

§ 7.3.4 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed in a proposed Change Order or Construction Change Directive so that application of such unit prices to quantities of Work proposed will cause substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 7.3.5 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.6 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.7 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the method and the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.7 shall be limited to the following:

.1 Costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and workers' compensation insurance;

.2 Costs of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed;

.3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;

.4 Costs of premiums for all bonds and insurance, permit fees, and sales, use or similar taxes related to the Work; and

.5 Additional costs of supervision and field office personnel directly attributable to the change.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 MINOR CHANGES IN THE WORK

The Architect has authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes will be effected by written order signed by the Architect and shall be binding on the Owner and Contractor.

ARTICLE 8 TIME

§ 8.1 DEFINITIONS

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 8.2 PROGRESS AND COMPLETION

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, prematurely commence operations on the site or elsewhere prior to the effective date of insurance required by Article 11 to be

furnished by the Contractor and Owner. The date of commencement of the Work shall not be changed by the effective date of such insurance.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

§ 8.3 DELAYS AND EXTENSIONS OF TIME

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by an act or neglect of the Owner or Architect, or of an employee of either, or of a separate contractor employed by the Owner; or by changes ordered in the Work; or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond the Contractor's control; or by delay authorized by the Owner pending mediation and arbitration; or by other causes that the Architect determines may justify delay, then the Contract Time shall be extended by Change Order for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 CONTRACT SUM

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

§ 9.2 SCHEDULE OF VALUES

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit to the Architect, before the first Application for Payment, a schedule of values allocating the entire Contract Sum to the various portions of the Work and prepared in such form and supported by such data to substantiate its accuracy as the Architect may require. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 9.3 APPLICATIONS FOR PAYMENT

§ 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. Such application shall be notarized, if required, and supported by such data substantiating the Contractor's right to payment as the Owner or Architect may require, such as copies of requisitions from Subcontractors and material suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or material supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage and transportation to the site for such materials and equipment stored off the site.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the

Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work.

§ 9.4 CERTIFICATES FOR PAYMENT

§ 9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either issue to the Owner a Certificate for Payment, with a copy to the Contractor, for such amount as the Architect determines is properly due, or notify the Contractor and Owner in writing of the Architect's reasons for withholding certification in whole or in part as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data comprising the Application for Payment, that, to the best of the Architect's knowledge, information and belief, the Work has progressed to the point indicated and that the quality of the Work is in accordance with the Contract Documents. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion and to specific qualifications expressed by the Architect. The issuance of a Certificate for Payment will further constitute a representation that the Contractor is entitled to payment in the amount certified. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work, (2) reviewed construction means, methods, techniques, sequences or procedures, (3) reviewed copies of requisitions received from Subcontractors and material suppliers and other data requested by the Owner to substantiate the Contractor's right to payment, or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.5 DECISIONS TO WITHHOLD CERTIFICATION

§ 9.5.1 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

.1 defective Work not remedied;
.2 third party claims filed or reasonable evidence indicating probable filing of such claims unless security acceptable to the Owner is provided by the Contractor;
.3 failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment;
.4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
.5 damage to the Owner or a separate contractor;
.6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
.7 repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When the above reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.3 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or material or equipment suppliers to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Architect will reflect such payment on the next Certificate for Payment.

§ 9.6 PROGRESS PAYMENTS

§ 9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect.

§ 9.6.2 The Contractor shall pay each Subcontractor no later than seven days after receipt of payment from the Owner the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and material and equipment suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay or to see to the payment of money to a Subcontractor, except as may otherwise be required by law.

§ 9.6.5 Contractor payments to material and equipment suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors and suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, shall create any fiduciary liability or tort liability on the part of the Contractor for breach of trust or shall entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.7 FAILURE OF PAYMENT

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents the amount certified by the Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' written notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shut-down, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 SUBSTANTIAL COMPLETION

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion, shall establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and shall fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in such Certificate. Upon such acceptance and consent of surety, if any, the Owner shall make payment of retainage applying to such Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 9.9 PARTIAL OCCUPANCY OR USE

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer as required under Section 11.3.1.5 and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

§ 9.10 FINAL COMPLETION AND FINAL PAYMENT

§ 9.10.1 Upon receipt of the Contractor's written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection and, when the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment and (5), if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

.1 liens, Claims, security interests or encumbrances arising out of the Contract and unsettled;
.2 failure of the Work to comply with the requirements of the Contract Documents; or
.3 terms of special warranties required by the Contract Documents.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor or material supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 SAFETY PRECAUTIONS AND PROGRAMS

The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Contract.

§ 10.2 SAFETY OF PERSONS AND PROPERTY

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to

.1 employees on the Work and other persons who may be affected thereby;
.2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors; and
.3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

§ 10.2.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury or loss.

§ 10.2.3 The Contractor shall erect and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent sites and utilities.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3, except damage or loss attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 INJURY OR DAMAGE TO PERSON OR PROPERTY

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, written notice of such injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 10.3 HAZARDOUS MATERIALS

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and report the condition to the Owner and Architect in writing.

§ 10.3.2 Upon receipt of the Contractor's written notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of such material or substance or who are to perform the task of removal or safe containment of such material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased in the amount of the Contractor's reasonable additional costs of shut-down, delay and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss or expense is due to the fault or negligence of the party seeking indemnity.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 The Contractor shall indemnify the Owner for the cost and expense the Owner incurs (1) for remediation of a material or substance the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall indemnify the Contractor for all cost and expense thereby incurred.

§ 10.4 EMERGENCIES

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 CONTRACTOR'S LIABILITY INSURANCE

§ 11.1.1 The Contractor shall purchase from and maintain in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located such insurance as will protect the Contractor from claims set forth below which may arise out of or result from the Contractor's operations and completed operations under the Contract and for which the Contractor may be legally liable, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

.1 Claims under workers' compensation, disability benefit and other similar employee benefit acts that are applicable to the Work to be performed;

.2 Claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees;

.3 Claims for damages because of bodily injury, sickness or disease, or death of any person other than the Contractor's employees;

.4 Claims for damages insured by usual personal injury liability coverage;

.5 Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;

.6 Claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle;

.7 Claims for bodily injury or property damage arising out of completed operations; and

.8 Claims involving contractual liability insurance applicable to the Contractor's obligations under Section 3.18.

§ 11.1.2 The insurance required by Section 11.1.1 shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from the date of commencement of the Work until the date of final payment and termination of any coverage required to be maintained after final payment, and, with respect to the Contractor's completed operations coverage, until the expiration of the period for correction of Work or for such other period for maintenance of completed operations coverage as specified in the Contract Documents.

§ 11.1.3 Certificates of insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the Work and thereafter upon renewal or replacement of each required policy of insurance. These certificates and the insurance policies required by this Section 11.1 shall contain a provision that coverages afforded under the policies will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner. An additional certificate evidencing continuation of liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment as required by Section 9.10.2 and thereafter upon renewal or replacement of such coverage until the expiration of the time required by Section 11.1.2. Information concerning reduction of coverage on account of revised limits or claims paid under the General Aggregate, or both, shall be furnished by the Contractor with reasonable promptness.

§ 11.1.4 The Contractor shall cause the commercial liability coverage required by the Contract Documents to include (1) the Owner, the Architect and the Architect's consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's completed operations.

§ 11.2 OWNER'S LIABILITY INSURANCE

The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance.

§ 11.3 PROPERTY INSURANCE

§ 11.3.1 Unless otherwise provided, the Owner shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance written on a builder's

risk "all-risk" or equivalent policy form in the amount of the initial Contract Sum, plus value of subsequent Contract Modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a replacement cost basis without optional deductibles. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in Section 9.10 or until no person or entity other than the Owner has an insurable interest in the property required by this Section 11.3 to be covered, whichever is later. This insurance shall include interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Project.

§ 11.3.1.1 Property insurance shall be on an "all-risk" or equivalent policy form and shall include, without limitation, insurance against the perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, earthquake, flood, windstorm, falsework, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Architect's and Contractor's services and expenses required as a result of such insured loss.

§ 11.3.1.2 If the Owner does not intend to purchase such property insurance required by the Contract and with all of the coverages in the amount described above, the Owner shall so inform the Contractor in writing prior to commencement of the Work. The Contractor may then effect insurance that will protect the interests of the Contractor, Subcontractors and Sub-subcontractors in the Work, and by appropriate Change Order the cost thereof shall be charged to the Owner. If the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain insurance as described above, without so notifying the Contractor in writing, then the Owner shall bear all reasonable costs properly attributable thereto.

§ 11.3.1.3 If the property insurance requires deductibles, the Owner shall pay costs not covered because of such deductibles.

§ 11.3.1.4 This property insurance shall cover portions of the Work stored off the site, and also portions of the Work in transit.

§ 11.3.1.5 Partial occupancy or use in accordance with Section 9.9 shall not commence until the insurance company or companies providing property insurance have consented to such partial occupancy or use by endorsement or otherwise. The Owner and the Contractor shall take reasonable steps to obtain consent of the insurance company or companies and shall, without mutual written consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse or reduction of insurance.

§ 11.3.2 BOILER AND MACHINERY INSURANCE

The Owner shall purchase and maintain boiler and machinery insurance required by the Contract Documents or by law, which shall specifically cover such insured objects during installation and until final acceptance by the Owner; this insurance shall include interests of the Owner, Contractor, Subcontractors and Sub-subcontractors in the Work, and the Owner and Contractor shall be named insureds.

§ 11.3.3 LOSS OF USE INSURANCE

The Owner, at the Owner's option, may purchase and maintain such insurance as will insure the Owner against loss of use of the Owner's property due to fire or other hazards, however caused. The Owner waives all rights of action against the Contractor for loss of use of the Owner's property, including consequential losses due to fire or other hazards however caused.

§ 11.3.4 If the Contractor requests in writing that insurance for risks other than those described herein or other special causes of loss be included in the property insurance policy, the Owner shall, if possible, include such insurance, and the cost thereof shall be charged to the Contractor by appropriate Change Order.

§ 11.3.5 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, the Owner shall waive all rights in accordance with the terms of Section 11.3.7 for damages caused by fire or other causes of loss covered by this separate property insurance. All separate policies shall provide this waiver of subrogation by endorsement or otherwise.

§ 11.3.6 Before an exposure to loss may occur, the Owner shall file with the Contractor a copy of each policy that includes insurance coverages required by this Section 11.3. Each policy shall contain all generally applicable conditions, definitions, exclusions and endorsements related to this Project. Each policy shall contain a provision that the policy will not be canceled or allowed to expire, and that its limits will not be reduced, until at least 30 days' prior written notice has been given to the Contractor.

§ 11.3.7 WAIVERS OF SUBROGATION

The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents and employees, each of the other, and (2) the Architect, Architect's consultants, separate contractors described in Article 6, if any, and any of their subcontractors, sub-subcontractors, agents and employees, for damages caused by fire or other causes of loss to the extent covered by property insurance obtained pursuant to this Section 11.3 or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by the Owner as fiduciary. The Owner or Contractor, as appropriate, shall require of the Architect, Architect's consultants, separate contractors described in Article 6, if any, and the subcontractors, sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

§ 11.3.8 A loss insured under the Owner's property insurance shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.3.10. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their Sub-subcontractors in similar manner.

§ 11.3.9 If required in writing by a party in interest, the Owner as fiduciary shall, upon occurrence of an insured loss, give bond for proper performance of the Owner's duties. The cost of required bonds shall be charged against proceeds received as fiduciary. The Owner shall deposit in a separate account proceeds so received, which the Owner shall distribute in accordance with such agreement as the parties in interest may reach, or as determined in accordance with the method of binding dispute resolution selected in the Agreement between the Owner and Contractor. If after such loss no other special agreement is made and unless the Owner terminates the Contract for convenience, replacement of damaged property shall be performed by the Contractor after notification of a Change in the Work in accordance with Article 7.

§ 11.3.10 The Owner as fiduciary shall have power to adjust and settle a loss with insurers unless one of the parties in interest shall object in writing within five days after occurrence of loss to the Owner's exercise of this power; if such objection is made, the dispute shall be resolved in the manner selected by the Owner and Contractor as the method of binding dispute resolution in the Agreement. If the Owner and Contractor have selected arbitration as the method of binding dispute resolution, the Owner as fiduciary shall make settlement with insurers or, in the case of a dispute over distribution of insurance proceeds, in accordance with the directions of the arbitrators.

§ 11.4 PERFORMANCE BOND AND PAYMENT BOND

§ 11.4.1 The Owner shall have the right to require the Contractor to furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder as stipulated in bidding requirements or specifically required in the Contract Documents on the date of execution of the Contract.

§ 11.4.2 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 UNCOVERING OF WORK

§ 12.1.1 If a portion of the Work is covered contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, costs of uncovering and replacement shall, by appropriate Change Order, be at the Owner's expense. If such Work is not in accordance with the Contract Documents, such costs and the cost of correction shall be at the Contractor's expense unless the condition was caused by the Owner or a separate contractor in which event the Owner shall be responsible for payment of such costs.

§ 12.2 CORRECTION OF WORK

§ 12.2.1 BEFORE OR AFTER SUBSTANTIAL COMPLETION

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, whether discovered before or after Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

§ 12.2.2 AFTER SUBSTANTIAL COMPLETION

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.4.

§ 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction, whether completed or partially completed, of the Owner or separate contractors caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 ACCEPTANCE OF NONCONFORMING WORK

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 GOVERNING LAW

The Contract shall be governed by the law of the place where the Project is located except that, if the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

§ 13.2 SUCCESSORS AND ASSIGNS

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns and legal representatives to covenants, agreements and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate such assignment.

§ 13.3 WRITTEN NOTICE

Written notice shall be deemed to have been duly served if delivered in person to the individual, to a member of the firm or entity, or to an officer of the corporation for which it was intended; or if delivered at, or sent by registered or certified mail or by courier service providing proof of delivery to, the last business address known to the party giving notice.

§ 13.4 RIGHTS AND REMEDIES

§ 13.4.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights and remedies otherwise imposed or available by law.

§ 13.4.2 No action or failure to act by the Owner, Architect or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach there under, except as may be specifically agreed in writing.

§ 13.5 TESTS AND INSPECTIONS

§ 13.5.1 Tests, inspections and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of (1) tests, inspections or approvals that do not become requirements until after bids are received or negotiations concluded, and (2) tests, inspections or approvals where building codes or applicable laws or regulations prohibit the Owner from delegating their cost to the Contractor.

§ 13.5.2 If the Architect, Owner or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection or approval not included under Section 13.5.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection or approval by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.5.3, shall be at the Owner's expense.

§ 13.5.3 If such procedures for testing, inspection or approval under Sections 13.5.1 and 13.5.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure including those of repeated procedures and compensation for the Architect's services and expenses shall be at the Contractor's expense.

§ 13.5.4 Required certificates of testing, inspection or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

§ 13.5.5 If the Architect is to observe tests, inspections or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.5.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

§ 13.6 INTEREST

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at such rate as the parties may agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

§ 13.7 TIME LIMITS ON CLAIMS

The Owner and Contractor shall commence all claims and causes of action, whether in contract, tort, breach of warranty or otherwise, against the other arising out of or related to the Contract in accordance with the requirements of the final dispute resolution method selected in the Agreement within the time period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all claims and causes of action not commenced in accordance with this Section 13.7.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 TERMINATION BY THE CONTRACTOR

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, for any of the following reasons:

.1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;

.2 An act of government, such as a declaration of national emergency that requires all Work to be stopped;

.3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or

.4 The Owner has failed to furnish to the Contractor promptly, upon the Contractor's request, reasonable evidence as required by Section 2.2.1.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, repeated suspensions, delays or interruptions of the entire Work by the Owner as described in Section 14.3 constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' written notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, including reasonable overhead and profit, costs incurred by reason of such termination, and damages.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor or a Subcontractor or their agents or employees or any other persons performing portions of the Work under contract with the Contractor because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' written notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.2 TERMINATION BY THE OWNER FOR CAUSE

§ 14.2.1 The Owner may terminate the Contract if the Contractor

.1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;

.2 fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;

.3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or

.4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the above reasons exist, the Owner, upon certification by the Initial Decision Maker that sufficient cause exists to justify such action, may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' written notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

.1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;

.2 Accept assignment of subcontracts pursuant to Section 5.4; and

.3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Initial Decision Maker, upon application, and this obligation for payment shall survive termination of the Contract.

§ 14.3 SUSPENSION BY THE OWNER FOR CONVENIENCE

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay or interruption as described in Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

.1 that performance is, was or would have been so suspended, delayed or interrupted by another cause for which the Contractor is responsible; or

.2 that an equitable adjustment is made or denied under another provision of the Contract.

§ 14.4 TERMINATION BY THE OWNER FOR CONVENIENCE

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of written notice from the Owner of such termination for the Owner's convenience, the Contractor shall

.1 cease operations as directed by the Owner in the notice;

.2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and

.3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Contractor shall be entitled to receive payment for Work executed, and costs incurred by reason of such termination, along with reasonable overhead and profit on the Work not executed.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 CLAIMS

§ 15.1.1 DEFINITION

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim.

§ 15.1.2 NOTICE OF CLAIMS

Claims by either the Owner or Contractor must be initiated by written notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party must be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3 CONTINUING CONTRACT PERFORMANCE

Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents. The Architect will prepare Change Orders and issue Certificates for Payment in accordance with the decisions of the Initial Decision Maker.

§ 15.1.4 CLAIMS FOR ADDITIONAL COST

If the Contractor wishes to make a Claim for an increase in the Contract Sum, written notice as provided herein shall be given before proceeding to execute the Work. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.5 CLAIMS FOR ADDITIONAL TIME

§ 15.1.5.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, written notice as provided herein shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary.

§ 15.1.5.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated and had an adverse effect on the scheduled construction.

§ 15.1.6 CLAIMS FOR CONSEQUENTIAL DAMAGES

The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

.1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and

.2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.6 shall be deemed to preclude an award of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 INITIAL DECISION

§ 15.2.1 Claims, excluding those arising under Sections 10.3, 10.4, 11.3.9, and 11.3.10, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim arising prior to the date final payment is due, unless 30 days have passed after the Claim has been referred to the Initial Decision Maker with no decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of such request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

§ 15.2.6.1 Either party may, within 30 days from the date of an initial decision, demand in writing that the other party file for mediation within 60 days of the initial decision. If such a demand is made and the party receiving the demand fails to file for mediation within the time required, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 15.3 MEDIATION

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.6 shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 15.4 ARBITRATION

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The

party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 15.4.4 CONSOLIDATION OR JOINDER

§ 15.4.4.1 Either party, at its sole discretion, may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Either party, at its sole discretion, may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as the Owner and Contractor under this Agreement.

GENERAL CONDITIONS

The Work of this Contract shall be subject to the American Institute of Architects Document A201, "General Conditions of the Contract for Construction", herein referred to as the General Conditions.

SUPPLEMENTARY CONDITIONS

The supplementary Conditions contain changes and additions to the General Conditions. Where any part of the General Conditions is modified or voided by the Supplementary Conditions, the remaining unaltered provisions shall remain in effect.

ARTICLE 1 **Make the following changes:**

1.2.3 **Add the following:** When applied to materials and equipment required for the Work, the words "furnish", "install" and "provide" shall mean the following:

.1 The word "provide" shall mean to furnish, pay for, deliver, install, adjust, clean and otherwise make materials and equipment fit and ready for their intended use.

.2 The word "furnish" shall mean to secure, pay for, deliver to site, unload and uncrate materials and equipment.

.3 The word "install" shall mean to place in position, incorporate in the work, adjust, clean, make fit and ready for use and perform all services except those included under the term "furnish".

.4 The phrase "furnish and install" shall be equivalent to the word "provide". Each shall be interpreted to mean "the Contractor shall furnish all labor, material and equipment and install....".

.5 “As required" shall mean as required to produce a fully completed project or result to the satisfaction of the Architect.

.6 Where discrepancies or conflicts occur:

.1 Amendments and Addenda shall take precedence over the Specifications.

.2 The Specifications shall take precedence over the Drawings.

.3 Stated dimensions shall take precedence over scaled dimensions.

.4 Large-scale detail drawings shall take precedence over small-scale drawings.

.5 Schedules shall take precedence over other data on the drawings.

.7 In case of a difference between Drawings or Specifications or within either document itself in describing the Work, the better quality, greater quantity or more costly work will be assumed to be and shall be included in the Contract price. The Contractor shall not proceed with such work until the Architect has been contacted for clarification and proper direction.

.8 Instructions or specifications of a particular manufacturer as referred to herein shall be binding as a part of this Specification. Obtain such written instructions and maintain on the job with the Specification.

.9 Schedules of materials in various sections of the Specifications are furnished to assist the Contractor. Contractor shall verify the schedules with the Drawings and shall provide any additional materials indicated on the Drawings but not included in the schedules. The greater quantity or highest quality will govern.

Add the following:

1.2.4 All work shown or referred to in the Contract Documents shall be included in the Contract excepting those items which are specifically noted as being "provided under another contract" or "provided by the Owner"; or "not in contract (NIC)".

1.2.5 Parties to the Contract shall not take advantage of obvious error or apparent discrepancy in Contract Documents. Notice of discovered error or discrepancy shall immediately be given in writing to the Architect to make such corrections and interpretations as he may deem necessary for completion of the work in a satisfactory and acceptable manner.

1.6.2 Contractor shall be furnished up to two (2) sets of Contract Drawings and Specifications, and two (2) copies of each drawing which is issued after the date of the Contract. The Contractor shall pay costs of reproduction for any additional copies of Drawings or Specifications he requires.

ARTICLE 2 **Make the following changes:**

2.2.3 **Delete** the phrase “and utility locations”.

ARTICLE 3 **Add the following:**

3.4.4 Should the Contractor wish to substitute another product or method for products or methods specified or shown in the Contract Documents, whether specified or shown in Contract Documents, whether or not such phrases as "equal to" or "based on" are used, he shall apply in writing in approval. He shall enclose such data as Architect requires to evaluate products. The Architect's decision shall be final. Contractor is responsible for space requirements of substitutions, he shall execute necessary changes in adjacent and relocated situations, he shall execute necessary changed in adjacent and relocated work which are due to such substitutions, without additional cost and he shall be responsible for delays required for evaluation of proposed substitutions.

3.5.1.1 Project Warranty: Unless otherwise specified, Contractor shall warrant (guaranty) all work against defects resulting from the use of material, workmanship or equipment which is inferior, defective or not in

accordance with the terms of the Contract. This warranty, unless stated otherwise in a given section of the Specifications, shall be for a period of one (1) year from the date of issuance of the Certificate of Substantial Completion for the Project.

.2 Specified Product Warranty: Issued by a manufacturer or fabricator for compliance with requirements of the Contract Documents. Refer to sections of Specifications for requirements of specified warranties.

.3 Coincidental Product Warranty: Available on a product incorporated into the work, by virtue of manufacturer's publication of warranty without regard for application requirement, a non-specified warranty. Contractor shall identify such warranties as they apply.

.4 Warranty Obligations

.1 Contractor shall restore or remove-and-replace warranted work to its originally specified condition, at such time during warranty as it does not comply with or fulfill terns of warranty.

.2 Contractors shall restore or remove-and-replace other work which has been damaged by failure or warranted work, or which must be removed and replaced to gain access to warranted work.

.3 Cost of restoration or removal-and-replacement is Contractor's obligation, without regard to whether Owner has already benefited from use of failing work.

.4 Except as otherwise indicated or required by governing regulations, warranties do not cover consequential damage to property other than the Work of the Contract.

.5 Upon restoration or removal-and-replacement of warranted work which has failed, Contractor shall reinstate the warranty by issuing newly executed form, for at least the remaining period of time of the original warranty, but for not less than half of the original warranty period.

.6 Warranties and warranty periods shall not diminish implied warranties, and shall not deprive Owner of actions, rights and remedies otherwise available if the Contractor fails to fulfill the requirements of the Contract Documents.

.7 Owner reserves the right to reject coincidental product warranties which conflict with or are less than the requirements of the Contract Documents.

.5 Contractor shall furnish fully executed warranties to Owner in accordance with the General Conditions and Section 01740.

3.6 **Amend to include the following:** No amount shall be included in the bid for State Sales Tax of for Federal Excise Tax on materials or supplies purchased for this project. The Owner will supply tax exempt number.

3.7.1 **Amend to include the following:** The Contractor shall pay costs charged by utility companies for service connections, inspections and tests, and related utility company fees normally assessed as part of the construction process.

ARTICLE 4 **Add the following:**

4.3 The provisions of Article 4 notwithstanding, the Contractor expressly agrees to joinder in arbitration proceedings between Owner/Architect upon specific written request of the Owner. This agreement shall be valid with the Architect's acceptance of an equal provision in their respective contracts.

ARTICLE 7 **Add the following:**

7.2.3 The Contractor's proposal for changes in the Work shall be itemized completely and in detail and shall include material costs and quantities, labor wages, time, insurance, pensions and equipment rental other than small tools, and the number of additional calendar days, if any, which are required to complete the Work.

Where unit prices have been established, the proposal shall state the quantity involved and the applicable unit price.

7.5 ALLOWANCE FOR OVERHEAD AND PROFIT

7.5.1 The allowance for overhead and profit is compensation for administration, superintendence, materials for temporary structures, additional premiums on bonds and the use of small tools.

7.5.2 For additions, deletions or other changes in the Work ordered under method 7.3.3.3, the Contractor may apply an allowance of up to fifteen percent (15%) for profit and overhead to the net cost of the work actually performed by him.

7.5.3 Work to be performed by a subcontractor may include an allowance for the subcontractor's overhead and profit not to exceed fifteen percent (15%) of the net cost. The Contractor is permitted up to a **ten percent** (10%) allowance to be applied against the net cost to a subcontractor. In no case shall the total allowance exceed twenty-five percent (25%) of the net cost of work performed by the subcontractor.

7.5.4 The Contractor's allowance of up to ten percent (10%) on changes involving more than one subcontractor shall be applied only to the combined net of cost additions and deductions of all subcontractors.

7.5.6 There shall be no allowance for overhead and profit for the Contractor or any subcontractor on changes resulting in a net deduction.

7.5.7 The provisions of this Article shall apply only to subcontractors as defined in Article 5. Allowance for overhead and profit will be accepted only for those who are direct subcontractors.

ARTICLE 8 **Make the following changes:**

8.3.4 **Add the following:** No extension of time will be allowed for adverse weather conditions unless the number of days of inclement weather is substantially greater or conditions substantially more severe than the average for the calendar period as recorded by a recognized weather observation agency.

ARTICLE 9 **Make the following changes:**

9.3.1 **Revise** "ten days" to read "fifteen (15) days".

Add the following:

9.3.1.3 During progress of the Work, the Owner will pay Contractor ninety-five percent (95%) of the total amount of each monthly payment due. The remaining five percent (5%) will be retained by the Owner until the Project is substantially completed. There will be no further reduction considered until final acceptance of the Project in accordance with the Contract Documents.

9.3.2 **Add the following:** If the Contractor does not submit evidence of payment to vendor for material and equipment stored, the Architect will recommend deduction of the amount previously allowed for the items stored from the current or subsequent Application for Payment.

Add the following:

9.3.2.1 Contractor may include in Application for Payment the delivered cost of equipment and non-perishable materials delivered and stored at the site but not incorporated in the work, work under the following conditions:

.1 Items to be protected from fire, theft, vandalism, weather and other damage.
.2 Storage procedures and areas to be approved.
.3 Items to be available at all times for inspection by the Owner and Architect.

9.3.4 Contractor shall furnish with Application for Payment an invoice establishing value of material and equipment stored at the site along with a statement of amount to be paid the vendor.

.1 Such stored items are subject to inspection by Architect before payment is recommended.

.2 Contractor shall furnish Owner with Certificate of Insurance in accordance with Contract Documents for the full value of the items stored at the site.

9.6.2.1 Contractor shall furnish Architect with satisfactory evidence of payment to vendors supplying material and equipment for approved storage. This shall be done within thirty (30) days after the date of progress payment. Satisfactory evidence of payment shall be one (1) of the following:

.1 Contractor's canceled check in correct amount with identification of invoices paid.

.2 A letter or telegram from vendor with authorized signature stating amounts and invoices paid.

.3 A receipted invoice.

9.6.7.1 Payment for material and equipment delivered and stored shall not relieve Contractor of responsibility for furnishing equipment and material required for the work in the same manner as if such payment were not made.

9.10.6 A prerequisite to final payment shall be that the Contractor furnish proof that he has completed all specification requirements covering the following item as applicable: Warranties.

ARTICLE 10 **Add the following:**

10.2.4.1 The Contractor shall not bring hazardous materials onto the site nor use in the Work without compliance with the following conditions.

.2 The Contractor shall be solely responsible for the handling, storage, and use of explosive or other hazardous materials when their use is permitted. For such use, the Contractor shall obtain necessary permits form regulating agencies and submit copies of permits to the Architect for review before proceeding with use.

.3 Contractor shall obtain insurance for use of hazardous material and furnish certificates of insurance in keeping with Conditions of the Contract.

ARTICLE 11 **Make the following changes:**

11.1.4 **Add** “or Subcontractor” after each “Contractor” and “or Subcontractor’s” after each “Contractor’s”, respectively.

11.3 **Delete in its entirety and add as the following:**

11.3.1 The Contractor shall purchase and maintain in a company or companies lawfully authorized to do business in the State of Connecticut, an Installation

Floater Policy (or equivalent policy) equal to the value of the property being installed. This shall include property installed off site. Payment of any deductible on the Contractor's Installation Floater shall be the responsibility of the Contractor. The coverage shall be on a special "all risk" form and include theft, flood and earthquake.

11.3.2 The Owner shall purchase and maintain in a company or companies lawfully authorized to do business in the State of Connecticut, property insurance on the structure and its contents. Once a component is fully installed and part of the building, it becomes responsibility of the Owner to insure. Payment of any deductible on the Owners property policy shall be the responsibility of the Owner. The coverage shall be on a special "all risk" form and include theft, flood and earthquake.

11.3.3 Should damage to Owner's property be caused in whole or in part by negligence of the Contractor, or a Subcontractor, such Contractor or Subcontractor will be responsible to pay or reimburse the Owner the cost of repairs and any resulting loss of use, including the deductible. The Owner's property carrier maintains the right to subrogate against the Contractor or Subcontractor.

NOTE: The Contractor or Subcontractor should not have to purchase additional property insurance for 11.3.3 as this should be covered under their general liability policy.

11.5 MISCELLANEOUS INSURANCE REQUIREMENTS

11.5.1 Insurance shall be carried with a company or companies licensed to do business in the State of Connecticut.

11.5.2 The Contractor shall not begin work until he has obtained all insurance as required, nor shall any subcontractor be permitted to commence work until he has obtained all insurance as required under the same provisions. Insurance shall be maintained throughout the life of the Contract.

11.5.3 It shall be the responsibility of the Contractor to obtain Certificates of Insurance from each subcontractor and to make certain that all coverage is maintained throughout the life of the Contract.

11.5.4 The Contractor, before commencing work, shall supply Owner with Certificates of Insurance evidencing compliance with the insurance requirements. Each certificate shall state that the insurance evidenced by such certificate will not be canceled or reduced without thirty (30) days prior written notice to the Contractor.

11.5.5 Each subcontractor, before commencing work, shall supply Owner with Certificates of Insurance evidencing compliance with the insurance requirements.

Each certificate shall state that the insurance evidenced by such certificate will not be canceled or reduced without thirty (30) days prior written notice to the Contractor.

11.5.6 The Contractor shall maintain a file of Certificates of Insurance received from each subcontractor and provide Owner with copy of each certificate.

11.5.7 The Contractor shall furnish to the Owner copies of any endorsements subsequently issued amending coverage or limits.

A. CONTRACTOR'S LIABILITY INSURANCE: Concerning the insurance described in ITEM 11.1, the Contractor shall maintain the following minimum limits:

1. Workers' Compensation

(a)	State	Statutory
(b)	Applicable Federal (e.g., Longshoremen, harbor work, work at or outside U.S. Boundaries):	Statutory
(c)	Maritime	$ ---
(d)	Employer's Liability	$100,000 Accident $500,000 Disease $500,000 Policy Limit
(e)	Benefits Required by Union Labor Contracts:	As applicable

2. Commercial General Liability (Including Premises-Operations; Independent Contractor's Protective; Products and Completed Operations; Broad Form Property Damage):

(a) Bodily Injury:

$1,000,000	Each Occurrence
$2,000,000	Aggregate, Products and Completed Operations

(b) Property Damage:

$1,000,000	Each Occurrence
$1,000,000	Aggregate

(c) Products and Completed Operations Insurance shall be maintained for a minimum of two (2) years after final payment and Contractor shall

continue to provide evidence of such coverage to Owner on an annual basis during the aforementioned period.

(d) Property Damage Liability Insurance shall include coverage for the following hazards:

X Explosion C Collapse U Underground

(e) Contractual Liability (Hold Harmless Coverage):

(1) Bodily Injury:

$1,000,000 Each Occurrence

(2) Property Damage:

$1,000,000 Each Occurrence
$1,000,000 Aggregate

(f) Personal Injury, with Employment Exclusion deleted:

$1,000,000 Aggregate

(g) Name as Additional Insureds: Town of Fairfield and Silver/Petrucelli + Associates, Inc.

3. Comprehensive Automobile Liability (owned, co-owned, hired):

(a) Bodily Injury:

$1,000,000 Each Person
$1,000,000 Each Accident

(b) Property Damage:

$ 500,000 Each Occurrence

B. OWNER'S LIABILITY INSURANCE: Concerning the insurance described in ITEM 11.2:

_____ No modification required.

_____ The Contractor shall provide this insurance (normally under an Owner's Protective Liability Policy) with the following limits:
(1) Bodily Injury:

$1,000,000 Each Occurrence
$1,000,000 Aggregate

(2) Property Damage:

$1,000,000 Each Occurrence
$1,000,000 Aggregate

(3) Personal Injury, with Employment Exclusion deleted:

C. PROPERTY INSURANCE: Concerning the insurance as described in ITEM 11.3:

_____ No modification required: Owner will purchase (coverage will be included for all materials and equipment furnished by the Owner which is to be incorporated or used in the project when stored off site or when in transit.).

__X__ Contractor shall purchase the following:

(1) _____ All Risk

__X__ Other: Installation Floater.

(2) _____ On the following form: (select one)

_____ Completed Value

_____ Reporting

(3) __X__ In the Names of the Owner, Contractor, Subcontractor, and subcontractor as their interests may appear with limits as follows: (Select One)

_____ Full insurable value of the Work

__x__ Amount equal to the Contract sum for the Work

(If Coverage for alterations and additions to existing structures is to be included under Owner's existing coverage, specific instructions are included under Item D below).

D. OTHER INSTRUCTION RELATED TO INSURANCE _____.

ARTICLE 13 **Make the following changes:**

13.6 **Delete** in its entirety.

ARTICLE 15 **Make the following changes:**

Add the following:

15.3.1.1 In addition to and prior to arbitration, the parties shall endeavor to settle disputes by mediation in accordance with the Construction Industry Mediation Rules of the American Arbitration Association currently in effect unless the parties mutually agree otherwise. Demand for mediation shall be filed in writing with the other party to this Agreement and with the American Arbitration Association. A demand for mediation shall be made within a reasonable time after the claim, dispute or other matter in w\question has arisen.

.2 The provisions of Article 4 notwithstanding, the Contractor expressly agrees to joinder in mediation proceedings between Owner/Architect upon specific written request of the Owner. This agreement shall be valid with the Architect's acceptance of an equal provision in their respective contracts.

15.4.1 **Delete** in its entirety.

15.4.2 **Delete** in its entirety.

15.4.3 **Delete** in its entirety.

END OF SECTION

DRAFT

AIA® Document G702™ – 1992

Application and Certificate for Payment

TO OWNER:		PROJECT:		APPLICATION NO:	Distribution to:
					OWNER:
				PERIOD TO:	ARCHITECT:
				CONTRACT FOR: General Construction	CONTRACTOR:
FROM		VIA		CONTRACT DATE:	FIELD:
CONTRACTOR:		ARCHITECT:		PROJECT NOS: / /	:

CONTRACTOR'S APPLICATION FOR PAYMENT

Application is made for payment, as shown below, in connection with the Contract.
Continuation Sheet, AIA Document G703, is attached.

1. ORIGINAL CONTRACT SUM	$0.00
2. NET CHANGE BY CHANGE ORDERS	$0.00
3. CONTRACT SUM TO DATE (Line 1 ± 2)	$0.00
4. TOTAL COMPLETED & STORED TO DATE (Column G on G703)	$0.00
5. RETAINAGE:	
a. 0 % of Completed Work (Column D + E on G703: $0.00)=	$0.00
b. 0 % of Stored Material (Column F on G703: $0.00)=	$0.00
Total Retainage (Lines 5a + 5b or Total in Column I of G703)	$0.00
6. TOTAL EARNED LESS RETAINAGE (Line 4 Less Line 5 Total)	$0.00
7. LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificate)	$0.00
8. CURRENT PAYMENT DUE	$0.00
9. BALANCE TO FINISH, INCLUDING RETAINAGE (Line 3 less Line 6)	$0.00

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by Owner	$0.00	$0.00
Total approved this Month	$0.00	$0.00
TOTALS	$0.00	$0.00
NET CHANGES by Change Order		$0.00

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is now due.

CONTRACTOR:

By: _____ Date: _____

State of:

County of:

Subscribed and sworn to before me this day of

Notary Public:

My Commission expires:

ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED $0.00

(Attach explanation if amount certified differs from the amount applied. Initial all figures on this Application and on the Continuation Sheet that are changed to conform with the amount certified.)

ARCHITECT:

By: _____ Date: _____

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

DRAFT AIA® Document G703™ – 1992

Continuation Sheet

AIA Document, G702™–1992, Application and Certification for Payment, or G736™–2009, Project Application and Project Certificate for Payment, Construction Manager as Adviser Edition, containing Contractor's signed certification is attached.
In tabulations below, amounts are in US dollars.
Use Column I on Contracts where variable retainage for line items may apply.

APPLICATION NO:
APPLICATION DATE:
PERIOD TO:
ARCHITECT'S PROJECT NO:

A	B	C	D	E	F	G		H	I
			WORK COMPLETED						
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	FROM PREVIOUS APPLICATION (D + E)	THIS PERIOD	MATERIALS PRESENTLY STORED (NOT IN D OR E)	TOTAL COMPLETED AND STORED TO DATE (D + E + F)	% (G ÷ C)	BALANCE TO FINISH (C - G)	RETAINAGE (IF VARIABLE RATE)
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00%	0.00	0.00
	GRAND TOTAL	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00%**	**0.00**	**0.00**

CONNECTICUT DEPARTMENT OF LABOR
WAGE AND WORKPLACE STANDARDS DIVISION

CONTRACTORS WAGE CERTIFICATION FORM

Construction Manager at Risk/General Contractor/Prime Contractor

I,_____ of _____
Officer, Owner, Authorized Rep. Company Name

do hereby certify that the _____
Company Name

_____
Street

_____
City

and all of its subcontractors will pay all workers on the

_____
Project Name and Number

_____
Street and City

the wages as listed in the schedule of prevailing rates required for such project (a copy of which is attached hereto).

_____
Signed

Subscribed and sworn to before me this _____ day of _____,_____.

_____
Notary Public

Return to:

Connecticut Department of Labor
Wage & Workplace Standards Division
200 Folly Brook Blvd.
Wethersfield, CT 06109

Rate Schedule Issued (Date): _____

Connecticut Department of Labor
Wage and Workplace Standards Division
FOOTNOTES

Please Note: If the "Benefits" listed on the schedule for the following occupations includes a letter(s) (+ a or + a+b for instance), refer to the information below.

Benefits to be paid at the appropriate prevailing wage rate for the listed occupation.

If the "Benefits" section for the occupation lists only a dollar amount, disregard the information below.

Bricklayers, Cement Masons, Cement Finishers, Concrete Finishers, Stone Masons
(Building Construction) and
(Residential- Hartford, Middlesex, New Haven, New London and Tolland Counties)

a. Paid Holiday: Employees shall receive 4 hours for Christmas Eve holiday provided the employee works the regularly scheduled day before and after the holiday. Employers may schedule work on Christmas Eve and employees shall receive pay for actual hours worked in addition to holiday pay.

Elevator Constructors: Mechanics

a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day, plus the Friday after Thanksgiving.

b. Vacation: Employer contributes 8% of basic hourly rate for 5 years or more of service or 6% of basic hourly rate for 6 months to 5 years of service as vacation pay credit.

Glaziers

a. Paid Holidays: Labor Day and Christmas Day.

Power Equipment Operators
(Heavy and Highway Construction & Building Construction)

a. Paid Holidays: New Year's Day, Good Friday, Memorial day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day, provided the employee works 3 days during the week in which the holiday falls, if scheduled, and if scheduled, the working day before and the working day after the holiday. Holidays falling on Saturday may be observed on Saturday, or if the employer so elects, on the preceding Friday.

Ironworkers

a. Paid Holiday: Labor Day provided employee has been on the payroll for the 5 consecutive work days prior to Labor Day.

Laborers (Tunnel Construction)

a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. No employee shall be eligible for holiday pay when he fails, without cause, to work the regular work day preceding the holiday or the regular work day following the holiday.

Roofers

a. Paid Holidays: July 4th, Labor Day, and Christmas Day provided the employee is employed 15 days prior to the holiday.

Sprinkler Fitters

a. Paid Holidays: Memorial Day, July 4th, Labor Day, Thanksgiving Day and Christmas Day, provided the employee has been in the employment of a contractor 20 working days prior to any such paid holiday.

Truck Drivers

(Heavy and Highway Construction & Building Construction)

a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas day, and Good Friday, provided the employee has at least 31 calendar days of service and works the last scheduled day before and the first scheduled day after the holiday, unless excused.

STATUTE 31-55a

- SPECIAL NOTICE –

To All State and Political Subdivisions,Their Agents, and Contractors
Connecticut General Statute 31-55a - Annual adjustments to wage rates by contractors doing state work.

Each contractor that is awarded a contract on or after October 1, 2002, for (1) the construction of a state highway or bridge that falls under the provisions of section 31-54 of the general statutes, or (2) the construction, remodeling, refinishing, refurbishing, rehabilitation, alteration or repair of any public works project that falls under the provisions of section 31-53 of the general statutes shall contact the Labor Commissioner on or before July first of each year, for the duration of such contract, to ascertain the prevailing rate of wages on an hourly basis and the amount of payment or contributions paid or payable on behalf of each mechanic, laborer or worker employed upon the work contracted to be done, and shall make any necessary adjustments to such prevailing rate of wages and such payment or contributions paid or payable on behalf of each such employee, effective each July first.

- The prevailing wage rates applicable to any contract or subcontract awarded on or after October 1, 2002 are subject to annual adjustments each July 1st for the duration of any project which was originally advertised for bids on or after October 1, 2002.
- Each contractor affected by the above requirement shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.
- It is the ***contractor's*** responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's Web Site. The annual adjustments will be posted on the Department of Labor Web page: www.ctdol.state.ct.us. For those without internet access, please contact the division listed below.
- The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project. All subsequent annual adjustments will be posted on our Web Site for contractor access.

Any questions should be directed to the Contract Compliance Unit, Wage and Workplace Standards Division, Connecticut Department of Labor, 200 Folly Brook Blvd., Wethersfield, CT 06109 at (860)263-6790.

Information Bulletin
Occupational Classifications

The Connecticut Department of Labor has the responsibility to properly determine "job classification" on prevailing wage projects covered under C.G.S. Section 31-53.

Note: This information is intended to provide a sample of some occupational classifications for guidance purposes only. It is not an all-inclusive list of each occupation's duties. This list is being provided only to highlight some areas where a contractor may be unclear regarding the proper classification.

Below are additional clarifications of specific job duties performed for certain classifications:

- **ASBESTOS WORKERS**

  Applies all insulating materials, protective coverings, coatings and finishes to all types of mechanical systems.

- **ASBESTOS INSULATOR**

  Handle, install apply, fabricate, distribute, prepare, alter, repair, dismantle, heat and frost insulation, including penetration and fire stopping work on all penetration fire stop systems.

- **BOILERMAKERS**

  Erects hydro plants, incomplete vessels, steel stacks, storage tanks for water, fuel, etc. Builds incomplete boilers, repairs heat exchanges and steam generators.

- **BRICKLAYERS, CEMENT MASONS, CEMENT FINISHERS, MARBLE MASONS, PLASTERERS, STONE MASONS, PLASTERERS. STONE MASONS, TERRAZZO WORKERS, TILE SETTERS**

  Lays building materials such as brick, structural tile and concrete cinder, glass, gypsum, terra cotta block. Cuts, tools and sets marble, sets stone, finishes concrete, applies decorative steel, aluminum and plastic tile, applies cements, sand, pigment and marble chips to floors, stairways, etc.

- **CARPENTERS, MILLWRIGHTS. PILEDRIVERMEN. LATHERS. RESILEINT FLOOR LAYERS, DOCK BUILDERS, DIKERS, DIVER TENDERS**

  Constructs, erects, installs and repairs structures and fixtures of wood, plywood and wallboard. Installs, assembles, dismantles, moves industrial machinery. Drives piling into ground to provide foundations for structures such as buildings and bridges, retaining walls for earth embankments, such as cofferdams. Fastens wooden, metal or rockboard lath to walls, ceilings and partitions of buildings, acoustical tile layer, concrete form builder. Applies firestopping materials on fire resistive joint systems only. Installation of curtain/window walls only where attached to wood or metal studs. Installation of insulated material of all types whether blown, nailed or attached in other ways to walls, ceilings and floors of buildings. Assembly and installation of modular furniture/furniture systems. Free-standing furniture is not covered. This includes free standing: student chairs, study top desks, book box desks, computer furniture, dictionary stand, atlas stand, wood shelving, two-position information access station, file cabinets, storage cabinets, tables, etc.

- **CLEANING LABORER**

  The clean up of any construction debris and the general cleaning, including sweeping, wash down, mopping, wiping of the construction facility, washing, polishing, dusting, etc., prior to the issuance of a certificate of occupancy falls under the *Labor classification.*

- **DELIVERY PERSONNEL**

  If delivery of supplies/building materials is to one common point and stockpiled there, prevailing wages are not required. If the delivery personnel are involved in the distribution of the material to multiple locations within the construction site then they would have to be paid prevailing wages for the type of work performed: laborer, equipment operator, electrician, ironworker, plumber, etc.

  An example of this would be where delivery of drywall is made to a building and the delivery personnel distribute the drywall from one "stockpile" location to further sub-locations on each floor. Distribution of material around a construction site is the job of a laborer/tradesman and not a delivery personnel.

- **ELECTRICIANS**

  Install, erect, maintenance, alteration or repair of any wire, cable, conduit, etc., which generates, transforms, transmits or uses electrical energy for light, heat, power or other purposes, including the Installation or maintenance of telecommunication, LAN wiring or computer equipment, and low voltage wiring. ***License required per Connecticut General Statutes: E-1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9.**

- **ELEVATOR CONSTRUCTORS**

  Install, erect, maintenance and repair of all types of elevators, escalators, dumb waiters and moving walks. ***License required by Connecticut General Statutes: R-1,2,5,6.**

- **FORK LIFT OPERATOR**

  Laborers Group 4) Mason Tenders - operates forklift solely to assist a mason to a maximum height of nine (9) feet only.

  Power Equipment Operator Group 9 - operates forklift to assist any trade, and to assist a mason to a height over nine (9) feet.

- **GLAZIERS**

  Glazing wood and metal sash, doors, partitions, and 2 story aluminum storefronts. Installs glass windows, skylights, store fronts and display cases or surfaces such as building fronts, interior walls, ceilings and table tops and metal store fronts. Installation of aluminum window walls and curtain walls is the "joint" work of glaziers and ironworkers which requires either a blended rate or equal composite workforce.

- **IRONWORKERS**

  Erection, installation and placement of structural steel, precast concrete, miscellaneous iron, ornamental iron, metal curtain wall, rigging and reinforcing steel. Handling, sorting, and installation of reinforcing steel (rebar). Metal bridge rail (traffic), metal bridge handrail, and decorative security fence installation. Installation of aluminum window walls and curtain walls is the "joint" work of glaziers and ironworkers which requires either a blended rate or equal composite workforce. Insulated metal and insulated composite panels are still installed by the Ironworker.

- **INSULATOR**

  Installing fire stopping systems/materials for "Penetration Firestop Systems": transit to cables, electrical conduits, insulated pipes, sprinkler pipe penetrations, ductwork behind radiation, electrical cable trays, fire rated pipe penetrations, natural polypropylene, HVAC ducts, plumbing bare metal, telephone and communication wires, and boiler room ceilings. Past practice using the applicable licensed trades, Plumber, Sheet Metal, Sprinkler Fitter, and Electrician, is not inconsistent with the Insulator classification and would be permitted.

- **LABORERS**

  Acetylene burners, asphalt rakers, chain saw operators, concrete and power buggy operator, concrete saw operator, fence and guard rail erector (except metal bridge rail (traffic), metal bridge handrail, and decorative security fence installation.), hand operated concrete vibrator operator, mason tenders, pipelayers (installation of storm drainage or sewage lines on the street only), pneumatic drill operator, pneumatic gas and electric drill operator, powermen and wagon drill operator, air track operator, block paver, curb setters, blasters, concrete spreaders.

- **PAINTERS**

  Maintenance, preparation, cleaning, blasting (water and sand, etc.), painting or application of any protective coatings of every description on all bridges and appurtenances of highways, roadways, and railroads. Painting, decorating, hardwood finishing, paper hanging, sign writing, scenic art work and drywall hhg for any and all types of building and residential work.

- **LEAD PAINT REMOVAL**

  Painter's Rate
  1. Removal of lead paint from bridges.
  2. Removal of lead paint as preparation of any surface to be repainted.
  3. Where removal is on a Demolition project prior to reconstruction.

  Laborer's Rate
  1. Removal of lead paint from any surface NOT to be repainted.
  2. Where removal is on a *TOTAL* Demolition project only.

- **PLUMBERS AND PIPEFITTERS**

  Installation, repair, replacement, alteration or maintenance of all plumbing, heating, cooling and piping. ****License required per Connecticut General Statutes: P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2 S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4.***

- **POWER EQUIPMENT OPERATORS**

  Operates several types of power construction equipment such as compressors, pumps, hoists, derricks, cranes, shovels, tractors, scrapers or motor graders, etc. Repairs and maintains equipment. ***License required, crane operators only, per Connecticut General Statutes.**

- **ROOFERS**

  Covers roofs with composition shingles or sheets, wood shingles, slate or asphalt and gravel to waterproof roofs, including preparation of surface. (tear-off and/or removal of any type of roofing and/or clean-up of any and all areas where a roof is to be relaid)

- **SHEETMETAL WORKERS**

  Fabricate, assembles, installs and repairs sheetmetal products and equipment in such areas as ventilation, air-conditioning, warm air heating, restaurant equipment, architectural sheet metal work, sheetmetal roofing, and aluminum gutters. Fabrication, handling, assembling, erecting, altering, repairing, etc. of coated metal material panels and composite metal material panels when used on building exteriors and interiors as soffits, facia, louvers, partitions, wall panel siding, canopies, cornice, column covers, awnings, beam covers, cladding, sun shades, lighting troughs, spires, ornamental roofing, metal ceilings, mansards, copings, ornamental and ventilation hoods, vertical and horizontal siding panels, trim, etc. The sheet metal classification also applies to the vast variety of coated metal material panels and composite metal material panels that have evolved over the years as an alternative to conventional ferrous and non-ferrous metals like steel, iron, tin, copper, brass, bronze, aluminum, etc. Insulated metal and insulated composite panels are still installed by the Iron Worker. Fabrication, handling, assembling, erecting, altering, repairing, etc. of architectural metal roof, standing seam roof, composite metal roof, metal and composite bathroom/toilet partitions, aluminum gutters, metal and composite lockers and shelving, kitchen equipment, and walk-in coolers.

- **SPRINKLER FITTERS**

  Installation, alteration, maintenance and repair of fire protection sprinkler systems. ***License required per Connecticut General Statutes: F-1,2,3,4.**

- **TILE MARBLE AND TERRAZZO FINISHERS**

  Assists and tends the tile setter, marble mason and terrazzo worker in the performance of their duties.

- **TRUCK DRIVERS**

Definitions:

1) "Site of the work" (29 Code of Federal Regulations (CFR) 5.2(l)(b) is the physical place or places where the building or work called for in the contract will remain and any other site where a significant portion of the building or work is constructed, provided that such site is established specifically for the performance of the contact or project;

(a) Except as provided in paragraph (l) (3) of this section, job headquarters, tool yards, batch plants, borrow pits, etc. are part of the "site of the work"; provided they are dedicated exclusively, or nearly so, to the performance of the contract or project, and provided they are adjacent to "the site of work" as defined in paragraph (e)(1) of this section;

(b) Not included in the "site of the work" are permanent home offices, branch plant establishments, fabrication plants, tool yards etc, of a contractor or subcontractor whose location and continuance in operation are determined wholly without regard to a particular State or political subdivision contract or uncertain and indefinite periods of time involved of a few seconds or minutes duration and where the failure to count such time is due to consideration justified by industrial realities (29 CFR 785.47)

2) "Engaged to wait" is waiting time that belongs to and is controlled by the employer which is an integral part of the job and is therefore compensable as hours worked. (29 CFR 785.15)

3) "Waiting to be engaged" is waiting time that an employee can use effectively for their own purpose and is not compensable as hours worked. (29 CFR 785.16)

4) "De Minimus" is a rule that recognizes that unsubstantial or insignificant periods of time which cannot as a practical administrative matter be precisely recorded for payroll purposes, may be disregarded. This rule applies only where there are uncertain and indefinite periods of time involved of a short duration and where the failure to count such time is due to consideration justified by worksite realities. For example, with respect to truck drivers on prevailing wage sites, this is typically less than 15 minutes at a time.

Coverage of Truck Drivers on State or Political subdivision Prevailing Wage Projects

Truck drivers <u>are covered</u> for payroll purposes under the following conditions:

- Truck Drivers for time spent working on the site of the work.
- Truck Drivers for time spent loading and/or unloading materials and supplies on the site of the work, if such time is not de minimus

- Truck drivers transporting materials or supplies between a facility that is deemed part of the site of the work and the actual construction site.

- Truck drivers transporting portions of the building or work between a site established specifically for the performance of the contract or project where a significant portion of such building or work is constructed and the physical places where the building or work outlined in the contract will remain.

For example: Truck drivers delivering asphalt are covered under prevailing wage while" engaged to wait" on the site and when directly involved in the paving operation, provided the total time is not "de minimus"

Truck Drivers <u>are not</u> covered in the following instances:

- Material delivery truck drivers while off "the site of the work"

- Truck Drivers traveling between a prevailing wage job and a commercial supply facility while they are off the "site of the work"

- Truck drivers whose time spent on the "site of the work" is de minimus, such as under 15 minutes at a time, merely to drop off materials or supplies, including asphalt.

These guidelines are similar to U.S. Labor Department policies. The application of these guidelines may be subject to review based on factual considerations on a case by case basis.

For example:

- Material men and deliverymen are not covered under prevailing wage as long as they are not directly involved in the construction process. If, they unload the material, they would then be covered by prevailing wage for the classification they are performing work in: laborer, equipment operator, etc.
- Hauling material off site is not covered provided they are not dumping it at a location outlined above.
- Driving a truck on site and moving equipment or materials on site would be considered covered work, as this is part of the construction process.

Any questions regarding the proper classification should be directed to:
Public Contract Compliance Unit
Wage and Workplace Standards Division
Connecticut Department of Labor
200 Folly Brook Blvd, Wethersfield, CT 06109
(860) 263-6543

Sec. 31-53b. Construction safety and health course. New miner training program. Proof of completion required for mechanics, laborers and workers on public works projects. Enforcement. Regulations. Exceptions. (a) Each contract for a public works project entered into on or after July 1, 2009, by the state or any of its agents, or by any political subdivision of the state or any of its agents, described in subsection (g) of section 31-53, shall contain a provision requiring that each contractor furnish proof with the weekly certified payroll form for the first week each employee begins work on such project that any person performing the work of a mechanic, laborer or worker pursuant to the classifications of labor under section 31-53 on such public works project, pursuant to such contract, has completed a course of at least ten hours in duration in construction safety and health approved by the federal Occupational Safety and Health Administration or, has completed a new miner training program approved by the Federal Mine Safety and Health Administration in accordance with 30 CFR 48 or, in the case of telecommunications employees, has completed at least ten hours of training in accordance with 29 CFR 1910.268.

(b) Any person required to complete a course or program under subsection (a) of this section who has not completed the course or program shall be subject to removal from the worksite if the person does not provide documentation of having completed such course or program by the fifteenth day after the date the person is found to be in noncompliance. The Labor Commissioner or said commissioner's designee shall enforce this section.

(c) Not later than January 1, 2009, the Labor Commissioner shall adopt regulations, in accordance with the provisions of chapter 54, to implement the provisions of subsections (a) and (b) of this section. Such regulations shall require that the ten-hour construction safety and health courses required under subsection (a) of this section be conducted in accordance with federal Occupational Safety and Health Administration Training Institute standards, or in accordance with Federal Mine Safety and Health Administration Standards or in accordance with 29 CFR 1910.268, as appropriate. The Labor Commissioner shall accept as sufficient proof of compliance with the provisions of subsection (a) or (b) of this section a student course completion card issued by the federal Occupational Safety and Health Administration Training Institute, or such other proof of compliance said commissioner deems appropriate, dated no earlier than five years before the commencement date of such public works project.

(d) This section shall not apply to employees of public service companies, as defined in section 16-1, or drivers of commercial motor vehicles driving the vehicle on the public works project and delivering or picking up cargo from public works projects provided they perform no labor relating to the project other than the loading and unloading of their cargo.

(P.A. 06-175, S. 1; P.A. 08-83, S. 1.)

History: P.A. 08-83 amended Subsec. (a) by making provisions applicable to public works project contracts entered into on or after July 1, 2009, replacing provision re total cost of work with reference to Sec. 31-53(g), requiring proof in certified payroll form that new mechanic, laborer or worker has completed a 10-hour or more construction safety course and adding provision re new miner training program, amended Subsec. (b) by substituting "person" for "employee" and adding "or program", amended Subsec. (c) by adding "or in accordance with Federal Mine
Safety and Health Administration Standards" and setting new deadline of January 1, 2009, deleted former Subsec. (d) re "public building", added new Subsec. (d) re exemptions for public service company employees and delivery drivers who perform no labor other than delivery and made conforming and technical changes, effective January 1, 2009.

THIS IS A PUBLIC WORKS PROJECT

Covered by the

PREVAILING WAGE LAW

CT General Statutes Section 31-53

If you have QUESTIONS regarding your wages
CALL (860) 263-6790

Section 31-55 of the CT State Statutes requires every contractor or subcontractor performing work for the state to post in a prominent place the prevailing wages as determined by the Labor Commissioner.

Informational Bulletin

THE 10-HOUR OSHA CONSTRUCTION SAFETY AND HEALTH COURSE

(applicable to public building contracts entered into *on or after July 1, 2007,* where the total cost of all work to be performed is at least $100,000)

(1) This requirement was created by Public Act No. 06-175, which is codified in Section 31-53b of the Connecticut General Statutes (pertaining to the prevailing wage statutes);

(2) The course is required for public building construction contracts (projects funded in whole or in part by the state or any political subdivision of the state) entered into on or after July 1, 2007;

(3) It is required of private employees (not state or municipal employees) and apprentices who perform manual labor for a general contractor or subcontractor on a public building project where the total cost of all work to be performed is at least $100,000;

(4) The ten-hour construction course pertains to the ten-hour Outreach Course conducted in accordance with federal OSHA Training Institute standards, and, for telecommunications workers, a ten-hour training course conducted in accordance with federal OSHA standard, 29 CFR 1910.268;

(5) The internet website for the federal OSHA Training Institute is http://www.osha.gov/fso/ote/training/edcenters/fact_sheet.html;

(6) The statutory language leaves it to the contractor and its employees to determine who pays for the cost of the ten-hour Outreach Course;

(7) Within 30 days of receiving a contract award, a general contractor must furnish proof to the Labor Commissioner that all employees and apprentices performing manual labor on the project will have completed such a course;

(8) Proof of completion may be demonstrated through either: (a) the presentation of a *bona fide* student course completion card issued by the federal OSHA Training Institute; *or* (2) the presentation of documentation provided to an employee by a trainer certified by the Institute pending the actual issuance of the completion card;

(9) Any card with an issuance date more than 5 years prior to the commencement date of the construction project shall not constitute proof of compliance;

(10) Each employer shall affix a copy of the construction safety course completion card to the certified payroll submitted to the contracting agency in accordance with Conn. Gen. Stat. § 31-53(f) on which such employee's name first appears;

(11) Any employee found to be in non-compliance shall be subject to removal from the worksite if such employee does not provide satisfactory proof of course completion to the Labor Commissioner by the fifteenth day after the date the employee is determined to be in noncompliance;

(12) Any such employee who is determined to be in noncompliance may continue to work on a public building construction project for a maximum of fourteen consecutive calendar days while bringing his or her status into compliance;

(13) The Labor Commissioner may make complaint to the prosecuting authorities regarding any employer or agent of the employer, or officer or agent of the corporation who files a false certified payroll with respect to the status of an employee who is performing manual labor on a public building construction project;

(14) The statute provides the minimum standards required for the completion of a safety course by manual laborers on public construction contracts; any contractor can exceed these minimum requirements; and

(15) Regulations clarifying the statute are currently in the regulatory process, and shall be posted on the CTDOL website as soon as they are adopted in final form.

(16) Any questions regarding this statute may be directed to the Wage and Workplace Standards Division of the Connecticut Labor Department via the internet website of http://www.ctdol.state.ct.us/wgwkstnd/wgemenu.htm; or by telephone at (860)263-6790.

THE ABOVE INFORMATION IS PROVIDED EXCLUSIVELY AS AN EDUCATIONAL RESOURCE, AND IS NOT INTENDED AS A SUBSTITUTE FOR LEGAL INTERPRETATIONS WHICH MAY ULTMATELY ARISE CONCERNIG THE CONSTRUCTION OF THE STATUTE OR THE REGULATIONS.

November 29, 2006

Notice

To All Mason Contractors and Interested Parties Regarding Construction Pursuant to Section 31-53 of the Connecticut General Statutes (Prevailing Wage)

The Connecticut Labor Department Wage and Workplace Standards Division is empowered to enforce the prevailing wage rates on projects covered by the above referenced statute.

Over the past few years the Division has withheld enforcement of the rate in effect for workers who operate a forklift on a prevailing wage rate project due to a potential jurisdictional dispute.

The rate listed in the schedules and in our Occupational Bulletin (see enclosed) has been as follows:

Forklift Operator:

- **Laborers (Group 4) Mason Tenders** - operates forklift solely to assist a mason to a maximum height of nine feet only.

- **Power Equipment Operator (Group 9)** - operates forklift to assist any trade and to assist a mason to a height over nine feet.

The U.S. Labor Department conducted a survey of rates in Connecticut but it has not been published and the rate in effect remains as outlined in the above Occupational Bulletin.

Since this is a classification matter and not one of jurisdiction, effective January 1, 2007 the Connecticut Labor Department will enforce the rate on each schedule in accordance with our statutory authority.

Your cooperation in filing appropriate and accurate certified payrolls is appreciated.

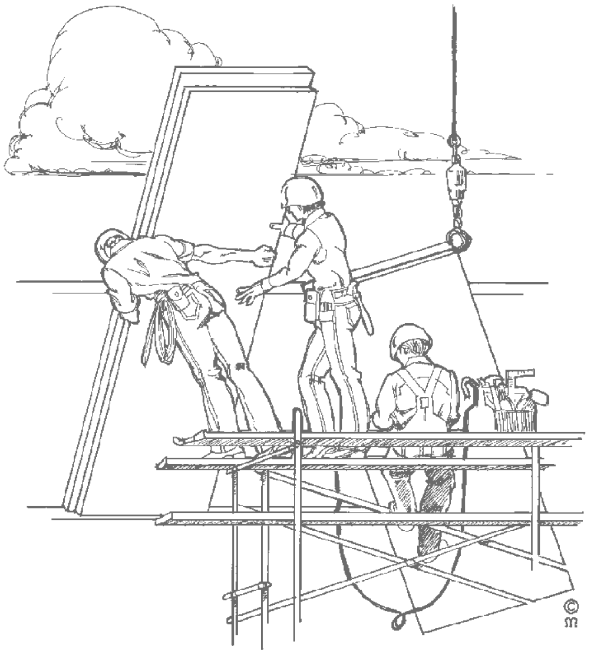
~NOTICE~

TO ALL CONTRACTING AGENCIES

Please be advised that Connecticut General Statutes Section 31-53, requires the contracting agency to certify to the Department of Labor, the total dollar amount of work to be done in connection with such public works project, regardless of whether such project consists of one or more contracts.

Please find the attached "Contracting Agency Certification Form" to be completed and returned to the Department of Labor, Wage and Workplace Standards Division, Public Contract Compliance Unit.

✎ Inquiries can be directed to (860)263-6543.



CONNECTICUT DEPARTMENT OF LABOR
WAGE AND WORKPLACE STANDARDS DIVISION
CONTRACT COMPLIANCE UNIT

CONTRACTING AGENCY CERTIFICATION FORM

I, _____, acting in my official capacity as _____,
authorized representative title

for _____, located at _____,
contracting agency address

do hereby certify that the total dollar amount of work to be done in connection with

_____, located at _____,
project name and number address

shall be $_____, which includes all work, regardless of whether such project

consists of one or more contracts.

CONTRACTOR INFORMATION

Name:_____

Address:_____
Authorized Representative:_____
Approximate Starting Date: _____

Approximate Completion Date:_____

_____ _____
Signature Date

Return To: Connecticut Department of Labor
Wage & Workplace Standards Division
Contract Compliance Unit
200 Folly Brook Blvd.
Wethersfield, CT 06109

Date Issued: _____

[New] In accordance with Section 31-53b(a) of the C.G.S. each contractor shall provide a copy of the OSHA 10 Hour Construction Safety and Health Card for each employee, to be attached to the first certified payroll on the project.

In accordance with Connecticut General Statutes, 31-53
Certified Payrolls with a statement of compliance
shall be submitted monthly to the contracting agency.

PAYROLL CERTIFICATION FOR PUBLIC WORKS PROJECTS

WEEKLY PAYROLL

Connecticut Department of Labor
Wage and Workplace Standards Division
200 Folly Brook Blvd.
Wethersfield, CT 06109

CONTRACTOR NAME AND ADDRESS:	SUBCONTRACTOR NAME & ADDRESS	WORKER'S COMPENSATION INSURANCE CARRIER POLICY # EFFECTIVE DATE: EXPIRATION DATE:
PAYROLL NUMBER / Week-Ending Date / PROJECT NAME & ADDRESS		

PERSON/WORKER, ADDRESS and SECTION	APPR RATE %	MALE/ FEMALE AND RACE*	WORK CLASSIFICATION Trade License Type & Number - OSHA 10 Certification Number	DAY AND DATE S	M	T	W	TH	F	S	Total ST Hours Total O/T Hours	BASE HOURLY RATE TOTAL FRINGE BENEFIT PLAN CASH	TYPE OF FRINGE BENEFITS Per Hour 1 through 6 (see back)	GROSS PAY FOR ALL WORK PERFORMED THIS WEEK	TOTAL DEDUCTIONS FICA	FEDERAL WITH-HOLDING	STATE WITH-HOLDING	LIST OTHER	GROSS PAY FOR THIS PREVAILING RATE JOB	CHECK # AND NET PAY
				HOURS WORKED EACH DAY																
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							

12/9/2013 *IF REQUIRED
WWS-CP1 *SEE REVERSE SIDE PAGE NUMBER _____ OF

OSHA 10 ~ATTACH CARD TO 1ST CERTIFIED PAYROLL

***FRINGE BENEFITS EXPLANATION (P):**

Bona fide benefits paid to approved plans, funds or programs, except those required by Federal or State Law (unemployment tax, worker's compensation, income taxes, etc.).

Please specify the type of benefits provided:

1) Medical or hospital care _____ 4) Disability_____

2) Pension or retirement _____ 5) Vacation, holiday_____

3) Life Insurance _____ 6) Other (please specify) _____

CERTIFIED STATEMENT OF COMPLIANCE

For the week ending date of _____,

I, _____of _____, (hereafter known as

Employer) in my capacity as _____ (title) do hereby certify and state:

Section A:

1. All persons employed on said project have been paid the full weekly wages earned by them during the week in accordance with Connecticut General Statutes, section 31-53, as amended. Further, I hereby certify and state the following:

a) The records submitted are true and accurate;

b) The rate of wages paid to each mechanic, laborer or workman and the amount of payment or contributions paid or payable on behalf of each such employee to any employee welfare fund, as defined in Connecticut General Statutes, section 31-53 (h), are not less than the prevailing rate of wages and the amount of payment or contributions paid or payable on behalf of each such employee to any employee welfare fund, as determined by the Labor Commissioner pursuant to subsection Connecticut General Statutes, section 31-53 (d), and said wages and benefits are not less than those which may also be required by contract;

c) The Employer has complied with all of the provisions in Connecticut General Statutes, section 31-53 (and Section 31-54 if applicable for state highway construction);

d) Each such employee of the Employer is covered by a worker's compensation insurance policy for the duration of his employment which proof of coverage has been provided to the contracting agency;

e) The Employer does not receive kickbacks, which means any money, fee, commission, credit, gift, gratuity, thing of value, or compensation of any kind which is provided directly or indirectly, to any prime contractor, prime contractor employee, subcontractor, or subcontractor employee for the purpose of improperly obtaining or rewarding favorable treatment in connection with a prime contract or in connection with a prime contractor in connection with a subcontractor relating to a prime contractor; and

f) The Employer is aware that filing a certified payroll which he knows to be false is a class D felony for which the employer may be fined up to five thousand dollars, imprisoned for up to five years or both.

2. OSHA~The employer shall affix a copy of the construction safety course, program or training completion document to the certified payroll required to be submitted to the contracting agency for this project on which such employee's name first appears.

_____	_____	_____
(Signature)	(Title)	Submitted on (Date)

Section B: Applies to CONNDOT Projects ONLY

That pursuant to CONNDOT contract requirements for reporting purposes only, all employees listed under Section B who performed work on this project are not covered under the prevailing wage requirements defined in Connecticut General Statutes Section 31-53.

_____	_____	_____
(Signature)	(Title)	Submitted on (Date)

Note: CTDOL will assume all hours worked were performed under Section A unless clearly delineated as Section B WWS-CP1 as such. Should an employee perform work under both Section A and Section B, the hours worked and wages paid must be segregated for reporting purposes.

*****THIS IS A PUBLIC DOCUMENT*****

*****DO NOT INCLUDE SOCIAL SECURITY NUMBERS*****

Weekly Payroll Certification For
Public Works Projects (Continued)

PAYROLL CERTIFICATION FOR PUBLIC WORKS PROJECTS

WEEKLY PAYROLL

Week-Ending Date:
Contractor or Subcontractor Business Name:

PERSON/WORKER, ADDRESS and SECTION	APPR RATE %	MALE/ FEMALE AND RACE*	WORK CLASSIFICATION Trade License Type & Number - OSHA 10 Certification Number	DAY AND DATE S	M	T	W	TH	F	S HOURS WORKED EACH DAY	Total ST Hours Total O/T Hours	BASE HOURLY RATE TOTAL FRINGE BENEFIT PLAN CASH	TYPE OF FRINGE BENEFITS Per Hour 1 through 6 (see back)	GROSS PAY FOR ALL WORK PERFORMED THIS WEEK	TOTAL DEDUCTIONS FICA	FEDERAL WITH-HOLDING	STATE WITH-HOLDING	LIST OTHER	GROSS PAY FOR THIS PREVAILING RATE JOB	CHECK # AND NET PAY
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							

*IF REQUIRED

NOTICE: THIS PAGE MUST BE ACCOMPANIED BY A COVER PAGE (FORM # WWS-CP1)

ADOPTED BY THE BOARD OF EDUCATION ON
DECEMBER 9, 2014

STUDENT CALENDAR

FAIRFIELD PUBLIC SCHOOLS

2015 - 2016

July

S	M	T	W	T	F	S
			1	2	[3]	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

3 Independence Day

August

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

31 All Teachers Report

September (17)

S	M	T	W	T	F	S
		1	2	3	4	5
6	[7]	8	9	10	11	12
13	[14]	15	16	17	18	19
20	21	22	[23]	24	25	26
27	28	29	30			

1 Prof. Dev. Day - District Wide
2 Orientation for Grade 6 and Grade 9
3 First Day of School - Full Day
7 Labor Day
14 Rosh Hashanah
22 No After School or Evening Activities
23 Yom Kippur

October (22)

S	M	T	W	T	F	S
				1	2	3
4	5	△6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	<(22)>	23	24
25	26	27	<(28)>	<(29)>	30	31

△ Prof. Dev. Day (Elem.) Early Dismissal
<( )> Conf. Days (Elem. & Middle) Early Dismissal

November (17)

S	M	T	W	T	F	S
1	2	[3]	4	5	6	7
8	9	10	[11]	12	13	14
15	16	17	18	19	20	21
22	23	24	25	[26]	[27]	28
29	30					

3 Election Day/Prof. Dev. All Certified Staff
11 Veterans' Day
25 Early Dismissal
26,27 Thanksgiving Recess

December (17)

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	[24]	(25)	26
27	[28	29	30	31]		

24 Holiday Week Begins
31 Holiday Week Ends

January (19)

S	M	T	W	T	F	S
					(1)	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	[(18)]	19	20	21	22	23
24	25	26	27	28	29	30
31						

1 New Year's Day
4 Schools Reopen
18 Martin Luther King Day

February (19)

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	△11	[12]	13
14	[15]	16	17	18	19	20
21	22	23	24	25	26	27
28	29					

△ Prof. Dev. Day (Elem.) Early Dismissal
12 Prof. Dev. Day - All Certified Staff
15 Presidents' Day

March (22)

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	[25]	26
27	28	29	(30)	(31)		

25 Good Friday
( ) Conf. Days (Elem. ONLY) Early Dismissal

April (16)

S	M	T	W	T	F	S
					1	2
3	4	5	(6)	7	8	9
10	[11	12	13	14	15]	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

( ) Conf. Day (Elem. ONLY) Early Dismissal
11 Spring Recess Begins
15 Spring Recess Ends

May (21)

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	[30]	31				

30 Memorial Day

June (12)

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

16 Last Day for Students & Teachers
(The first six snow days will extend the length of the school year and the date of High School Graduation; additional snow days will reduce the April vacation beginning with the first day, April 11.)

[ ] Schools Not In Session
<( )> Conference Days (Elem. & Middle) Early Dismissal
( ) Conference Days (Elementary ONLY) Early Dismissal
△ Early Dismissal (Elementary ONLY)
( ) State Required Holidays

ROOF REPLACEMENT

DWIGHT ELEMENTARY SCHOOL
1600 Redding Rd
Fairfield, CT 06824
STATE PROJECT NO. TMP-051-GTLZ

S/P+A PROJECT NO. 15.082

Drawing Number	Drawing Name
CS	COVER
A1	ROOF PLAN
A2	ROOF DETAILS

END OF SECTION

1 PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 PROJECT DESCRIPTION

A. The Project generally includes, but is not necessary limited to the following major elements:

1. Removal and disposal of hazardous containing material as identified by testing included in the contract documents.
2. Off site disposal of all removed materials.
3. Removal and replacement of existing roofing membrane, insulation, wood trim, flashing and sheet metal trim.
4. Removal and replacement of existing skylights
5. Painting of new and existing trim.
7. Plumbing Work: Roof drainage systems and piping insulation

1.3 CONTRACTOR USE OF PREMISES

A. General: Limit use of the premises to construction activities in areas indicated; allow for Owner occupancy and use by the public.

B. Confine operations to as small work areas and accessways as possible. As much as possible and without damage to the finishes, doors and related building systems, access the project area via the service doors designated by the Owner.

C. Keep driveways and entrances serving the premises clear and available to the Owner and the Owner's employees at all times. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on site.

D. Maintain existing egress patterns, exit doors and means of egress during construction, which will include the provision of temporary walkways, sidewalks or other means necessary to provide adequate life safety for the building occupants, particularly at exitways which must continue to be open and serviceable while adjacent construction activity occurs.

E. Use of the Existing Buildings: Maintain the existing buildings in a weather-tight condition throughout the construction period. Repair damage caused by construction operations. Take all precautions necessary to protect the building and its occupants during the construction period.

1.4 OWNER OCCUPANCY

A. Full Owner Occupancy: The Owner will occupy the site and existing building during the entire construction period, with children on site during the school year. Cooperate with the Owner during construction operations to minimize conflicts and facilitate Owner usage by phasing the construction in accordance with the Owner. Perform the Work so as not to interfere with the Owner's operations. Pre-schedule construction operations with the Owner for areas that must be evacuated or taken out of use for any length of time, giving the Owner the opportunity to relocate operations to non-affected areas. Due to the nature of the Owner's operations on the site, limited interference of operation is permitted. Remove only existing window units that can be replaced with new the same day and as the weather will permit.

1.5 SPECIAL REQUIREMENTS

A. Under no circumstances shall the buildings' occupants be subjected to excessive construction noise or vibrations, nor shall they be subject to fumes, odors or other deleterious effects of the operation. Should material delivery, demolition or construction operations, inclement weather or related schedule conditions produce this situation (as determined by the Owner), the Contractor shall be required to suspend operations that produce the offending effects until such time as the building is not occupied, or as approved by the Owner and at no additional cost to the Owner

B. Preconstruction Meeting: Prior to any work on site, the Contractor(s) must convene, attend and document a preconstruction meeting with the Architect, General Contractor’s staff and School personnel to determine the delivery and installation coordination requirements and the expectations for the execution and completion of the project. The meeting must produce a comprehensive, cooperatively produced schedule for the contractor’s operations during the course of the work.

2 PART 2 – PRODUCTS

Not Used

3 PART 3 – EXECUTION

Not Used

END OF SECTION

1 PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Schedule of Values
B. Application for Payment
C. Change procedures
D. Measurement and Payment – Unit Prices
E. Alternates

1.2 RELATED SECTIONS

A. Section 01300 – Submittals: Schedule of Values
B. Section 01600 – Material and Equipment: Product substitutions

1.3 SCHEDULE OF VALUES

A. Submit typed schedule on AIA Form G703 – Application and Certificate for Payment Continuation Sheet.

B. Submit Schedule of Values in duplicate within fifteen (15) days after date of Owner-Contractor Agreement established in Notice to Proceed.

C. Format: Utilize the Table of Contents of this Project Manual. Identify each line item with number and title of the major specification Section. Identify site mobilization, bonds and insurance. Elevations should be broken down by area into material and labor costs.

D. Include within each line item, a direct proportional amount of Contractor's overhead and profit.

E. Revise schedule to list approved Change Orders, with each Application for Payment.

F. If work is to be scheduled during overtime or weekend hours, it will be the Contractor’s responsibility to cover the cost for custodians.

1.4 APPLICATIONS FOR PAYMENT

A. Submit three (3) copies of each application on AIA Form G702 – Application and Certificate for Payment.

B. Content and Format: Utilize Schedule of Values for listing items in Application for Payment.

C. Provide insurance certificates and verification of material in storage included in the application for payment.

1.5 CHANGE PROCEDURES

A. The Architect will advise of minor changes in the Work not involving an adjustment to Contract Sum/Price or Contract Time as authorized by AIA A201, 2007 Edition, Article 7.4 by issuing supplemental instructions on AIA Form G710.

B. The Architect may issue a Proposal Request or Notice of Change which includes a detailed description of a proposed change with supplementary or revised Drawings and Specifications, a change in Contract Time for executing the change with a stipulation of any overtime work required and the period of time during which the requested price will be considered valid. Contractor will prepare and submit an estimate within seven (7) calendar days.

C. The Contractor may propose changes by submitting a request for change to the Architect, describing the proposed change and its full effect on the Work. Include a statement describing the reason for the change, and the effect on the Contract Sum/Price and Contract Time with full documentation and a statement describing the effect on Work by separate or other contractors. Document any requested substitutions in accordance with Section 01600.

D. Stipulated Sum/Price Change Order: Based on Proposal Request and Contractor's fixed or maximum price quotation or Contractor's request for a Change Order as approved by Architect.

E. Unit Price Change Order: For pre-determined unit prices and quantities, the Change Order will be executed on a fixed unit price basis. For unit costs or quantities of units of work which are not pre-determined, execute Work under a Construction Change Authorization. Changes in Contract Sum/Price or Contract Time will be computed as specified for Time and Material Change Order.

F. Construction Change Authorization: Architect may issue a directive, on AIA Form G714 Construction Change Directive signed by the Owner, instructing the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order. Document will describe changes in the Work, and designate method of determining any change in Contract Sum/Price or Contract Time. Promptly execute the change.

G. Time and Material Change Order: Submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract. Architect will determine the change allowable in Contract Sum/Price and Contract Time as provided in the Contract Documents.

H. Maintain detailed records of work done on Time and Material basis. Provide full information required for evaluation of proposed changes, and to substantiate costs for changes in the Work.

I. Change Order Forms: AIA G701 Change Order.

J. Execution of Change Orders: Architect will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.

1.6 MEASUREMENT AND PAYMENT – UNIT PRICES

A. Authority: Measurement methods are delineated in the individual specification sections.

B. Take all measurements and compute quantities. The Architect will verify measurements and quantities.

C. Payment Includes: Full compensation for all required labor, Products, tools, equipment, plant, transportation, services and incidentals; erection, application or installation of an item of the Work; overhead and profit.

1.7 ALTERNATES

A. Voluntary alternates quoted on Bid Forms will be reviewed and accepted or rejected at the Owner's option. Accepted Alternates will be identified in Owner-Contractor Agreement.

B. Coordinate related work and modify work as required.

2 PART 2 – PRODUCTS

Not Used

3 PART 3 – EXECUTION

Not Used

END OF SECTION

1 PART 1 – GENERAL

1.1 SUMMARY

A. This Section specifies administrative and procedural requirements for Alternates.

1. Definition: An Alternate is an amount proposed by Bidders and stated on the Bid Form for certain construction activities defined in the Bidding Requirements that may be added to or deducted from Base Bid amount if the Owner decides to accept a corresponding change in either the amount of construction to be completed, or in the products, materials, equipment, systems or installation methods described in Contract Documents.

B. Coordination: Coordinate related Work and modify or adjust adjacent Work as necessary to ensure that Work affected by each accepted Alternate is complete and fully integrated into the project.

C. Notification: Immediately following the award of the Contract, prepare and distribute to each party involved, notification of the status of each Alternate. Indicate whether Alternates have been accepted, rejected or deferred for consideration at a later date. Include a complete description of negotiated modifications to Alternates.

1.2 SCHEDULE

A. A "Schedule of Alternates" is included at the end of this Section. Specification Sections referenced in the Schedule contain requirements for materials and methods necessary to achieve the Work described under each Alternate.

B. Include as part of each Alternate, miscellaneous devices, accessory objects, construction methods, similar items and labor incidental to or required for a complete installation whether or not mentioned as part of the Alternate.

2 PART 2 – PRODUCTS

Not Used

3 PART 3 – EXECUTION

3.1 BASE BID

A. The Base Bid includes all of the work indicated in the construction documents with the exception of Add Alternate No 1 and it does not include the deduct alternate, as indicated in the schedule below.

3.2 SCHEDULE OF ALTERNATES

A. **ADD ALTERNATE NO. 1: Skylight Replacements:** Provide the labor, material and equipment to demolish, remove and dispose of one existing skylight and related curbing. Replace that skylight with a new one as indicated in the construction documents, including all flashings, curbings, accessories and other subsystems required for a complete replacement.

B. **DEDUCT ALTERNATE NO. 2: TPO Roofing System:** Provide the labor, material and equipment to install a new TPO roofing system in lieu of the base bid modified bitumen roofing system. The work shall be as indicated in Section 07542 and related sections of the specification including all flashings, curbings, accessories and other subsystems required for a complete TPO roof system.

END OF SECTION

1 PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Requirements and limitations for cutting and patching of Work

1.2 RELATED SECTIONS

A. Section 01010 – Summary of Work: Work by Owner or by separate contractors
B. Section 01300 – Submittals
C. Section 01600 – Materials and Equipment: Product Options and Substitutions
D. Individual Product Specification Sections:

1. Cutting and patching incidental to work of the Section.
2. Advance notification to other Sections of openings required in work of those Sections.
3. Limitations on cutting mechanical or electrical systems.

1.3 SUBMITTALS

A. Submit written request in advance of cutting or alteration which affects:

1. Structural integrity of any element of Project.
2. Integrity of weather-exposed or moisture-resistant element.
3. Efficiency, maintenance or safety of any operational element.
4. Visual qualities of sight exposed elements.
5. Work of Owner or separate contractor.

B. Include in request:

1. Location and description of affected work.
2. Necessity for cutting or alteration.
3. Description of proposed work and products to be used.
4. Alternatives to cutting and patching.
5. Effect on work of Owner or separate contractor.
6. Written permission of affected separate contractor.
7. Date and time work will be executed.

2 PART 2 – PRODUCTS

2.1 MATERIALS

A. Primary Products: Those required for original installation.
B. Product Substitution: For any proposed change in materials, submit request for substitution under provisions of Section 01600.

3 PART 3 – EXECUTION

3.1 EXAMINATION

A. Inspect existing conditions prior to commencing Work, including elements subject to damage or movement during cutting and patching.

B. After uncovering existing work, inspect conditions affecting performance of work.

C. Beginning of cutting or patching means acceptance of existing conditions.

3.2 PREPARATION

A. Provide temporary supports to ensure structural integrity of the Work. Provide devices and methods to protect other portions of Project from damage.

B. Provide protection from elements for areas which may be exposed by uncovering work.

3.3 CUTTING AND PATCHING

A. Execute cutting, fitting and patching to complete work.
B. Fit products together, to integrate with other work.
C. Uncover work to install ill-timed work.
D. Remove and replace defective or non-conforming work.
E. Remove samples of installed work for testing when requested.
F. Provide openings in the work for penetration of mechanical and electrical work.

3.4 PERFORMANCE

A. Execute work by methods to avoid damage to other Work, and which will provide appropriate surfaces to receive patching and finishing.

B. Employ original installer to perform cutting and patching for weather exposed and moisture resistant elements, and sight-exposed surfaces.

C. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.

D. Restore work with new products in accordance with requirements of Contract Documents.

E. Fit work air tight to pipes, sleeves, ducts, conduit and other penetrations through surfaces.

F. Refinish surfaces to match adjacent finish. For continuous surfaces, refinish to

nearest intersection or natural break. For an assembly, refinish entire unit.

END OF SECTION

1 PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Submittal procedures
B. Construction progress schedules
C. Proposed products list
D. Shop drawings
E. Product data
F. Samples
G. Manufacturers' instructions
H. Manufacturers' certificates

1.2 RELATED SECTIONS

A. Section 01010 – Schedule of Values
B. Section 01700 – Contract Closeout: Contract warranty and manufacturer's certificates and related closeout submittals

1.3 SUBMITTAL PROCEDURES

A. Transmit each submittal with Architect/Engineer accepted form.

B. Sequentially number the transmittal forms. Re-submittals to have original number with an alphabetic suffix.

C. Identify Project, Contractor, Subcontractor or supplier; pertinent Drawing sheet and detail number(s), and specification Section number, as appropriate.

D. Apply Contractor's stamp, signed or initialed certifying that review, verification of Products required, field dimensions, adjacent construction Work and coordination of information, is in accordance with the requirements of the Work and Contract Documents.

E. Schedule submittals to expedite the Project, and deliver to Architect/Engineer at business address. Coordinate submission of related items.

F. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed Work.

G. Provide space for Contractor and Architect/Engineer review stamps.

H. Revise and resubmit submittals as required, identify all changes made since previous submittal.

I. Distribute copies of reviewed submittals to concerned parties. Instruct parties to promptly report any inability to comply with provisions.

1.4 CONSTRUCTION PROGRESS SCHEDULES

A. Submit initial progress schedule in duplicate within fifteen (15) days after date established in Notice to Proceed for Architect/Engineer review.

B. Revise and resubmit as required.

C. Submit revised schedules with each Application for Payment, identifying changes since previous version.

D. Submit a horizontal bar chart with separate line for each major section of Work or operation identifying first work day of each week.

E. Show complete sequence of construction by activity, identifying Work of separate stages and other logically grouped activities. Indicate the early and late start, early and late finish, float dates and duration.

F. Indicate estimated percentage of completion for each item of Work at each submission.

G. Indicate submittal dates required for shop drawings, product data, samples and product delivery dates, including those furnished by Owner and under Allowances.

1.5 PROPOSED PRODUCTS LIST

A. Within fifteen (15) days after date of Notice to Proceed, submit complete list of major products proposed for use, with name of manufacturer, trade name and model number of each product.

B. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation and reference standards.

1.6 SHOP DRAWINGS

A. Submit in the form of one reproducible transparency and two opaque reproductions.

B. After review, reproduce and distribute in accordance with Article on Procedures above and for Record Documents described in Section 01700.

1.7 PRODUCT DATA

A. Submit the number of copies which the Contractor requires, plus two (2) copies which will be retained by the Architect/Engineer.

B. Mark each copy to identify applicable products, models, options and other data. Supplement manufacturers' standard data to provide information unique to this Project.

C. After review, distribute in accordance with Article on Procedures above and provide copies for Record Documents described in Section 01700.

1.8 SAMPLES

A. Submit samples to illustrate functional and aesthetic characteristics of the Product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.

B. Submit samples of finishes from the full range of manufacturers' colors for Architect/Engineer's selection.

C. Include identification on each sample, with full Project information.

D. Submit the number or samples specified in individual specification Sections; one (1) of which will be retained by Architect/Engineer.

E. Reviewed samples which may be used in the Work are indicated in individual specification Sections.

1.9 MANUFACTURER'S INSTRUCTIONS

A. When specified in individual specification Sections, submit manufacturers' printed instructions for delivery, storage, assembly, installation and finishing, in quantities specified for Product Data.

B. Identify conflicts between manufacturers' instructions and Contract Documents.

1.10 MANUFACTURER'S CERTIFICATES

A. When specified in individual specification Sections, submit manufacturers' certificate to Architect/Engineer for review, in quantities specified for Product Data.

B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference date, affidavits and certifications as appropriate.

C. Certificates may be recent or previous test results on material or Product, but must be acceptable to Architect/Engineer.

2 PART 2 – PRODUCTS

Not Used

3 PART 3 – EXECUTION

Not Used

END OF SECTION

1 PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Quality assurance and control of installation
B. References
C. Inspection and testing laboratory services
D. Manufacturers' field services and reports

1.2 RELATED SECTIONS

A. Section 01300 – Submittals: Submission of Manufacturers' Instructions and Certificates

B. Section 01600 – Material and Equipment: Requirements for material and product quality

1.3 QUALITY ASSURANCE/CONTROL OF INSTALLATION

A. Monitor quality control over suppliers, manufacturers, products, services, site conditions and workmanship, to produce Work of specified quality.

B. Comply fully with manufacturers' instructions, including each step in sequence.

C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.

D. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes or specified requirements indicate higher standards or more precise workmanship.

E. Perform work by persons qualified to produce workmanship of specified quality.

F. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.

1.4 REFERENCES

A. Conform to reference standard by date of issue current on date of Contract Documents.

B. Obtain copies of standards when required by Contract Documents.

C. Should specified reference standards conflict with Contract Documents, request clarification for Architect before proceeding.

D. The contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.5 INSPECTION AND TESTING LABORATORY SERVICES

A. Owner will appoint, employ and pay for services of an independent firm to perform inspection and testing.

B. The independent firm will perform inspections, tests, and other services specified in individual specification Sections and as required by the Architect.

C. Reports will be submitted by the independent firm to the Architect, Owner, affected Engineers and the Contractor, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.

D. Cooperate with independent firm; furnish samples of materials, design mix, equipment, tools, storage and assistance as requested.

1. Notify independent testing firm twenty-four (24) hours prior to expected time for operations requiring services.
2. Make arrangements with independent firm and pay for additional samples and tests required for Contractor's use.

E. Retesting required because of non-conformance to specified requirements shall be performed by the same independent firm on instructions by the Architect. Payment for retesting will be charged to the Contractor by deducting inspection or testing charges from the Contract Sum/Price.

1.6 MANUFACTURERS' FIELD SERVICES AND REPORTS

A. When specified in individual specification Sections, require material or Product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment and test, adjust and balance of equipment as applicable, and to initiate instructions when necessary.

B. Individuals to report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

2 PART 2 – PRODUCTS

Not Used

3 PART 3 – EXECUTION

Not Used

END OF SECTION

1 PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Products
B. Transportation and handling
C. Storage and protection
D. Product options
E. Substitutions

1.2 RELATED SECTIONS

A. General Conditions – Instructions to Bidders: Product options and substitution procedures

1.3 PRODUCTS

A. Products: Means new material, components and systems forming the Work. Does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components required for reuse.

B. Do not use materials and equipment removed from existing premises, except as specifically permitted by the Contract Documents.

C. Provide interchangeable components of the same manufacturer, for similar components.

1.4 TRANSPORTATION AND HANDLING

A. Transport and handle products in accordance with manufacturer's instructions.

B. Promptly inspect shipments to assure that products comply with requirements, quantities are correct and products are undamaged.

C. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement or damage.

1.5 STORAGE AND PROTECTION

A. Store and protect products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weather-tight, climate controlled enclosures.

B. For exterior storage of fabricated products, place on sloped supports, above ground.

C. Provide off-site storage and protection when site does not permit on-site storage or protection.

D. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation.

E. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement or damage.

F. Arrange storage of products to permit access for inspection. Periodically inspect to assure products are undamaged and are maintained under specified conditions.

G. Protect and clean the interior spaces from contamination of the by-products of the construction.

1.6 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Any product meeting those standards or description.

B. Products Specified by Naming One (1) or More Manufacturers: Products of manufacturers named and meeting specifications, no options or substitutions allowed.

C. Products Specified by Naming One (1) or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

1.7 SUBSTITUTIONS

A. Architect will consider requests for Substitutions only within fifteen (15) days after date established in Notice to Proceed.

B. Substitutions may be considered when a product becomes unavailable through no fault of the Contractor.

C. Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents.

D. A request constitutes a representation that the Contractor:

1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
2. Will provide the same warranty for the Substitution as for the specified product.

3. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to Owner.
4. Waives claims for additional costs or time extension which may subsequently become apparent.
5. Will reimburse Owner for review or redesign services associated with re-approval by authorities.

E. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.

F. Substitution Submittal Procedure:

1. Submit three (3) copies of request for Substitution for consideration. Limit each request to one (1) proposed Substitution.
2. Submit shop drawings, product data and certified test results attesting to the proposed product equivalence.
3. The Architect will notify Contractor, in writing, of decision to accept or reject request.

2 PART 2 – PRODUCTS

Not Used

3 PART 3 – EXECUTION

Not Used

END OF SECTION

1 PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Closeout procedures
B. Final cleaning
C. Adjusting
D. Project record documents

1.2 RELATED SECTIONS

A. General Conditions: Project commissioning
B. Section 01730 – Operation and Maintenance Data
C. Section 01740 – Warranties and Bonds

1.3 CLOSEOUT PROCEDURES

A. Submit written certification that Contract Documents have been reviewed, Work has been inspected and that Work is complete in accordance with Contract Documents and ready for Architect's inspection.

B. Provide submittals to Architect and Owner that are required by governing or other authorities.

C. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments and sum remaining due.

D. Owner will occupy all portions of the building as specified in Section 01010.

1.4 FINAL CLEANING

A. Execute final cleaning prior to final inspection.
B. Clean equipment and fixtures to a sanitary condition.
C. Clean filters of operating equipment contaminated by project operations.
D. Clean debris from roofs and drainage systems.
E. Clean site; sweep paved areas, rake clean landscaped surfaces.
F. Remove waste and surplus materials, rubbish and construction facilities from the site.

1.5 PROJECT RECORD DOCUMENTS

A. Maintain on site, one (1) set of the following record documents; record actual revisions to the Work:

1. Contract Drawings.
2. Specifications.

3. Addenda.
4. Change Orders and other Modifications to the Contract.
5. Reviewed shop drawings, product data and samples.

B. Store Record Documents separate from documents used for construction.

C. Record information concurrent with construction progress.

D. Specifications: Legibly mark and record at each Product section description of actual Products installed, including the following:

1. Manufacturer's name and product model and number.
2. Product substitutions or alternates utilized.
3. Changes made by Addenda and Modifications.

E. Record Documents and Shop Drawings: Legibly mark each item to record actual construction including:

1. Field changes of dimension and detail.
2. Details not on original Contract Drawings.

F. Delete Architect title block and seal from all documents.

G. Submit documents to Architect with claim for final Application for Payment.

2 PART 2 – PRODUCTS

Not Used

3 PART 3 – EXECUTION

Not Used

END OF SECTION

1 PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Format and content of manuals
B. Schedule of submittals

1.2 RELATED SECTIONS

A. Section 01300 – Submittals: Submittals procedures, shop drawings, product data and samples

B. Section 01700 – Contract Closeout: Contract Closeout Procedures

C. Individual Specifications Sections: Specific requirements for operation and maintenance data

1.3 QUALITY ASSURANCE

A. Prepare instructions and data by personnel experienced in maintenance and operation of described products.

1.4 FORMAT

A. Prepare data in the form of an instructional manual.

B. Binders: Commercial quality, 8½ x 11 inch three-ring binders with hardback, cleanable, plastic covers; one inch maximum ring size. When multiple binders are used, correlate data into related consistent groupings.

C. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; list title of Project; identify subject matter of contents.

D. Arrange content by systems under section numbers and sequence of Table of Contents of this Project Manual.

E. Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts the systems.

F. Text: Manufacturer's printed data, or typewritten data on 20 pound paper.

G. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

1.5 CONTENTS, EACH VOLUME

A. Table of Contents: Provide title of Project; names, addresses and telephone numbers of Architect/Engineer, Sub-consultants and Contractor with name of responsible parties; schedule of products and systems, indexed to content of the volume.

B. For Each Product or System: List names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.

C. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.

D. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.

E. Type Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

F. Warranties and Bonds: Bind in copy of each and provide as specified in Section 01740.

1.6 MANUAL FOR MATERIALS AND FINISHES

A. Building Products, Applied Materials and Finishes: Include product data, with catalog number, size, composition and color and texture designations.

B. Instructions for Care and Maintenance: Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods and recommended schedule for cleaning and maintenance.

C. Moisture Protection and Weather Exposed Products: Include product data listing applicable reference standards, chemical composition and details of installation. Provide recommendations for inspections, maintenance and repair.

D. Additional Requirements: As specified in individual product specification Sections.

E. Provide a listing in Table of Contents for design data, with tabbed fly sheet and space for insertion of data.

1.7 MANUAL FOR EQUIPMENT AND SYSTEMS

A. Each Item of Each System: Include description of unit or system and component parts. Identify function, normal operating characteristics and limiting conditions.

B. Maintenance Requirements: Include routine procedures and guide for trouble-shooting; repair and alignment, adjusting and checking instructions.

C. Include manufacturer's printed operation and maintenance instructions.

D. Provide list of original manufacturer's spare parts, or roofing components, current prices and recommended quantities to be maintained in storage.

E. Additional Requirements: As specified in individual product specification Sections.

F. Provide a listing in Table of Contents for design data, with tabbed fly sheet and space for insertion of data.

1.8 SUBMITTALS

A. Submit two (2) copies of preliminary draft or proposed formats and outlines of contents before start of Work. Architect/Engineer will review draft and return one (1) copy with comments.

B. Submit one (1) copy of completed volumes in final form fifteen (15) days prior to final inspection. Copy will be returned after final inspection, with Architect/Engineer comments. Revise content of documents as required prior to final submittal.

C. Submit three (3) copies of revised volumes of data in final form within ten (10) days after final inspection.

1.9 SCHEDULE OF SUBMITTALS

A. As a minimum, the following systems, or subsystems within each of the listed sections, shall be submitted in the manual. Other equipment, systems or materials not listed, but installed shall be included in the manual.

1. Section 07525 – Modified Bituminous Sheet Roofing
2. Section 07600 – Flashing and Sheet Metal
3. Section 07810 - Skylights
3. Section 07900 – Sealants

2 PART 2 – PRODUCTS

Not Used

3 PART 3 – EXECUTION

Not Used

END OF SECTION

1 PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Preparation and submittal
B. Time and schedule of submittals

1.2 RELATED SECTIONS

A. Section 01730 – Operations and Maintenance Data
B. Individual Specifications Sections: Warranties required for specific products or Work

1.3 FORM OF SUBMITTALS

A. Bind in commercial quality, 8½ x 11 inch binders with hardback, cleanable, plastic covers.

B. Label cover of each binder with typed or printed title WARRANTIES AND BONDS, with title of Project; name, address and telephone number of Contractor and name of responsible principal.

C. Table of Contents: Neatly typed, in the sequence of the Table of Contents of the Project Manual, with each item identified with the number and title of the specification Section in which specified, and the name of the product or work item.

D. Separate each warranty or bond with index tab sheets keyed to the Table of Contents listing. Provide full information, using separate typed sheets as necessary. List Subcontractor, supplier and manufacturer, with name, address and telephone number of responsible principal.

1.4 PREPARATION OF SUBMITTALS

A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers and manufacturers, within ten days after completion of the applicable item or work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Substantial Completion is determined.

B. Verify that documents are in proper form, contain full information and are notarized.

C. Co-execute submittals when required.

D. Retain warranties and bonds until time specified for submittal.

1.5 TIME OF SUBMITTALS

A. Make other submittals within ten (1) days after Date of Substantial Completion, prior to final Application for Payment.

B. For items of Work when acceptance is delayed beyond Date of Substantial Completion, submit within ten days after acceptance, listing the date of acceptance as the beginning of the warranty period.

1.6 SCHEDULE OF SUBMITTALS

A. As a minimum, warranties for the following systems, or subsystems within each of the listed sections, shall be submitted. Other warranties for equipment, systems or materials not listed, but installed shall be included in the manual.

1. Section 07525 – Modified Bituminous Sheet Roofing
2. Section 07600 – Flashing and Sheet Metal
3. Section 07810 - Skylights
4. Section 07900 – Sealants

2 PART 2 – PRODUCTS

Not Used

3 PART 3 – EXECUTION

Not Used

END OF SECTION

1 PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Removal of designated construction
B. Identification of utilities
C. Refer to items as indicated in the construction documents

1.2 RELATED SECTIONS

A. Section 01010 – Summary of Work: Work sequence and Owner's continued occupancy

B. Section 01700 – Contract Closeout: Project record documents

1.3 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Coordinate the preparation of the demolition sequence plan with the Owner, to mitigate disruption of administrative services.

C. Assure that the fire alarm system, security alarm system, power, lighting and ventilation systems will remain on line, without disruption of service, unless authorized by the Owner and Fire Marshal at designated periods.

1.4 PROJECT RECORD DOCUMENTS

A. Submit under provisions of Section 01700.
B. Accurately record actual locations of capped utilities, subsurface obstructions and other concealed features.

1.5 REGULATORY REQUIREMENTS

A. Conform to the Connecticut Building Code for demolition work, safety of structure, dust control and occupational safety.

B. Obtain required permits from authorities.

C. Do not close or obstruct egress width to exits.

D. Do not disable or disrupt building fire or life safety systems without 3 day prior written notice to the Owner and Fire Marshal.

E. Conform to procedures applicable when discovering hazardous or contaminated materials.

F. Comply with and maintain a copy of the "IAQ Guidelines for Occupied Buildings Under Construction", prepared by the Sheet Metal and Air Conditioning Contractors National Association, Inc. which identifies the air pollutants associated with construction, control measures, managing the construction process, quality control, communicating with occupants and planning and inspection checklists. Follow all recommended procedures and submit checklists at the intervals recommended by the Guidelines.

1.6 SEQUENCING

A. Sequence work as agreed with the Owner at the preconstruction conference, where the schedule and sequence of work will be reviewed and approved. While school is in session, no classrooms may be under construction until after school is dismissed for the day. The contractor shall notify the Owner in advance of completion of one classroom or group of classrooms so the Owner may prepare to make another classroom or group of classrooms available for after-hours or evening work.

1.7 SCHEDULING

A. Schedule work under the provisions of Section 01300.
B. Describe demolition removal procedures and schedule.

2 PART 2 – PRODUCTS

Not Used

3 PART 3 – EXECUTION

3.1 PREPARATION

A. Provide, erect and maintain temporary barriers to restrict public access to construction areas.

B. Provide, erect and maintain temporary enclosures to protect and assure public and Owner's access to the facility.

C. Erect and maintain temporary partitions to prevent spread of dust, odors and noise to permit continued Owner occupancy, as specified in Section 01010.

D. Protect existing materials which are not to be demolished.

E. Prevent movement of structure; provide required bracing and shoring. Use caution when removing existing load bearing and structural elements, including

walls, suspended floor slabs, etc.

F. Mark location of utilities.

3.2 DEMOLITION REQUIREMENTS

A. Conduct demolition to minimize interference with adjacent and occupied building areas.

B. Cease operations immediately if structure appears to be in danger. Notify Owner. Do not resume operations until directed.

C. Maintain protected egress and access to the Work.

3.3 DEMOLITION

A. Disconnect, remove and cap and identify designated utilities within demolition areas.

B. Demolish in an orderly and careful manner. Protect existing supporting structural members and other bearing elements.

C. Except where noted otherwise, remove demolished materials from site. Do not burn or bury materials on site.

D. Remove demolished materials from site as work progresses. Upon completion of work, leave areas in clean condition.

E. Remove temporary Work.

F. Verify actual conditions to determine whether removal or demolition of any element will result in structural deficiency, overloading, failure or unplanned collapse.

G. Provide and pay for all dumpsters required to complete the Scope of Work.

H. Completely remove residual sealant from each window work area, including interior and exterior sealants. Use a solvent cleaner (recommended for use on brick masonry, stone or concrete) as required to remove the residual sealant from the brick masonry and concrete, leaving the brick work and concrete free of telltale streaks or discoloration.

END OF SECTION

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. The project contract documents, including any General Supplementary Conditions, apply to this Section.

B. Fuss & O'Neill EnviroScience Limited Asbestos Bulk Sampling Report (May 2015).

1.2 CONSULTANT

A. The Owner shall retain a Consultant for the purposes of project management and monitoring during Asbestos Abatement activities. At the discretion of the Owner, the Consultant will represent the Owner in all phases of the abatement project. The Contractor will regard the Consultant's direction as authoritative and binding as provided herein, in matters particularly, but not limited to the following:

1. Approval of work areas;
2. Review of monitoring results;
3. Completion of the various segments of work;
4. Final completion of the abatement;
5. Submission of data; and
6. Daily field punch list items.

B. The State of Connecticut-licensed Asbestos Consultant – Project Designer for this project is Mr. Kevin J. McCarthy (License No. 000274).

1.3 SCOPE OF WORK

A. Work outlined in this Section includes all work necessary for the removal, packaging, transporting, and disposing of asbestos-containing materials (ACM) impacted during the Roof Drain Replacement associated with the Partial Roof Replacement Project (the "Work") at Timothy Dwight Elementary School located at 1600 Redding Road in Fairfield, Connecticut (the "Site"). The Work includes but is not limited to the removal and disposal of gray mudded pipe fitting insulation.

B. This shall include all necessary demolition to access the ACM for the purpose of abatement.

1.4 USE OF THE CONTRACT DOCUMENTS

A. It shall be incumbent upon the Contractor to visit the Site and determine what exists, its condition, and what will be required to accomplish the Work intended by the Contract Documents. No increase in the Contract Sum will be permitted as a result of the Contractor's failure to visit the Site and understand the existing conditions.

B. All work shall comply with the Contract Documents and with applicable codes, laws, regulations, and ordinances wherever applicable. The most stringent of all the foregoing shall govern the Work.

C. It is not intended that the Specifications show every detail of the Work, but the Contractor shall be required to furnish within the Contract Sum all material and labor necessary for the completion of the Work in accordance with the intent of these Specifications.

D. In case of ambiguity among the Contract documents, the more stringent requirement as determined by the Consultant shall prevail.

E. The Work of this Contract includes making modifications as necessary, subject to approval by Owner in consultation with the Consultant to correct any conflicts.

F. All items not specifically mentioned in the Specifications, but implied by trade practices to complete the work, shall be included.

1.5 EXAMINATION OF THE SITE

A. It is understood that the Contractor has examined the Site and made their own estimates of the facilities and difficulties attending the execution of the Work, and has based their price thereon.

B. Except for unforeseeable concealed conditions (as determined by the Consultant), the Contractor shall make no claim for additional cost due to the existing conditions at the Site.

1.6 CONTRACTOR QUALIFICATIONS

A. All bidders shall submit a record of prior experience in asbestos abatement projects, listing no less than three completed projects in the past year, with all projects of similar size and scope. The Contractor shall list the experience and training of the project foremen and all on-site personnel. The information that should be included is as follows:

1. Project Name and Address
2. Owner's Name and Address
3. Architect/Consultant
4. Contract Amount
5. Date of Completion
6. Extras and Changes

B. The Contractor selected must appear on the approved list of Asbestos Abatement Contractors on file at the State of Connecticut Department of Public Health (CTDPH) and hold a valid license for asbestos abatement within the State of Connecticut.

C. Submit a written statement regarding whether the Contractor has ever been cited for non-compliance with federal, state or local asbestos and/or lead regulations pertaining to worker protection, removal, transport, or disposal

1.7 TESTING LABORATORY SERVICES

A. The Contractor shall submit to the Consultant the name; address and qualifications of proposed laboratories intended to be utilized for sample analysis as required by this Section.

1.8 ADDITIONAL GENERAL REQUIREMENTS

A. The Contractor shall employ a competent CTDPH-licensed Asbestos Abatement Supervisor with at least three years of experience on projects of similar scope and magnitude who shall be responsible for all work involving asbestos abatement as described in the specifications and defined in applicable regulations, and have full time daily supervision of the same. The Supervisor shall be the competent person as defined by Occupational Safety and Health Administration (OSHA) regulations.

B. The Contractor shall allow the work of this contract to be inspected if required by federal, state, local, and any other authorities having jurisdiction over such work. The Contractor shall immediately notify the Owner and Consultant and shall maintain written evidence of such inspection for review by the Owner and Consultant.

C. The Contractor shall incur the cost of all fines resulting from regulatory non-compliance as issued by federal, state, and local agencies. The Contractor shall incur the cost of all work requirements mandated by federal, state, and local agencies as a result of regulatory non-compliance or negligence.

D. The Contractor shall immediately notify the Owner and Consultant of the delivery of all permits, licenses, certificates of inspection, of approval, or occupancy, etc., and any other such instruments required under codes by authorities having jurisdiction, regardless of who issued, and shall cause them to be displayed to the Owner and Consultant for verification and recording.

1.9 PROJECT DESCRIPTION

A. The bid includes an allowance for the removal, packaging, transporting, and disposing of all ACM as identified herein, and on the Architect's drawings and Specifications, conducted by workers meeting the requirements of OSHA Title 29 CFR, Part 1926.1101 for Class 1 work. This shall include all necessary demolition to access the ACM for abatement.

B. Additional materials as discovered outside of those listed will be measured and paid by unit prices. The quantities are estimates only and should be verified by the Contractor.

C. The allowance includes the following:

ALLOWANCE - ASBESTOS

LOCATION	MATERIAL TYPE	ESTIMATED QUANTITY
Roof E and H	Inaccessible Roof Drain Insulation	12 SF *4 Locations with 3 SF/Location*
Throughout Roof A – E, G, H, J, and K	Mudded Pipe Fitting Insulation *Coordinate with Architect's Drawings and Specifications for Exact Locations*	20 SF *10 Locations with 2 SF/Location*

D. Some of the work will be performed in multiple mobilizations, at different periods of time, in conjunction with other trades (i.e., other trades work, demolition work, etc.).

E. Safety Data Sheets (SDS) for chemicals to be used during the project must be submitted to the Consultant prior to site delivery.

F. The Contractor shall be responsible for providing temporary water, power, and heat as needed at the Site to perform the work required. Temporary lighting within the work areas must be connected to Ground Fault Circuit Interrupter (GFCI) power panels installed by a State of Connecticut-licensed electrician and located outside of the work areas.

1.10 DEFINITIONS

A. The following definitions relative to asbestos abatement apply:

1. Abatement: Procedures to control fiber release from asbestos containing materials; includes removal, encapsulation, and enclosure.
2. Air Monitoring: The process of measuring the fiber concentration of an area or of a person.
3. Amended Water: Water to which a surfactant has been added.
4. Architect – Silver Petrucelli & Associates
5. Asbestos: The name given to a number of naturally occurring fibrous silicates. This includes the serpentine forms and the amphiboles and includes chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite, or any of these forms, which have been chemically-altered.
6. Asbestos Fibers: Those particles with a length greater than five (5) microns and a length to diameter ratio of 3:1 or greater.
7. Asbestos Work Area: A regulated area as defined by OSHA Title 29 CFR, Part 1926.1101 where asbestos abatement operations are performed which is isolated by physical barriers to prevent the spread of asbestos dust, fibers, or debris. The regulated area shall comply with requirements of regulated area for demarcation,

access, respirators, prohibited activities, competent persons and exposure assessments and monitoring.

8. Caulking: resilient mastic compound often having a silicone bituminous or rubber base; used to seal cracks, fill joints, and prevent leakage. Typical applications: around windows, and doors. Caulking is at joints between two dissimilar materials. (i.e. Masonry to wood, masonry to steel)
9. Clean Room: An uncontaminated area or room, which is a part of the worker decontamination enclosure with provisions for storage of workers' street clothes and protective equipment.
10. Clearance Sampling: Final air sampling performed aggressively after the completion of the abatement project in a regulated area. Air samples collected by the air sampling professional having a fiber concentration of less than 0.01 fibers per cubic centimeter of air (fibers/cc) in each of five (5) samples collected inside the containment will denote acceptable clearance sampling by Phase Contrast Microscopy or Five air samples collected inside the containment by the air sampling professional having an average asbestos concentration of less than 70 structures per square millimeter (s/mm^2) of air will denote acceptable clearance sampling for Transmission Electron Microscopy.
11. Competent Person: As defined by Title 29 CFR, Part 1926.1101, a representative of the Abatement Contractor who is capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure. Who has authority to take prompt corrective measures to eliminate such hazards during asbestos removal. Competent person shall be properly trained in accordance with EPA's Model Accreditation Plan.
12. Consultant – Fuss & O'Neill EnviroScience, LLC
13. Containment – A enclosure within the building which establishes a contaminated area and surrounds the location where PCB and/or other toxic or hazardous substance removal is taking place and establishes a Control Work Area.
14. Curtained Doorway: A device to allow ingress and egress from one area to another while permitting minimal air movement between the areas. Two curtained doorways spaced a minimum of six feet apart can form an airlock.
15. Damproofing: application of a water impervious material to surface such as wall to prevent penetration of moisture, typically at foundation or below grade surface.
16. Decontamination Enclosure System: A series of connected areas, with curtained doorways between any two adjacent areas, for the decontamination of workers and equipment. A decontamination enclosure system always contains at least one airlock and is adjacent and connected to the regulated area, where possible.
17. Disposal – An intentional or accidental act of discarding, throwing away, completing, or terminating the useful life of PCBs and PCB-containing items. Disposal includes spills, leaks, and other uncontrolled discharges of PCBs as well as actions related to containing, transporting, destroying, degrading, decontaminating, or confining PCBs and PCB items.
18. Encapsulant: A liquid material which can be applied to ACM, which controls the possible release of asbestos fibers from the materials either by creating a membrane over the surface (bridging encapsulant), or penetrating the material and binding its components together (penetrating encapsulant).

19. Consultant: The State of Connecticut-licensed Asbestos Consultant – Project Designer for this project is Mr. Kevin J. McCarthy (License No. 000274).
20. Equipment Room: Any contaminated area or a room that is part of the worker decontamination enclosure with provisions for storage of contaminated clothing and equipment.
21. Fixed Object: Unit of equipment or furniture in the work areas that cannot be removed from the work area.
22. Friable Asbestos Materials: Any material that contains more than 1% asbestos by weight, that can be crumbled, pulverized or reduced to powder by hand pressure.
23. Glazing Compound: any compound used to hold window glass in place, also referred to as putty, or glazier's putty. Is not field-applied, usually installed during manufacture of windows.
24. HEPA Filter: High Efficiency Particulate Air (HEPA) filter in compliance with ANSI Z9.2 1979.
25. HEPA Vacuum Equipment: Vacuum equipment equipped with a HEPA filter system for filtering the effluent air from the unit.
26. Movable Object: Unit of equipment of furniture in the work area that can be removed from the work area.
27. Negative Air Pressure Equipment: A portable local exhaust system equipped with HEPA filtration used to create negative pressure in a regulated area (negative with respect to adjacent unregulated areas) and capable of maintaining a constant, low velocity air flow into regulated areas from adjacent unregulated areas.
28. NESHAPs: National Emissions Standard for Hazardous Air Pollutants regulations enforced by the EPA.
29. Owner: City of Fairfield
30. Permissible Exposure Limit (PEL) - The maximum airborne concentration of asbestos fibers to which an employee is allowed to be exposed. The new limit established by OSHA Title 29 CFR, Part 1926.1101 is 0.1 fibers per cubic centimeter (fibers/cc) as an eight (8)-hour time-weighted average, and 1.0 fibers/cc averaged over a sampling period of 30 minutes as an Excursion Limit. The Contractor shall be responsible for maintaining work areas in a manner that this standard is not exceeded.
31. Project Monitor: A professional capable of conducting air monitoring and analysis of schemes. This individual should be an industrial hygienist, an environmental scientist, or a Consultant with experience in asbestos air monitoring and worker protection equipment and procedures. This individual should have demonstrated proficiency in conducting air sample collection in accordance with Title 29 CFR, Parts 1910.1001 and 1926.1101.
32. RCRA means the Resource Conservation and Recovery Act (EPA Title 40 CFR, Parts 260 - 265).
33. Regulated Area: An area established by the employer to demarcate where Class I, II, and III asbestos work is conducted and any adjoining area where debris and waste from such asbestos work accumulate, and a work area within which airborne concentrations of asbestos exceed or there is a reasonable possibility that they may exceed the PEL.

34. Shower Room: A room between the clean room and the equipment room in the work decontamination enclosure with hot and cold running water and suitably arranged for employee showering during decontamination. The shower room is located in an airlock between the contaminated area and the clean area.
35. Totally Enclosed Manner – A manner that will ensure no exposure of human beings or the environment to a concentration of PCBs.
36. Transport Vehicle – A motor vehicle or rail car used for the transportation of cargo by any mode. Each cargo-carrying body (e.g., trailer, railroad freight car) is a separate transport vehicle.
37. Waterproofing: Material, usually a membrane or applied compound (tar/mastic), used to make a surface impervious to water, includes concealed conditions (applications around doors, windows, and in wall cavities). Sometimes combined with felts.

1.11 PRE-CONSTRUCTION SUBMITTALS

A. The Contractor shall submit the following to the Consultant in one complete package prior to the pre-construction meeting, and no later than 10 business days prior to the anticipated start of the Work:

1. Submit a schedule to the Architect and the Consultant that defines a timetable for executing and completing the project, including work area preparations, removal, cleanup, decontamination, and final clearance air monitoring (if applicable).
2. Submit the current valid State of Connecticut Asbestos Abatement Contractor license and certificate of insurance.
3. Submit the identity of the hauling contractor and location of the landfill to be used. Also submit current valid operating permits and certificates of insurance for the transporter and landfill.
4. Submit video documentation showing the conditions of the building prior to the start of work. The Contractor shall be held responsible for all damage to the building and its contents not shown on the pre-construction video documentation.
5. Submit the plans and construction details for the construction of the decontamination systems and the isolation of the work areas as may be necessary for compliance with this specification and applicable regulations.
6. Submit the training, medical, respirator fit test records, and CTDPH license of each employee who may be on the project Site.
7. Submit the qualifications of the air sampling professional that the Contractor proposed to use for this project to perform OSHA-required employee exposure monitoring.
8. Submit detailed product information on all materials and equipment proposed for asbestos abatement work on this project.
9. Submit pertinent information regarding the qualifications of the Project Supervisor (competent person) for this project, as well as a list of past projects completed.
10. Submit a chain-of-command for the project.
11. Submit a site-specific Emergency Action Plan for the project.

12. Submit a written site-specific Respiratory Protection Program for employees for the Work, including make, model and National Institute of Occupational Safety and Health (NIOSH) approval numbers of respirators to be used at the Site (if applicable).
13. No work on the Site will be allowed to begin until the Architect and the Consultant as listed herein approve the Pre-Construction Submittals. Any delay caused by the Contractor's refusal or inability to submit this documentation in a timely manner does not constitute a cause for change order or a time extension;

B. The Contractor shall submit the following to the Consultant during the work:

1. Copies of personal air sampling results (Consultant will not review or provide any direction or advice regarding results). The Contractor shall be responsible for proper sample analytical review and PPE selection and use. Records are retained solely for project record.
2. Copies of training, CTDPH licenses, fit test records, and medical records for new employees to start work (24-hours in advance) and prior to the new employee arriving at the Site.
3. Carbon copies from waste shipment record, waste manifest records, bill of lading or other waste tracking record for all specified materials.
4. Copies of daily log sheets, daily sign-in sheets, and containment sign-in sheets.

C. The Contractor shall submit the following to the Consultant at the completion of work. The Owner reserves right to retain payment(s) until all items are received in completion:

1. Original final completed copies of the waste shipment records, signed by all transporters and the designated disposal site owner/operator.
2. Original final completed copies of bill of laden, weight tickets, recycling tickets and manifests for all specified materials.
3. Contractor's logs (daily activity logs, daily sign in sheets, containment sign-in sheets), and all worker training, CTDPH licenses, medical records and respirator fit test records.
4. Copies of all OSHA personal monitoring results.

1.12 REGULATIONS AND STANDARDS

A. The Contractor shall be solely responsible for conducting this project and supervising all work in a manner that will be in conformance with all federal, state, and local regulations and guidelines pertaining to asbestos abatement. Specifically, the Contractor shall comply with the requirements of the following:

1. EPA National Emissions Standards for Hazardous Air Pollutants (NESHAPS) Regulations (Title 40 CFR, Part 61, Subpart M);
2. EPA Asbestos Hazard Emergency Response Act (AHERA) Regulations (Title 40 CFR, Part 763, Subpart E);
3. OSHA Asbestos Regulations (Title 29 CFR, Parts 1910.1001 and 1926.1101);

4. Department of Transportation Hazardous Waste Transportation Regulations (Title 49 CFR, Parts 170 – 180).
5. Connecticut Department of Energy and Environmental Protection (DEEP) Regulations (Section 22a 209 8(i) and Section 22a 220 of the Connecticut General Statutes);
6. CTDPH Standards for Asbestos Abatement (Sections 19a-332a- 1 to 19a-332a-16);
7. CTDPH Asbestos-Containing Materials in Schools Regulations (Sections 19a-333-1 to 19a-333-13);
8. CTDPH Licensing and Training Requirements for Persons Engaged in Asbestos Abatement and Asbestos Consultant Services (Sections 20-440-1 to 20-440-9 and Section 20-441);
9. United States Department of Transportation (DOT) Hazardous Materials Regulations (Title 49 CFR, Parts 171 – 180)
10. 2003 International Building Code as adopted by the 2005 State of Connecticut Building Code including the 2009, 2011, and 2013 amendments;
11. Life Safety Code (National Fire Protection Association [NFPA]);
12. Local health and safety codes, ordinances or regulations pertaining to asbestos remediation and all national codes and standards including ASTM, ANSI, and Underwriter's Laboratories.

1.13 EXEMPTIONS

A. Any deviations from these specifications require the written approval and authorization from the Owner and Consultant.

B. Any modifications from the standard work practices identified in the CTDPH Standards for Asbestos Abatement, Sections 19a-332a-1 to 19a-332a-16 must be requested in writing and approved in writing by the CTDPH.

1.14 FINAL RE-OCCUPANCY AIR CLEARANCE

A. Following the completion of the encapsulation phase of the work, the Consultant shall collect final re-occupancy clearance air samples inside the work area per CTDPH Standards for Asbestos Abatement (19a-332-1 to 19a-332-16).

B. The Owner shall be responsible for payment of the sampling and analysis of the initial final air clearance samples only. The Contractor shall be responsible for payment of all costs associated with the collection and analysis of additional final clearance air samples if the first set of samples fail to satisfy the clearance criteria.

1.15 NOTIFICATIONS, POSTINGS, SUBMITTALS, AND PERMITS

A. The Contractor shall make the following notifications, and provide the submittals to the following agencies prior to the start of work. This notification is required ten (10) calendar days prior to the start of the abatement project:

1. Connecticut Department of Energy and Environmental Protection

Health Services and Solid Waste Management Unit
79 Elm St.
Hartford, CT 06106
(Only if asbestos waste is disposed of in Connecticut)

2. Connecticut Department of Public Health
410 Capital Avenue
MS #51 AIR
P.O. Box 340308
Hartford, CT 06134

B. The minimum information included in the notification to these agencies includes:

1. Name and address of building Owner/Operator
2. Building location
3. Building size, age, and use
4. Amount of asbestos
5. Work schedule, including proposed start and completion date
6. Asbestos removal procedures to be used
7. Name and location of disposal site for generated asbestos waste, residue, and debris
8. If an asbestos landfill opens in Connecticut, the Consultant will notify DEEP prior to utilizing said landfill.

1.16 WORK SITE SAFETY PLAN

A. The Contractor shall establish a set of emergency procedures and shall post them in a conspicuous place at the work site. The safety plan should include provisions for the following:

1. Evacuation of injured workers.
2. Emergency and fire exit routes from all work areas.
3. Emergency first aid treatment.
4. Local telephone numbers for emergency services including ambulance, fire, and police.
5. A method to notify occupants of the building in the event of a fire or other emergency requiring evacuation of the building.

B. The Contractor shall responsible for training all workers in these procedures.

1.17 INDEPENDENT AIR SAMPLING AND ASBESTOS ABATEMENT MONITORING

A. This section describes independent air sampling work being performed on behalf of the Owner. This work is not in the Contract Sum. This section describes air monitoring conducted by the Consultant to verify that the building beyond the work area and the outside environment remains uncontaminated. (Personal air monitoring required by OSHA is work to be performed by the Contractor and is within the Contract Sum.)

B. The purpose of the Consultant’s air monitoring is to verify proper engineering controls in the work area:

1. Contamination of the building outside of the work area by airborne fibers.
2. Failure of filtration or rupture in the differential pressure system.
3. Contamination of air outside the building envelope by airborne fibers.

C. Should any of the above occur, the Contractor shall immediately cease asbestos abatement activities until the fault is corrected. Do not recommence work until authorized by the Consultant.

D. The Consultant may monitor airborne fiber counts in the work area. The purpose of this air monitoring will be to detect total airborne fiber concentrations, which may challenge the ability of the Work Area isolation procedures to protect the balance of the building or outside of the building from contamination by airborne fibers.

E. To determine if the elevated total airborne fiber concentrations encountered during abatement operations have been reduced to an acceptable level, the Consultant will sample and analyze air in accordance with clearance air sampling requirements.

F. The Consultant may perform on-site monitoring throughout the course of the project, as follows:

1. All work procedures shall be continuously monitored by the Consultant to assure that areas outside the designated work locations in the buildings will not be contaminated.
2. Prior to work on any given day, the Contractor's designated "competent person" shall discuss the day's work schedule with the Consultant to evaluate job tasks with respect to safety procedures and requirements specified to prevent contamination of the building or the employees. This includes a visual work area inspection and the building or the employee decontamination. This includes a visual inspection of the work area and the decontamination enclosure systems.

1.18 CONTRACTOR'S AIR SAMPLING RESPONSIBILITY

A. The Contractor shall independently retain an air sampling professional to monitor total airborne fiber concentrations in the worker breathing zones and to establish conditions and work procedures for maintaining compliance with OSHA Regulations Title 29 CFR, Parts 1910.1001 and 1926.1101.

B. The Contractor's air sampling professional shall document all air sampling results and provide a report to the Consultant within 48-hours after sample collection.

C. All air sampling shall be conducted in accordance with methods described in OSHA Title 29 CFR, Parts 1910.1001 and 1926.1101.

1.19 PROPER WORKER PROTECTION

A. This Section describes the equipment and procedures required for protecting workers against asbestos contamination and other workplace hazards except for respiratory protection.

B. All workers are to be accredited as Abatement Workers as required by the EPA AHERA Title 40 CFR, Parts 763 Appendix C to Subpart E, February 3, 1994.

C. The Contractor is required to be certified and accredited as required by CTDPH.

D. In accordance with Title 29 CFR, Part 1926, all workers shall receive a training course covering the dangers inherent in handling asbestos, the dangers of breathing asbestos dust, proper work procedures, and proper worker protective measures. This course must include, but is not limited to the following:

1. Methods of recognizing asbestos
2. Health effects associated with asbestos
3. Relationship between smoking and asbestos in producing lung cancer
4. Nature of operations that could result in exposure to asbestos
5. Importance of and instruction in the use of necessary protective controls, practices and procedures to minimize exposure including:
    a. Engineering controls
    b. Work Practices
    c. Respirators
    d. Housekeeping procedures
    e. Hygiene facilities
    f. Protective clothing
    g. Decontamination procedures
    h. Emergency procedures
    i. Waste disposal procedures
6. Purpose, proper use, fitting, instructions, and limitations of respirators as required by Title 29 CFR, Part 1910.134
7. Appropriate work practices for the work
8. Requirements of medical surveillance program
9. Review of Title 29 CFR, Part 1926
10. Pressure Differential Systems
11. Work practices including hands on or on job training
12. Personal Decontamination procedures
13. Air monitoring, personal and area

E. The Contractor shall provide medical examinations for all workers who may encounter an airborne fiber level of 0.10 fibers/cc or greater for an 8-hour TWA. In the absence of specific airborne fiber data provide medical examinations for all workers who will enter the work area for any reason. Examination shall, at a minimum, meet OSHA requirements as set forth in Title 29 CFR, Part 1926. In addition, provide an evaluation of the individual's ability to work in environments capable of producing heat stress in the worker.

F. Submit the following to the Consultant for review. The Contractor shall not start work until these submittals are returned with Consultant action stamp indicating that they are approved.

1. Submit copies of certificates from an EPA approved AHERA Abatement Workers course for each worker as evidence that each asbestos Abatement Worker is accredited as required by the AHERA Regulation Title 40 CFR, Part 763 Appendix C to Subpart E, February 3, 1994.
2. Submit evidence that the Contractor is certified to perform asbestos abatement work by the CTDPH.
3. Submit documents verifying that each worker has had a medical examination within the last 12 months as part of compliance with OSHA medical surveillance requirements. Submit, at a minimum, for each worker the following:
   a. Name and Social Security Number
   b. Physician's written opinion from examining physician including at a minimum the following:
      1) Whether worker has any detected medical conditions that would place the worker at an increased risk of material health impairment from exposure to asbestos.
      2) Any recommended limitations on the worker or on the use of PPE such as respirators.
      3) Statement that the worker has been informed by the physician of the results of the medical examination and of any medical conditions that may result from asbestos exposure.
4. Copy of information that was provided to physician in compliance with Title 29 CFR, Part 1926.
5. Statement that worker is able to wear and use the type of respiratory protection proposed for the project, and is able to work safely in an environment capable of producing heat stress in the worker.
6. Effective June 4, 2000, submit copies of certificates for the site supervisor and the workers issued by CTDPH.

G. Submit certification signed by an officer of the abatement-contracting firm and notarized that exposure measurement, medical surveillance, and worker training records are being kept in conformance with Title 29 CFR, Part 1926.

H. The Contractor shall maintain control of and be responsible for access to all work areas to ensure the following requirements:

1. Non-essential personnel are prohibited from entering the area.
2. All authorized personnel entering the work area shall read the "Worker Protection Procedures" which are posted at the entry points to the enclosure system, and shall be equipped with properly fitted respirators and protective clothing.
3. All personnel who are exiting from the decontamination enclosure system shall be properly decontaminated.
4. Asbestos waste that is taken out of the work area must be properly bagged and labeled in accordance with these specifications. The surface of the bags shall be decontaminated. Asbestos leaving the enclosure system must be immediately transported off-site or immediately placed in locked, posted temporary storage on-site, and removed within 24-hours of the project conclusion.

5. Any material, equipment, or supplies that are removed from the decontamination enclosure system shall be thoroughly cleaned and decontaminated by wet cleaning and/or HEPA vacuuming of all surfaces

PART 2 - PRODUCTS

2.1 MATERIALS

A. Deliver all materials in the original packages, containers, or bundles bearing the name of the manufacturer and the brand name and product technical description.

B. Damaged or deteriorating materials shall not be used and shall be removed from the premises. Material that becomes contaminated with asbestos shall be decontaminated or disposed as asbestos waste.

C. Polyethylene (poly) sheet in a roll size to minimize the frequency of joints shall be delivered to the job site with factory label indicating 6-mil.

D. Poly disposable bags shall be 6--mil with pertinent pre-printed label. Tie wraps for bags shall be plastic, five-inches long (minimum), pointed and looped to secure filled plastic bags.

E. Tape or adhesive spray will be capable of sealing joints in adjacent poly sheets and for attachment of poly sheet to finished or unfinished surfaces of dissimilar materials and capable of adhering under both dry and wet conditions, including use of amended water.

F. Surfactant (wetting agent), shall consist of 50 percent polyoxyethylene ether and 50 percent polyoxyethylene ester, or equivalent, and shall be mixed with water to provide a concentration of one ounce surfactant to five gallons of water or as directed by manufacturer.

G. Removal encapsulant shall be non-flammable factory prepared penetrating chemical encapsulant deemed acceptable to Consultant. Usage shall be in accordance with manufacturer’s printed technical data.

H. The Contractor shall have available spray equipment capable of mixing wetting agent with water and capable of generating sufficient pressure and volume and having sufficient hose length to reach all areas with asbestos.

I. Impermeable containers are to be used to received and retain any asbestos-containing or contaminated materials until disposal at an acceptable disposal site. The containers shall be labeled in accordance with OSHA Title 29 CFR, Part 1926.1101. Containers must be both air and watertight.

J. Labels and signs, as required by OSHA Title 29 CFR, Part 1926.1101, will be used.

K. Encapsulant shall be bridging or penetrating type which has been deemed acceptable to the Consultant. Usage shall be in accordance with manufacturer's printed technical data.

L. HEPA filtered local exhaust ventilation shall be utilized during the installation of enclosures and supports where asbestos-containing materials may be disturbed.

2.2 TOOLS AND EQUIPMENT

A. The Contractor shall provide all tools and equipment necessary for asbestos removal, encapsulation, and enclosure.

B. The Contractor’s air monitoring professional shall have air-monitoring equipment of type and quantity to monitor operations and conduct personnel exposure surveillance per OSHA requirements.

C. The Contractor shall have available sufficient inventory or dated purchase orders for materials necessary for the job including protective clothing, respirators, filter cartridges, poly sheeting of proper size and thickness, tape and air filters.

D. The Contractor shall provide (as needed) temporary electrical power panels, electrical power cables, and electrical power sources (such as generators). Any electrical connection work affecting the building electrical power system shall be performed by a State of Connecticut-licensed electrician.

E. The Contractor shall have available shower stalls and plumbing to support same to include sufficient hose length and drain system or an acceptable alternate.

F. Exhaust air filtration system units shall contain HEPA filter(s) capable of sufficient air exhaust to create negative pressure of -0.02 inches of water within enclosure with respect to outside area. Equipment shall be checked for proper operation by smoke tubes or differential pressure gauge before the start of each shift and at least twice during the shift. Adequate exhaust air shall be provided for a minimum of four air changes per hour within the enclosure. No air movement system or air filtering equipment shall discharge unfiltered air outside.

G. Vacuum units, of suitable size and capacities for the project, shall have HEPA filter(s) capable of trapping and retaining at least 99.97 percent of all monodispersed particles of 0.3 micrometers in diameter or larger.

H. The Contractor will have reserve units so that the station system will operate continuously.

PART 3 - EXECUTION

3.1 PRE-CONSTRUCTION MEETING

A. At least one week prior to the start of work a Pre-Construction meeting will be scheduled and must be attended by the Contractor and any Sub-Contractors. The assigned Contractor Site Supervisor must also attend this meeting.

B. The Contractor shall present a detailed project schedule and project submittals at the Pre-Construction Meeting. Variations, amendments, and corrections to the presented schedule will be discussed, and the City of Danbury and the Consultant will inform the Contractor of any scheduling adjustments for this project.

C. Following the Pre-Construction meeting, the Contractor shall submit a revised schedule (if needed) no later than one week after the meeting.

3.2 WORK AREA PREPARATION

A. Where necessary, deactivate electrical power, including receptacles and light fixtures. Under no circumstances during the decontamination procedures will lighting fixtures be permitted to be operating when amended water spray may contact the fixture. Provide GFCI devices, temporary power, and temporary lighting installed in compliance with the applicable electrical codes. All installations are to be made by a State of Connecticut-licensed electrician.

B. Temporary power shall be continuous power. Portable generators for use during asbestos abatement are not allowed.

C. Deactivate and/or isolate heating, ventilating, and air conditioning (HVAC) air systems or zones to prevent contamination and fiber dispersal to other areas of the structure. During the work, vents within the work area shall be covered with two layers of 6-mil poly and completely sealed with duct tape.

D. The Contractor shall be responsible for removing furniture from the work areas. The Contractor shall pre-clean moveable objects within the proposed work areas using HEPA vacuum equipment and/or wet cleaning methods as appropriate and remove such objects from work areas to a temporary location.

E. Completely seal all openings, including, but not limited to: windows, corridors, doorways, skylights, ducts, grills, diffusers, and any other penetration of the work areas, with poly sheeting a minimum of 6-mil thick, and sealed with duct tape. This includes doorways and corridors that will not be used for passage during work areas and occupied areas.

F. Pre-clean fixed objects within the work areas, using HEPA vacuum equipment and/or wet cleaning methods as appropriate, and enclose with a minimum 6-mil poly sheeting completely sealed with duct tape.

G. Clean the proposed work areas using HEPA vacuum equipment or wet cleaning methods as appropriate. Do not use methods that raise dust, such as dry sweeping or vacuuming with equipment not equipped with HEPA filters.

H. After HEPA vacuum cleaning, cover fixed walls with two layers of 4-mil poly sheeting to the floor level. Where fixed walls are not used, two layers of 6 mil poly sheeting will be applied to a rigid framework of wood, metal, or PVC. Where floor tile/mastic is not being abated, cover the floor with two layers of 6-mil poly sheeting. All overlaps shall be sealed with tape or spray adhesive.

I. Maintain emergency and fire exits from the work areas, or establish alternate exits satisfactory to fire officials.

J. Clean and remove ceiling mounted objects, such as lights and other items not sealed off, which interfere with asbestos abatement. Use hand-held amended water spraying or HEPA vacuuming equipment during fixture removal to reduce settled fiber dispersal.

K. Create pressure differential between work areas and uncontaminated areas by the use of acceptable negative air pressure equipment sufficient to provide four air changes per hour and create negative pressure of -0.02 inches of water within enclosure with respect to outside area as measured on a water gauge.

3.3 DECONTAMINATION SYSTEM

A. The Contractor shall establish contiguous to the work area, a decontamination enclosure consisting of equipment room, shower room, and clean room in series. The only access between contaminated and uncontaminated areas shall be through this decontamination enclosure. For exterior work, the Contractor shall establish a remote decontamination unit at the perimeter of the regulated area.

B. Access between rooms in the decontamination system shall be through double flap curtain openings. The clean room, shower and equipment room within the decontamination enclosure, shall be completely sealed ensuring that the sole source of airflow through this area originates from uncontaminated areas outside the work area.

C. The Contractor shall establish contiguous with the work area an equipment decontamination enclosure consisting of two totally enclosed chambers divided by a double flap curtained opening. This enclosure must be constructed so as to ensure no personnel enter or exit through this unit.

D. Occupied areas and/or building space not within the work areas shall be separated from asbestos abatement work areas by means of airtight barriers.

E. Construct the decontamination enclosure system with wood or metal framing, cover both sides with a double layer of 6- mil poly sheeting, sealed with spray adhesive and taped at the joints.

F. The Contractor and the Consultant shall visually inspect barrier several times daily to assure effective seal and the Contractor shall repair defects immediately.

3.4 ASBESTOS REMOVAL PROCEDURE - GENERAL

A. The Contractor shall have a designated "competent person" on the job at all times to ensure establishment of a proper enclosure system and proper work practices throughout project.

B. Abatement work will not commence until authorized by the Consultant.

C. With a fine mist, spray ACM with amended water using airless spray equipment or apply approved removal wetting agent to reduce the release of fibers during removal operation. The Consultant shall pre-approve the use of amended water as the wetting agent.

D. To maintain indoor asbestos concentrations to the minimum, the wet asbestos must be removed in manageable sections. Material drop shall not exceed eight feet. For heights up to 15-feet, provide inclined chutes or scaffolding to intercept drop.

E. Remove ACM as appropriate by standard methods. Fill disposal containers as removal proceeds; seal filled containers and clean containers before removal to equipment decontamination enclosure system. Wet clean each container thoroughly, double bag and apply caution label. Ensure that workers do not exit the work area thorough the equipment decontamination enclosure.

F. After completion of stripping work, all surfaces from which asbestos has been removed shall be wet brushed, using a nylon brush, wet wiped, and sponged or cleaned by an equivalent method to remove all visible material (wire brushes are prohibited). During this work, the surfaces being cleaned shall be kept wet.

G. Remove and containerize all visible accumulations of asbestos-containing and/or asbestos-contaminated debris. During cleanup, utilize brooms, rubber dustpan, and rubber squeegees to minimize damage to floor covering.

H. Sealed disposal containers, and all equipment used in the work area, shall be included in the cleanup and shall be removed from work areas via the equipment decontamination enclosure at an appropriate time in the cleaning sequence. All asbestos waste in 6-mil poly disposal bags shall be double-bagged in the equipment decontamination enclosure before removal from the site.

I. At any time during asbestos removal, should the Consultant suspect contamination of areas outside the work area(s), they shall cause all abatement work to stop until the Contractor takes steps to decontaminate these areas and eliminate the causes of such contamination. Unprotected individuals shall be prohibited from entering suspected contaminated areas until air sampling and visual inspections certify decontamination.

J. After completion of the initial final cleaning procedure including removal of the inner layers of poly sheeting, but prior to encapsulation, a pre-sealant inspection shall be conducted by the Consultant. The pre-sealant inspection shall verify that ACM and residual dust has been removed from the work area.

3.5 CONSULTANT

A. The Owner has retained Fuss & O'Neill EnviroScience, LLC as the Hazardous Materials Consultant for the purpose of project design. Mr. Kevin J. McCarthy (License #000274) of EnviroScience is the CTDPH-approved Asbestos Project Designer for this project.

B. A Consultant will represent the Owner in all tasks of the abatement project at the discretion of the Owner. The Contractor will regard the Consultant's direction as authoritative and binding as provided herein, in matters particularly but not limited to: approval of work areas, review of monitoring results, completion of the various segments of work, final completion of the abatement, submission of data, and daily field punch list items.

3.6 CONSULTANT'S RESPONSIBILITIES

A. Air sampling shall be conducted by the Consultant to ascertain the integrity of controls that protect the building from asbestos contamination. Independently, the Contractor shall monitor air quality within the work area to ascertain the protection of employees and to comply with OSHA regulations.

B. The Consultant's air sampling professional may collect and analyze air samples during the following period:

1. Abatement Period. If required, the Consultant's project monitor shall collect samples on a daily basis during the work period. A sufficient number of area samples shall be collected outside of the work area, at the exhaust of the negative pressure system, and outside of the building to judge the degree of cleanliness or contamination of the building during removal. Additional samples may be collected inside the work area and decontamination enclosure system, at the discretion of the project monitor.

C. The Consultant's air sampling professional shall collect and analyze air samples during the following period:

1. Post-Abatement Period. If required, the Consultant's project monitor shall conduct air sampling following the final cleanup phase of the project, once the "no visible residue" criterion, as established by the project monitor, has been met. Five air samples shall be collected inside the work area utilizing aggressive methods to comply with the CTDPH Standards for Asbestos Abatement, sections 19a 332a 12, and 19a 332a 13. Analysis of the samples to determine airborne concentrations of asbestos shall be conducted by Phase Contrast Microscopy (PCM) with a total airborne fiber concentration limit of 0.010 fibers/cc in accordance with the previously-listed CTPDH regulations.

D. The Consultant's project monitor shall provide continual evaluation of the air quality of the building during removal, using their best professional judgment in respect to the CTDPH guideline of 0.010 fibers/cc and the background air quality established during the pre-abatement period.

E. If the project monitor determines that the building air quality has become contaminated from the project, they shall immediately inform the Contractor to cease all removal operations and implement a work stoppage clean up procedure. The Contractor shall conduct a thorough cleanup of the areas of the building designated by the Consultant. No further removal work can occur until the project monitor has determined through air sample collection and analysis that the building airborne fiber concentrations is at or below the CTDPH re-occupancy standard.

F. Pre-abatement and abatement air samples shall be collected as required to obtain a volume of 1,200 liters. Samples shall be analyzed by PCM methodology using the NIOSH 7400 Method.

3.7 CONSULTANT'S INSPECTION RESPONSIBILITIES

A. Consultant shall conduct inspection throughout the progress of the abatement project. Inspections shall be conducted to document the progress of the abatement work, as well as the procedures and practices employed by the abatement Contractor.

B. The Consultant may perform the following inspections during the course of abatement activities:

1. Pre-commencement Inspection. Pre-commencement inspections shall be performed at the time requested by the abatement Contractor. The Consultant shall be informed a minimum of 12-hours prior to the time the inspection is required. During the course of the pre-commencement inspection, if deficiencies are identified, the Contractor shall perform the necessary adjustments to obtain compliance with these specifications.
2. Work Area Inspection. Work area inspections shall be conducted on a daily basis at the discretion of the Consultant. During the work inspections, the Consultant shall observe the Contractor's removal methods and procedures, verify barrier integrity, monitor negative air filtration devices, assess project progress, and inform the Contractor of specific remedial activities if deficiencies are noted.

C. The Consultant shall perform the following inspections during the course of abatement activities:

1. Pre-sealant Inspection. The Consultant, upon the request of the Contractor, shall conduct a pre-sealant inspection. The Consultant shall be informed 12-hours prior the time that the inspection is needed. The pre-sealant inspection shall be conducted after completion of the initial cleaning procedures, but prior to encapsulation. The pre-sealant inspection shall verify that all ACM and residual debris have been removed from the work area. If, during the course of the pre-sealant inspection, the Consultant identifies residual dust or debris, the Contractor shall comply with the request of the Consultant to render the area “dust free.”
2. Final Visual Inspection. The Consultant, upon request of the abatement Contractor, shall conduct a final visual inspection. If residual dust or debris is identified during the course of the final inspection, the Contractor shall comply with the request of the Consultant to render the area “dust free.”

3.8 RE-OCCUPANCY AIR CLEARANCE AIR TESTING

A. After the visual inspection is completed and all surfaces in the abatement area have dried, final re-occupancy air clearance sampling shall be performed by the Consultant. Aggressive air monitoring will be used. Selection of location and of samples shall be the responsibility of the Consultant. Air monitoring volumes shall be sufficient to provide a detection limit of 0.010 fibers/cc using NIOSH-approved method utilizing PCM analysis.

B. Areas which do not comply with the Standard for Cleaning for Initial Clearance shall continue to be cleaned by and at the Contractor's expense until the specified Standard of Cleaning is achieved as evidenced by results of air testing as previously specified.

3.9 ASBESTOS DISPOSAL

A. Disposal of asbestos-containing and/or asbestos-contaminated material must be in compliance with requirements of and authorized by the DEEP and the State of Connecticut.

B. Disposal approvals shall be obtained before commencing asbestos removal.

C. A copy of approved disposal authorization shall be provided to the City of Danbury and Consultant and any required federal, state, or local agencies.

D. Copies of all fully-executed WSRs will be retained by the Consultant as part of the project file. The landfill operator upon receipt of the ACM waste will sign the WSR, and the quantity of asbestos debris leaving the job site and arriving at the landfill is documented for the City of Danbury.

E. All asbestos debris shall be transported in covered, sealed vans, boxes, or dumpsters, which are physically isolated from the driver by an airtight barrier. All vehicles must be properly-licensed to meet DOT requirements.

F. Any vehicles used to store or transport ACM will either be removed from the Site at night, or securely locked and posted to prevent disturbance.

G. Any incident and/or accident that may result in spilling or exposure of asbestos waste outside the containment, on and off the property, and all related issues shall be the sole responsibility of the Contractor.

END OF SECTION

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.

B. Hygenix, Inc. PLM Bulk Asbestos Analysis Report (June 2012).

1.2 CONSULTANT

A. The Owner shall retain a Consultant for the purposes of project management and monitoring during Asbestos Roofing Abatement. At the discretion of the Owner, the Consultant will represent the Owner in all abatement project phases. The Asbestos Roofing Abatement Contractor or Roofing Contractor (collectively the "Contractor") will regard the Consultant's direction as authoritative and binding as provided herein, in matters particularly, but not limited to:

1. Work area approval,
2. Monitoring results review,
3. Various segments of work completion,
4. Abatement final completion,
5. Data submission review, and
6. Daily field punch list items.

B. The State of Connecticut licensed Asbestos Consultant – Project Designer for this project is Mr. Kevin J. McCarthy (License # 000274).

1.3 SCOPE OF WORK

A. Work outlined in this Section includes all work necessary for the removal and disposal of asbestos-containing roofing materials (ACM) impacted during the Partial Roof Replacement (the "Work") at Timothy Dwight Elementary School located at 1600 Redding Road in Fairfield, Connecticut (the "Site"). This Work under this Contract includes, but is not limited to,

1. Roof Penetration and Perimeter Flashing Tar on Roof A.

B. This shall include all necessary demolition to access the ACM for the purpose of abatement.

1.4 USE OF THE CONTRACT DOCUMENTS

A. It shall be incumbent upon the Contractor to visit the Site and determine existing conditions, and what will be required to accomplish the Work intended by the Contract Documents. No increase in the Contract Sum will be permitted as a result of the Contractor's failure to visit the building located at the Site and understand the existing conditions.

B. All work shall comply with the Contract Documents and with applicable codes, laws, regulations, and ordinances, wherever applicable. The most stringent of all the foregoing shall govern.

C. It is not intended that these Specifications show every detail of the Work, but the Contractor shall be required to furnish within the Contract Sum all materials and labor necessary for the completion of the Work in accordance with the intent of these Specifications.

D. In case of ambiguity among the Contract Documents, the more stringent requirement as determined by the Consultant shall prevail.

E. The Work of this Contract includes making modifications as necessary, subject to approval by Owner in consultation with the Consultant, to correct any conflicts between Contract Documents.

F. All items that are not specifically mentioned in these Specifications, but are implied by trade practices to complete the Work, shall be included.

1.5 SITE EXAMINATION

A. It is understood that the Contractor has examined the Site and made their own estimates of the Site facilities and difficulties attending the execution of the Work, and has based their bid price thereon.

B. Except for unforeseeable concealed conditions as determined by the Consultant, the Contractor shall make no claim for additional costs due to the existing Site conditions.

1.6 CONTRACTOR QUALIFICATIONS

A. All bidders shall submit a record of prior experience in asbestos abatement projects, listing no less than three completed projects in the past year, with all projects of similar size and scope. The Contractor shall list the experience and training of the project supervisor and all on-site personnel. The information to be included is as follows:

1. Project Name and Address
2. Owner's Name and Address
3. Architect/Consultant
4. Contract Amount
5. Date of Completion
6. Extras and Changes

B. If the materials to be removed become a regulated asbestos-containing material (RACM) during abatement, the selected Contractor must appear on the approved list of Asbestos Abatement Contractors on file at the State of Connecticut Department of Public Health (CTDPH) and hold a valid State of Connecticut Asbestos Abatement Contractor license.

C. Submit a written statement regarding whether the Contractor has ever received a federal, state or local non-compliance citation with the asbestos and/or lead regulations pertaining to worker protection, removal, transport, or waste disposal.

1.7 CONSTRUCTION PROGRESS SCHEDULE

A. To assure adequate planning and execution of the Work and to assist the Consultant in reviewing the justification for the Contractor's applications for payment, the Contractor shall prepare and maintain a detailed Progress Schedule.

B. The schedule of work of this Contract shall include the notification requirements to regulatory agencies for the work, if exterior materials will become friable during proposed removal operations. It shall be incumbent upon the Contractor performing the asbestos abatement to determine if proposed removal methods shall render the asbestos-containing exterior roofing materials friable or not.

C. The Contractor shall supervise and direct all work of theirs and other trades using their best skill and attention. The Contractor shall be solely responsible for all construction means, methods, techniques, sequences, and procedures and for coordinating all portions of the work under the Contract.

D. Due to the nature of this construction work, the Owner may adjust the work scheduling or phasing under this Contract. As long as the scope of work is not altered, adjustments to the project phasing shall have no effect on the contract price.

E. The Contractor and any subcontractors shall attend a pre-construction meeting. The assigned Supervisor must attend this meeting.

1.8 TESTING LABORATORY SERVICES

A. The Contractor shall submit to the Consultant the name; address and qualifications of proposed laboratories intended to be utilized for sample analysis as is required by this Section.

1.9 ADDITIONAL GENERAL REQUIREMENTS

A. The Contractor shall employ a competent Supervisor with at least three years of experience on projects of similar scope and magnitude, who shall be responsible for all work involving asbestos abatement, as described in the specifications and defined in applicable regulations, and have full-time daily supervision of the same. The Supervisor shall be the competent person as defined by Occupational Safety and Health Administration (OSHA) regulations.

B. Should the ACM become friable during removal, the Contractor shall employ a competent Asbestos Abatement Supervisor with at least three years of experience on projects of similar scope and magnitude, who shall be responsible for all work involving asbestos abatement as described in the specifications, and defined in applicable regulations, and have full-time daily supervision of the same.

C. The Contractor shall allow the Work of this Contract to be inspected, if requested or required by local, state, federal, and any other authorities having jurisdiction over such work. The Contractor shall immediately notify the Owner, the Architect, and the Consultant and shall maintain written evidence of such inspection for review by the Owner, the Architect, and the Consultant.

D. The Contractor shall incur the cost of all fines resulting from regulatory non-compliance, as issued by federal, state, and local agencies. The Contractor shall incur the cost of all work requirements mandated by federal, state, and local agencies as a result of regulatory non-compliance or negligence.

E. The Contractor shall immediately notify the Owner and Consultant of the delivery of all permits, licenses, certificates of inspection, of approval, or occupancy, etc., and any other such instruments required under codes by authorities having jurisdiction, regardless of who issued, and shall cause them to be displayed to the Owner and Consultant for verification and recording.

1.10 PROJECT DESCRIPTION

A. The base bid includes the removal and disposal of all ACM as identified herein, and on the Architect's drawings and specifications, conducted by workers meeting the requirements of OSHA Title 29 CFR, Part 1926.1101 for Class 2 work. The base bid will include all costs associated with the removal, packaging, transporting, and disposing asbestos-containing roof penetration and perimeter flashing tar from Roof A (Roof D in Hygenix, Inc. PLM Bulk Asbestos Analysis Report [June 2012]).

B. The quantities listed herein are estimates only, and should be verified on-site by the Contractor.

C. This bid includes the following ACM:

BASE BID - ASBESTOS

LOCATION	MATERIAL TYPE	ESTIMATED QUANTITY
Roof A *Roof D on Hygenix Report June 2012*	Roof Penetration and Perimeter Flashing Tar	450 SF

D. Some of the Work will be performed in multiple mobilizations, at different periods of time, in conjunction with other trades (i.e., other trades work, demolition work, etc.).

E. Safety Data Sheets (SDS) for chemicals to be used during the project must be submitted to the Consultant prior to site delivery.

F. Encapsulants applied to any surface that will receive a new finish that requires an adhesive must be compatible with the application of the new finish.

G. The Contractor shall be responsible for providing temporary water, power, and heat as needed at the Site. Temporary lighting within the work areas must be connected to Ground Fault Circuit Interrupter (GFCI) power panels, installed by a State of Connecticut-licensed electrician, and located outside of the work areas.

H. If work practices result in ACM breaching the roof deck, and entering the building during abatement, the Contractor shall be responsible for providing preparation of negative pressure enclosures (NPE), cleaning, etc. at no additional cost to the Owner,.

1.11 DEFINITIONS

A. The following definitions relative to asbestos abatement shall apply:

1. Abatement - Procedures to control fiber release from ACM; includes removal, encapsulation, and enclosure.
2. Air Monitoring - The process of measuring the total airborne fiber concentration of an area or exposure of a person.
3. Amended Water - Water to which a surfactant has been added.
4. Architect – Silver Petrucelli & Associates
5. Asbestos - The name given to a number of naturally occurring fibrous silicates. This includes the serpentine forms and the amphiboles and includes chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite, or any of these forms, which have been chemically altered.
6. Asbestos Felt - A product made by saturating felted asbestos with asphalt or other suitable bindery, such as a synthetic elastomer.
7. Asbestos Fibers - Those particles with a length greater than five (5) microns (µ) and a length to diameter ratio of 3:1 or greater.
8. Asbestos Work Area - A regulated area as defined by OSHA Title 29 CFR, Part 1926.1101 where asbestos abatement operations are performed that is isolated by physical barriers to prevent the spread of asbestos dust, fibers, or debris. The regulated area shall comply with requirements of regulated area for demarcation, access, respirators, prohibited activities, competent persons and exposure assessments and monitoring.
9. Asphalt Shingles, Composition Shingles, or Strip Slates (Pitched Roof Shingle) - A roofing material manufactured by saturating a dry felt with asphalt then coating the saturated felt with a harder asphalt mixed with a fine mineral, glass fiber, asbestos or organic stabilizer. All or part of the weather side may be covered with mineral granules, or with powdered talc or mica.
10. Base Flashing (Roof) - The flashing provided by upturned edges of a water-tight membrane on a roof. May contain metal and associated waterproofing material or combination of roofing felts and waterproofing at the joint between a roofing surface and a vertical surface such as a wall or parapet. Also base flashing may be present at perimeter of completely flat roof.
11. Built-Up Roofing (Composition Roofing, Felt and Gravel Roofing, Gravel Roofing) - A continuous roof covering comprised of laminations or plies of saturated or coated roofing felts, alternated with layers of asphalt or coal-tar pitch and surfaced with gravel, paint or finish coat.

12. Category I Non-Friable Material – Asbestos-containing packings, gaskets, resilient floor coverings, and asphalt roofing products.
13. Category II Non-Friable Material – Any non-friable ACM not designated as Category I.
14. Caulking - Resilient mastic compound often having a silicone bituminous or rubber base; used to seal cracks, fill joints, and prevent leakage. Typical applications: around windows, and doors. Caulking is at joints between two dissimilar materials. (i.e., masonry to wood, masonry to steel)
15. Clean Room - An uncontaminated area or room, which is a part of the worker decontamination system with provisions for storage of workers' street clothes and protective equipment.
16. Clearance Sampling - Final air sampling performed aggressively after the completion of the abatement project within a regulated area. Air samples collected by the air sampling professional having a total airborne fiber concentration of less than 0.010 fibers per cubic centimeter of air (fibers/cc) in each of five (5) air samples collected inside the NPE will indicate acceptable area re-occupancy by Phase Contrast Microscopy (PCM) or five air samples collected inside the NPE by the Consultant having an average asbestos concentration of less than 70 structures per square millimeter (< 70 s/mm^2) of air will indicate area re-occupancy using Transmission Electron Microscopy (TEM).
17. Competent Person - As defined by OSHA Title 29 CFR, Part 1926.1101, a representative of the Abatement Contractor who is capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure. Person who has authority to take prompt corrective measures to eliminate such hazards during asbestos removal. Competent person shall be properly trained in accordance with EPA Model Accreditation Plan (MAP).
18. Consultant – Fuss & O'Neill EnviroScience, LLC
19. Curtained Doorway - A device to allow ingress and egress from one area to another while permitting minimal air movement between the areas. Two curtained doorways spaced a minimum of six feet apart can form an airlock.
20. Damproofing – The application of a water-impervious material to surface such as wall to prevent penetration of moisture, typically at foundation or below grade surface.
21. Decontamination System – A series of connected areas, with curtained doorways between any two adjacent areas, for worker and equipment decontamination. A decontamination system always contains at least one airlock and is adjacent and connected to the regulated area, where possible.
22. Encapsulant - A liquid material which can be applied to ACM that controls the possible release of asbestos fibers from the materials either by creating a membrane over the surface (bridging encapsulant), or penetrating the material and binding its components together (penetrating encapsulant).
23. Equipment Room - Any contaminated area or a room that is part of the worker decontamination system with provisions for storage of contaminated clothing and equipment.

24. Fixed Object - Unit of equipment or furniture in the work area that cannot be removed from the work area.
25. Friable Asbestos Materials - Any material that contains more than 1% asbestos by weight, that can be crumbled, pulverized or reduced to powder by hand pressure.
26. Glazing – Any compound used to hold window glass in place, also referred to as putty, or glazier's putty. Is not field-applied, usually installed during manufacture of windows.
27. GFCI – Ground Fault Circuit Interrupter
28. HEPA – High Efficiency Particulate Air
29. HEPA Filter - Filter in compliance with ANSI Z9.2 1979.
30. HEPA Vacuum Equipment - Vacuum equipment equipped with a HEPA filter system for filtering the air effluent.
31. Movable Object - Unit of equipment of furniture in the work area that can be removed from the work area.
32. Negative Air Pressure Equipment - A portable local exhaust system equipped with HEPA filtration used to create negative pressure in a regulated area (negative with respect to adjacent unregulated areas) and capable of maintaining a constant, low velocity air flow into regulated areas from adjacent unregulated areas.
33. NESHAPs - National Emissions Standard for Hazardous Air Pollutants regulations enforced by the EPA.
34. Owner – City of Fairfield
35. Penetration Roof Flashing - Flashing are used to waterproof pipes, supports, cables, and all roof protrusions.
36. Permissible Exposure Level (PEL) - The maximum airborne concentration of asbestos fibers to which an employee is allowed to be exposed. The level established by OSHA Title 29 CFR, Part 1926.1101 is 0.1 fibers/cc as an 8-hour time weighted average and 1.0 fibers /cc averaged over a sampling period of 30 minutes as an Excursion Limit. The Contractor shall be responsible for maintaining work areas in a manner that this standard is not exceeded.
37. Project Monitor - A professional capable of conducting air monitoring and analysis of schemes. This individual should be an industrial hygienist, an environmental scientist, or an engineer with experience in asbestos air monitoring and worker protection equipment and procedures. This individual should have demonstrated proficiency in conducting air sample collection in accordance with OSHA Title 29 CFR, Parts 1910.1001 and 1926.1101.
38. Regulated Asbestos-Containing Material (RACM) – Is a friable ACM, or a Category I non-friable ACM that has become friable or 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 force expected to act on the material during demolition or renovation operations.
39. Regulated Area - An area established by the employer to demarcate where Class I, II, and III asbestos abatement is conducted and any adjoining area where debris and waste from such asbestos work accumulate, and a work area within which airborne concentrations of asbestos exceed or there is a reasonable possibility that they may exceed the PEL.

40. Shower Room - A room between the clean room and the equipment room in the work decontamination system with hot and cold running water and suitably arranged for employee showering during decontamination. The shower room is located in an airlock between the contaminated area and the clean area.
41. Waterproofing - Material, usually a membrane or applied compound (tar/mastic), used to make a surface impervious to water, includes concealed conditions (applications around doors, windows, and in wall cavities). Sometimes combined with felts.

1.12 SUBMITTALS

A. The Contractor shall submit the following to the Consultant in one complete package prior to the pre-construction meeting, and no later than 10 business days prior to the anticipated start of the Work:

1. Submit a schedule to the Architect and the Consultant that defines a timetable for executing and completing the project, including work area preparations, removal, cleanup, decontamination, and final clearance air monitoring (if applicable).
2. Submit the current valid CTDPH Asbestos Abatement Contractor license (if materials become RACM during removal) and certificate of insurance.
3. Submit the identity of the hauling contractor and location of the landfill to be used. Also submit current valid operating permits and certificates of insurance for the transporter and landfill.
4. Submit video documentation showing the conditions of the building prior to the start of work. The contractor will be held responsible for all damage to the building and its contents not shown on the video documentation.
5. Submit the plans and construction details for the construction of the decontamination systems and the isolation of the work areas as may be necessary for compliance with this specification and applicable regulations.
6. Submit the training, medical, respirator fit test records, and CTDPH license (if applicable) of each employee who may be on the project site.
7. Submit the qualifications of the air sampling professional that the Contractor proposed to use for this project to perform OSHA-required employee exposure monitoring.
8. Submit detailed product information on all materials and equipment proposed for asbestos abatement work on this project.
9. Submit pertinent information regarding the qualifications of the Project Supervisor (competent person) for this project as well as a list of past projects completed.
10. Submit a chain-of-command for the project.
11. Submit a site-specific Emergency Action Plan for the project.
12. Submit a written site-specific Respiratory Protection Program for employees for the Work, including make, model and National Institute of Occupational Safety and Health (NIOSH) approval numbers of respirators to be used at the Site (if applicable).
13. No work on the Site will be allowed to begin until the Consultant as listed herein approve the Pre-Construction Submittals. Any delay caused by the Contractor's

refusal or inability to submit this documentation in a timely manner does not constitute a cause for change order or a time extension;

B. The Contractor shall submit the following to the Consultant during the work:

1. Copies of personal air sampling results (Consultant will not review or provide any direction or advice regarding results). The Contractor shall be responsible for proper sample analytical review and PPE selection and use. Records are retained solely for project record.
2. Copies of training, CTDPH licenses (if applicable), fit test records, and medical records for new employees to start work (24-hours in advance) and prior to the new employee arriving at the Site.
3. Carbon copies from waste shipment record, waste manifest records, bill of lading or other waste tracking record for all specified materials.
4. Copies of daily log sheets, daily sign-in sheets, and containment sign-in sheets.

C. The Contractor shall submit the following to the Consultant at the completion of work. The Owner reserves right to retain payment(s) until all items are received in completion:

1. Original final completed copies of the waste shipment records, signed by all transporters and the designated disposal site owner/operator.
2. Original final completed copies of bill of laden, weight tickets, recycling tickets and manifests for all specified materials.
3. Contractor's logs (daily activity logs, daily sign in sheets, containment sign-in sheets), and all worker training, CTDPH licenses (if applicable), medical records and respirator fit test records.
4. Copies of all OSHA personal monitoring results.

1.13 REGULATIONS AND STANDARDS

A. The Contractor shall be solely responsible for conducting this project and supervising all work in a manner that will be in conformance with all federal, state, and local regulations and guidelines pertaining to asbestos abatement. Specifically, the Contractor shall comply with the requirements of the following:

1. EPA National Emissions Standards for Hazardous Air Pollutants (NESHAPS) Regulations (Title 40 CFR, Part 61, Subpart M);
2. EPA Asbestos Hazard Emergency Response Act (AHERA) Regulations (Title 40 CFR, Part 763, Subpart E)
3. OSHA Asbestos Regulations (Title 29 CFR, Parts 1910.1001 and 1926.1101);
4. Connecticut Department of Energy and Environmental Protection (DEEP) Regulations (Section 22a 209 8(i) and Section 22a 220 of the Connecticut General Statutes);
5. CTDPH Asbestos Containing Materials in Schools (Sections 19a 333-1 to 19a 333-13);

6. CTDPH Standards for Asbestos Abatement (Sections 19a-332a- 1 to 19a-332a-16);
7. CTDPH Licensing and Training Requirements for Persons Engaged in Asbestos Abatement and Asbestos Consultant Services (Sections 20-440-1 to 20-440-9 and Section 20-441);
8. United States Department of Transportation (DOT) Hazardous Materials Regulations (Title 49 CFR, Parts 171 – 180)
9. 2003 International Building Code as adopted by the 2005 State of Connecticut Building Code including the 2009, 2011, and 2013 amendments;
10. Life Safety Code (National Fire Protection Association [NFPA]);
11. Local health and safety codes, ordinances or regulations pertaining to asbestos remediation and all national codes and standards including ASTM, ANSI, and Underwriter's Laboratories.

1.14 EXEMPTIONS

A. Any deviations from these specifications require the prior written approval and authorization from the Owner and the Consultant.

B. Any modifications from the standard work practices identified in the CTDPH Standards for Asbestos Abatement, Sections 19a-332a-1 to 19a-332a-16 must be requested in writing and approved in writing by the CTDPH.

1.15 FINAL RE-OCCUPANCY AIR CLEARANCE

A. Not applicable for this exterior non-friable roof abatement project.

1.16 NOTIFICATIONS, POSTINGS, SUBMITTALS, AND PERMITS

A. The Contractor shall make the following written notifications, and provide the submittals to the following agencies prior to the commencement of abatement if the work is going to render the ACM friable. These notifications are required 10-calendar days prior to the start of the abatement project:

1. Connecticut Department of Energy and Environmental Protection
   Health Services and Solid Waste Management Unit
   79 Elm St.
   Hartford, CT 06106
   (Only if asbestos waste is disposed of in Connecticut)

2. Connecticut Department of Public Health
   410 Capital Avenue
   MS #51 AIR
   P.O. Box 340308
   Hartford, CT 06134

B. The minimum information included in the notification to these agencies includes:

1. Name and address of building Owner/Operator

2. Building location
3. Building size, age, and use
4. Asbestos quantity
5. Work schedule, including proposed start and completion date
6. Asbestos removal procedures to be used
7. Name and location of disposal site for generated asbestos waste, residue, and debris
8. If landfill opens in Connecticut to accept ACM waste, Consultant will notify DEEP prior to utilizing said landfill.

1.17 WORK SITE SAFETY PLAN

A. The Contractor shall establish a set of emergency procedures and shall post them in a conspicuous place at the Site. The safety plan should include provisions for the following:

1. Evacuation of injured workers.
2. Emergency and fire exit routes from all work areas.
3. Emergency first aid treatment.
4. Local telephone numbers for emergency services including ambulance, fire, and police.
5. A method to notify occupants of the building in the event of a fire or other emergency requiring evacuation of the building.

B. The Contractor shall be responsible for properly training all workers in these procedures.

1.18 INDEPENDENT AIR SAMPLING AND ASBESTOS ABATEMENT MONITORING

A. This Section describes independent air sampling work being performed on behalf of the Owner. This work is not in the Contract Sum. This Section describes air monitoring conducted by the Consultant to verify that the outside environment remains uncontaminated. (Personal air monitoring required by OSHA is work shall be performed by the Contractor and is within the Contract Sum.)

B. The purpose of the Consultant's air monitoring is to document engineering controls utilizing during asbestos abatement are functioning properly. Air monitoring will focus on possible:

1. Contamination of the building outside of the work area by airborne asbestos fibers
2. Contamination of air outside the building envelope by airborne asbestos fibers.

C. If either of the above be determined to have occurred based on Consultant's air monitoring, then the Contractor shall immediately cease all asbestos abatement activities until the fault is corrected. Do not resume work until authorized by the Owner's Consultant. To determine if the elevated airborne fiber concentrations encountered during abatement operations have been reduced to an acceptable level

below 0.010 fibers per cubic centimeter (f/cc), the Consultant will collect and analyze air samples in accordance with re-occupancy clearance air sampling requirements.

D. The Owner's Consultant may monitor total airborne fiber concentrations in the Work Area. The purpose of this air monitoring will be to detect total airborne fiber concentrations, which may challenge the ability of the work area isolation procedures to protect the balance of the building or the building exterior from possible contamination by airborne fibers.

E. To determine if the elevated airborne fiber counts encountered during abatement operations have been reduced to an acceptable level, the Consultant will collect and analyze air samples in accordance with clearance air sampling requirements.

F. The Owner's Consultant may perform on-site monitoring throughout the course of the project, as follows:

1. All work procedures shall be continuously monitored by the Consultant to assure that areas outside the designated work locations in the building will not be contaminated.

2. Prior to work on any given day, the Contractor's designated "Competent Person" shall discuss the day's work schedule with the Consultant to evaluate job tasks with respect to safety procedures and requirements specified to prevent building contamination or the employees. This includes a work area visual inspection and the building decontamination or the employees. This includes a work area visual inspection and the decontamination systems.

1.19 CONTRACTOR'S AIR SAMPLING RESPONSIBILITY

A. The Contractor shall independently retain an air sampling professional to monitor airborne asbestos concentrations in the workers' breathing zone and to establish conditions and work procedures for maintaining compliance with OSHA Regulations Title 29 CFR, Parts 1910.1001 and 1926.1101.

B. The Contractor's air sampling professional shall document all air sampling results and provide a report to the Consultant within 48-hours after sample collection.

C. All air sampling shall be conducted in accordance with methods described in OSHA Standards Title 29 CFR, Parts 1910.1001 and 1926.1101.

1.20 PROPER WORKER PROTECTION

A. This Section describes the equipment and procedures required for protecting workers against asbestos contamination and other workplace hazards, except for respiratory protection.

B. All workers are to be accredited as Abatement Workers as required by the EPA's AHERA regulation Title 40 CFR, Part 763 Appendix C to Subpart E, February 3, 1994.

C. The Contractor must be licensed and accredited, as required by CTDPH, if removal work practices render the materials RACM.

D. In accordance with OSHA Title 29 CFR, Part 1926, all workers shall receive a training course covering the dangers inherent in handling asbestos, the dangers of breathing asbestos dust, proper work procedures, and proper worker protective measures. This course must include, but is not limited to the following:

1. Methods of recognizing asbestos
2. Health effects associated with asbestos
3. Relationship between smoking and asbestos in producing lung cancer
4. Nature of operations that could result in exposure to asbestos
5. Importance of and instruction in the use of necessary protective controls, practices and procedures to minimize exposure including:
    a. Engineering controls
    b. Work Practices
    c. Respirators
    d. Housekeeping procedures
    e. Hygiene facilities
    f. Protective clothing
    g. Decontamination procedures
    h. Emergency procedures
    i. Waste disposal procedures
6. Purpose, proper use, fitting, instructions, and limitations of respirators as required by OSHA Title 29 CFR, Part 1910.134
7. Appropriate work practices
8. Requirements of medical surveillance program
9. Review of Title 29 CFR, Part 1926
10. Pressure Differential Systems
11. Work practices including hands on or on job training
12. Personal decontamination procedures
13. Air monitoring (personal and area)

E. The Contractor shall provide medical examinations for all workers who may encounter a total airborne fiber concentration of 0.1 fibers/cc or greater for an 8-hour TWA. In the absence of specific airborne fiber data, provide medical examinations for all workers who will enter the work area for any reason. Examination shall, at a minimum, meet OSHA requirements as set forth in Title 29 CFR, Part 1926. In addition, provide an evaluation of the individual's ability to work in environments capable of producing heat stress in the worker.

F. Submit the following to the Consultant for review. The Contractor shall not start work until these submittals are returned with Consultant action stamp indicating that they are accepted.

1. Submit copies of certificates from an EPA-approved AHERA Abatement Worker course for each worker as evidence that each asbestos Abatement Worker is

accredited as required by EPA AHERA Regulation Title 40 CFR, Part 763 Appendix C to Subpart E, February 3, 1994.

2. Submit evidence that the Contractor is certified to perform asbestos abatement work by the State of CTDPH.
3. Submit documents verifying that each worker has had a medical examination within the last 12 months, as part of compliance with OSHA medical surveillance requirements. Submit, at a minimum, for each worker the following:

    a. Name and Social Security Number
    b. Physician's Written Opinion including at a minimum the following:

        1) Whether worker has any detected medical conditions that would place the worker at an increased risk of material health impairment from exposure to asbestos.
        2) Any recommended limitations on the worker or on the use of personal protective equipment such as respirators.
        3) Statement that the worker has been informed by the physician of the results of the medical examination and of any medical conditions that may result from asbestos exposure.

4. Copy of information that was provided to physician in compliance with OSHA Title 29 CFR, Part 1926.
5. Statement that worker is able to wear and use the type of respiratory protection proposed for the project, and is able to work safely in an environment capable of producing heat stress in the worker.
6. Submit copies of certificates for the site supervisor and the workers issued by CTDPH.

G. Submit certification signed by an officer of the abatement-contracting firm and notarized that personal exposure measurements, medical surveillance, and worker training records are in conformance with OSHA Title 29 CFR, Part 1926.

H. The Contractor shall maintain control of and shall be responsible for access to all work areas to ensure the following requirements:

1. Non-essential personnel are prohibited from entering the area
2. All authorized personnel entering the work area shall read the "Worker Protection Procedures" which are posted at the entry points to the system, and shall be equipped with properly-fitted respirators and protective clothing
3. All personnel who are exiting from the decontamination system shall be properly and thoroughly decontaminated.
4. Asbestos waste that is removed from the work area must be properly containerized and labeled in accordance with these specifications. The exterior surface of the containers shall be decontaminated. Asbestos waste must be immediately transported off site or immediately placed in locked, posted temporary storage located on site, and removed within 24-hours of project completion. Coordinate location of storage containers with Owner.

5. Any material, equipment, or supplies that are removed from the decontamination system shall be thoroughly cleaned and decontaminated by wet cleaning and/or HEPA vacuuming of all surfaces.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Deliver all materials in the original packages, containers, or bundles bearing the name of the manufacturer and the brand name and product technical description.

B. Damaged or deteriorating materials shall not be used and shall be removed from the Site. Material that becomes contaminated with asbestos shall be decontaminated or disposed as asbestos waste.

C. Polyethylene (poly) in a roll size to minimize the frequency of joints shall be delivered to the Site with a factory label indicating 4 or 6–mil thickness.

D. Poly disposable bags shall be 6-mil thickness with pertinent pre-printed label. Tie wraps for bags shall be plastic, five-inches long (minimum), pointed and looped to secure filled plastic bags.

E. Tape or spray-adhesive will be capable of sealing joints in adjacent poly sheets and for attachment of poly to dissimilar finished or unfinished surfaces and capable of adhering under both dry and wet conditions, including amended water.

F. Surfactant (wetting agent), shall consist of 50 percent polyoxyethylene ether and 50 percent polyoxyethylene ester, or equivalent, and shall be mixed with water to provide a concentration of one ounce surfactant to five-gallons of water or as directed by manufacturer.

G. Removal encapsulant shall be non-flammable factory prepared penetrating chemical encapsulant deemed acceptable to Consultant. Usage shall be in accordance with manufacturer's printed technical data.

H. The Contractor shall have available spray equipment capable of mixing wetting agent with water and capable of generating sufficient pressure and volume and having sufficient hose length to reach all areas with asbestos.

I. Impermeable containers are to be used to receive and retain asbestos-containing or contaminated materials until disposal at an acceptable disposal site. The containers shall be labeled in accordance with OSHA Title 29 CFR, Part 1926.1101. Containers must be both air and watertight.

J. OSHA-required asbestos labels, warning signs and/or warning tape shall be used.

K. Encapsulant shall be bridging or penetrating type that has been deemed acceptable to the Consultant. Usage shall be in accordance with manufacturer's printed technical data.

2.2 TOOLS AND EQUIPMENT

A. The Contractor shall provide all tools and equipment necessary for asbestos removal, encapsulation and enclosure.

B. The Contractor’s air monitoring professional shall have air-monitoring equipment of type and quantity to monitor operations and conduct personnel exposure surveillance per OSHA requirements.

C. The Contractor shall have available sufficient inventory or dated purchase orders for materials necessary for the job including protective clothing, respirators, filter cartridges, poly sheeting of proper size and thickness, tape and air filters.

D. The Contractor shall provide (as needed) temporary electrical power panels, electrical power cables, and electrical power sources (such as generators). Any electrical connection work affecting the building electrical power system shall be performed by a State of Connecticut-licensed electrician.

E. The Contractor shall have available shower stalls and plumbing to support same to include sufficient hose length and drain system, or an acceptable alternate.

F. Vacuum units, of suitable size and capacities for the project, shall have HEPA filter(s) capable of trapping and retaining at least 99.97 percent of all monodispersed particles of 0.3 micrometers in diameter or larger.

PART 3 - EXECUTION

3.1 PRE-CONSTRUCTION MEETING

A. At least one week prior to the start of work a Pre-Construction Meeting will be scheduled and must be attended by the Contractor and any Sub Contractors. The assigned Contractor Site Supervisor must also attend this meeting.

B. The Contractor shall present a detailed project schedule and project submittal package at the Pre-Construction Meeting. Variations, amendments, and corrections to the presented schedule will be discussed, and the Owner and Consultant will inform the Contractor of any scheduling adjustments for this project.

C. Following the Pre-Construction Meeting, the Contractor shall submit a revised schedule (if needed) no later than one week after the meeting.

3.2 WORK AREA PREPARATION

A. Where necessary deactivate electrical power. Provide GFCI devices, temporary power, and temporary lighting installed in compliance with the applicable electrical codes. All installations are to be made by a State of Connecticut-licensed electrician.

B. Deactivate and/or isolate heating, ventilating and air conditioning (HVAC) air systems or zones to prevent contamination and fiber dispersal within the structure. During the work, rooftop vents around the work area shall be completely sealed with duct tape and two layers of 6-mil thick poly.

C. Completely seal all openings, including, but not limited to, roof level HVAC air intake sources, windows adjacent to removal (within ten feet) skylights, ducts, grills, diffusers, and any other penetration of the work areas, with poly a minimum of 6-mils thick, sealed with duct tape.

3.3 DECONTAMINATION SYSTEM

A. The Contractor shall establish on-site, a remote decontamination enclosure consisting of equipment room, shower room, and clean room in series.

B. Access between rooms in the decontamination system shall be through double flap-curtained openings. The clean room, shower and equipment rooms within the decontamination enclosure shall be completely sealed.

C. Construct the decontamination system with plastic, wood, or metal framing and cover both sides with a double layer of 6-mil poly, sealed with spray glue or tape at the joints.

D. The Contractor and the Consultant shall visually inspect barriers routinely to assure effective seal and the Contractor shall repair defects immediately.

3.4 ASBESTOS REMOVAL PROCEDURE - GENERAL

A. Following a federal court of appeals decision, OSHA has issued a final rule on June 29, 1998, removing regulation of asbestos-containing asphalt roof cements, mastics and coatings from the OSHA standards for occupational exposure to asbestos in construction and shipyard work. However, friable materials (felts, papers, etc.) are still regulated by OSHA, federal (no visible emissions) and state entities.

B. Exterior non-friable materials which are not RACM as defined by the EPA and CTDPH are not required to be removed by a CTDPH-licensed Asbestos Abatement Contractor in the State of Connecticut. This is true as long as the proposed methods of removal will not render the Category I non-friable roofing materials RACM during proposed roof removal operations.

C. Supervisors and workers are not required to be certified in the State of Connecticut unless the Category I non-friable roofing materials become RACM. Workers must be properly trained in compliance with OSHA regulations.

D. The Contractor shall have a designated "competent person" on the job at all times to ensure proper work practices throughout the project.

E. The Contractor shall regulate the work area as required for compliance with OSHA regulation Title 29 CFR, Part 1926.1101 to prohibit non-trained workers from entering areas where ACM are to be removed.

F. The Contractor shall establish worker decontamination unit remote from the work area.

G. The Contractor shall spray asbestos materials with amended water using airless spray equipment or apply approved removal wetting agent to ensure no visible emissions during removal of Category I non-friable roofing materials.

H. The adequately-wet asbestos must be removed in manageable sections. Material drop shall not exceed eight feet. For heights up to 15 feet above ground surface, provide inclined chutes or scaffolding to intercept drop. For heights exceeding 15 feet, the Contractor shall provide an enclosed dust-proof chute.

I. After completion of stripping work, all surfaces from which ACM has been removed shall be wet cleaned or cleaned by an equivalent method to remove all visible suspect ACM (wire brushes are prohibited). During this work, the surfaces being cleaned shall be kept adequately wet, without causing a safety hazard.

J. Remove and containerize all visible accumulations of asbestos-containing and/or asbestos-contaminated debris. Waste shall be containerized in labeled and signed 6-mil poly disposable bags. Tie wraps for bags shall be plastic, 5-inches long (minimum), pointed and looped to secure filled plastic bags.

K. At any time during asbestos abatement should the Consultant suspect contamination of areas outside the work area(s), they shall issue a stop work order until the Contractor takes required steps to decontaminate these areas, and to eliminate the causes of such contamination. Unprotected individuals shall be prohibited from entering suspected contaminated areas until air sampling and visual inspections indicate acceptable decontamination.

L. The Consultant shall conduct a final visual inspection of the work area. If residual suspect ACM debris is identified during the course of the final inspection, the Contractor shall comply with the Consultant’s request to render the area clean of all residual ACM.

3.5 CONSULTANT'S RESPONSIBILITIES

A. Air sampling may be conducted by the Consultant to ascertain the integrity of engineering controls that protect the building from possible asbestos contamination. Independently, the Contractor shall monitor air quality within the work area to ascertain the protection of employees and to comply with OSHA regulations.

B. The Consultant's air sampling professional may collect and analyze air samples during the following time period:

1. Abatement Period. If required, the Consultant's project monitor shall collect air samples on a daily basis during the work period. A sufficient number of area air samples shall be collected upwind and downwind of the work area, waste debris chute (if applicable) and the building exterior to evaluate the degree of cleanliness or contamination of the building during removal. Additional air samples may be collected inside the work zone and decontamination system, at the discretion of the project monitor.

C. The Consultant's project monitor may provide evaluation of the air quality outside the building during removal, using their best professional judgment in respect to the CTDPH guideline of 0.010 f/cc.

D. If the project monitor determines that the air quality has become contaminated from the project, they shall immediately inform the Contractor to cease all removal operations and implement a work stoppage clean up procedure. The Contractor shall conduct a thorough cleanup of the building areas designated by the Consultant. No further removal work may occur until the project monitor has assessed that the building air has been decontaminated.

E. Abatement air samples shall be collected as required to obtain a volume of 1,200 liters of air. Air samples shall be analyzed by PCM NIOSH Method 7400 sampling protocol.

3.6 CONSULTANT'S INSPECTION RESPONSIBILITIES

A. Consultant may conduct inspections throughout the progress of the abatement project. Inspections shall be conducted to document the progress of the abatement work, as well as the procedures and practices employed by the Contractor.

B. The Consultant may perform the following inspections during the course of abatement activities:

1. Pre-commencement Inspection. Pre-commencement inspections shall be performed at the time requested by the abatement Contractor. The Consultant shall be informed a minimum of 12-hours prior to the time the inspection is required. If, during the course of the pre-commencement inspection, deficiencies are identified, the Contractor shall perform the necessary adjustments to obtain compliance.
2. Work Area Inspection. Work area inspections shall be conducted on a daily basis at the discretion of the Consultant. During the course of the work inspections, the Consultant shall observe the Contractor's removal methods and procedures, verify barrier integrity, monitor negative air filtration devices, assess project progress, and inform the Contractor of specific remedial activities if deficiencies are noted.

C. The Consultant shall perform the following inspection during the course of abatement activities:

1. Final Visual Inspection. Upon request of the Contractor, the Consultant shall conduct a final work area visual inspection. If residual dust or debris is identified during the course of the final inspection, the Contractor shall comply with the request of the Consultant to render the area "dust free."

3.7 ASBESTOS DISPOSAL

A. ACM disposal or asbestos-contaminated material disposal must be in compliance with requirements of and authorized by DEEP and CTDPH.

B. The Contractor shall obtain disposal approvals before commencing asbestos abatement.

C. A copy of approved disposal authorization shall be provided to the Owner and Consultant and any required federal, state, or local agencies.

D. The Consultant will retain copies of all Waste Shipment Records as part of the project file. On receipt, the landfill operator will sign the receipts, and the quantity of asbestos debris leaving the Site and arriving at the landfill must be consistent and acknowledged.

E. All asbestos debris shall be transported in covered, sealed vans, boxes, or dumpsters that are physically isolated from the driver by an airtight barrier. All vehicles must be properly licensed to meet DOT requirements.

F. Any vehicles used to store or transport ACM will either be removed from the property at night, or shall be securely locked and posted to prevent disturbance.

G. Any incident and/or accident that may result in spilling, exposure or environmental release of asbestos waste outside the work area, on and off the property, and all related issues shall be the sole responsibility of the Contractor.

END OF SECTION

LIMITED ASBESTOS PRE-RENOVATION SURVEY REPORT

INSPECTION SITE:	Roof Systems Dwight Elementary School Fairfield, CT
CLIENT:	Hoffman Architects Inc. Attn. Deborah J. Costantini 2321 Whitney Avenue Hamden, CT 06518
INSPECTOR:	Ryan Ebenhack (CT Inspector License #000418)
INSPECTION DATE:	June 6, 2012
BUILDING TYPES:	School
SAMPLES COLLECTED:	43 collected / 42 analyzed

BACKGROUND

The building at the above referenced location is slated for upcoming roof renovation work. Hoffman Architects contacted HYGENIX, Inc. to document the presence of asbestos-containing building materials (ACBM'S), and to comment on the impact these materials will have on the proposed roof project. The results of the asbestos survey are presented in this report.

ASBESTOS SAMPLING PROTOCOL

From each homogeneous area or building system, the inspectors collected representative "bulk" samples of construction materials suspected to contain asbestos.

Samples of suspect materials were analyzed at AmeriSci New York by polarized light microscopy (PLM) in accordance with EPA procedures. The National Voluntary Laboratory Approval Program (NVLAP) accredits AmeriSci New York to perform bulk asbestos analysis. Mrs. Costantini did not request the roof shingles from the peaked roof be tested / included in this inspection at this time.

INTERPRETATION OF TEST RESULTS

The regulations of CT Department of Public Health and the US EPA define ***asbestos containing materials*** (ACM's) as materials containing greater than 1-% asbestos. If one or more bulk samples of a homogeneous material are found to contain greater than 1-% asbestos, then all of the homogeneous material is classified as ACM. The US OSHA Asbestos Construction Industry Standard requires designation as ***presumed asbestos containing materials*** (PACM's), all surfacing materials and thermal system insulation which have not been tested, or for which the number of samples collected and analyzed was less than the previously listed minimums. This requirement does not apply if the building in which the material is found was constructed after 1980. The results of the PLM laboratory testing are summarized in Appendix A.

GENERAL DISCUSSION - ASBESTOS ABATEMENT REGULATIONS

Asbestos management and abatement activities in the State of Connecticut are governed by the following State and federal regulations:

1. US EPA National Emission Standards for Hazardous Air Pollutants (NESHAPs)

The NESHAPs regulations for asbestos prohibit the emission of airborne asbestos dust to the environment. These regulations require notification of the regional office of US EPA at least 10 days in advance of an asbestos abatement project involving more than 260 linear feet, 160 square feet, or 35 cubic feet of material containing more than 1% asbestos. The NESHAPs regulations require the asbestos-containing materials to be kept in a wet condition during handling and removal, and specify requirements for labeling, transport and disposal of asbestos waste.

2. US OSHA Asbestos Construction Industry Standard

The OSHA Asbestos Construction Industry Standard protects workers who may be exposed to asbestos in construction. The OSHA standard specifies permissible exposure limits, and procedures for handling various forms and quantities of asbestos containing building materials. The standard describes regulated areas, exposure monitoring, respiratory protection and protective clothing, hygiene facilities, hazard communication, housekeeping, medical surveillance, record keeping, and worker training requirements.

3. CT DOPH CT Standards for Asbestos Abatement

The CT regulations describe the allowable procedures for asbestos abatement, licensing of personnel involved in asbestos abatement, and reoccupancy testing requirements. A 10-day advance notification of the agency is required for asbestos removal projects involving more than 25 square feet or 10 linear feet of interior friable and/or non-friable asbestos-containing material.

PRE-RENOVATION INVENTORY OF ASBESTOS CONTAINING BUILDING MATERIALS:

The asbestos containing roofing material must be properly removed from the building by a trained asbestos abatement contractor, following applicable EPA and OSHA regulations. A final clearance inspection needs to be performed to verify the removal of the asbestos materials.

ACBM Description	Location (s) in Building	Estimated Quantity	Comments (Tested or Assumed)
Roof tar / cement (Roof flashing)	Roof D Appendix B – Site Sketch	325 sq ft	Roof D - Present around all penetrations, roof drains, and perimeter

INVENTORY OF NON-ASBESTOS CONTAINING BUILDING MATERIALS:

- Peaked roof tar
- Roof B field & flashing
- Roof C field & flashing
- Roof E
- Roof F field & flashing
- Roof G
- Caulking
- Tar on wood under roofing
- Building paper under roofing

DISCLAIMER

HYGENIX, Inc. has performed its services, within the limits prescribed by our clients, with the usual thoroughness and competence of the industrial hygiene profession.

The findings in this report are based upon observations and information available to the inspector during the time of the rendering of the services as described in this report and are based on procedures currently required by applicable laws, regulations and ordinances. HYGENIX cannot be responsible for conditions or materials the inspector did not observe due to lack of access or was not otherwise reasonably observable. The conclusions in this report are professional opinions based solely upon these findings. The findings and conclusions are intended exclusively for the purpose outlined herein within the scope of work and at the site location and project indicated.

This report is for the sole use of the client. The scope of work performed in execution of this inspection may not be appropriate to satisfy the needs of other users and any reuse of this document or the findings, conclusions, or recommendations presented herein is at the sole risk of said user.

Ryan Ebenhack
HYGENIX, Inc.

6/21/12
Date

APPENDIX A

PLM BULK ASBESTOS ANALYSIS REPORTS

AMERI SCI

AmeriSci New York
117 EAST 30TH ST.
NEW YORK, NY 10016
TEL: (212) 679-8600 • FAX: (212) 679-3114

PLM Bulk Asbestos Report

Hygenix, Inc.
Attn: Robert Brown
49 Woodside Street

Stamford, CT 06902

Date Received 06/07/12 **AmeriSci Job #** 212062053
Date Examined 06/12/12 **P.O. #**
Page 1 **of** 8

RE: Hoffman Architects; T. Dwight Elementary School, Fairfield, CT

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
A-01	212062053-01	*No*	NAD (by CVES) by David W. Roderick on 06/12/12
	Location: Peaked Roof, Roof Tar		
Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Cellulose 10 %, Non-fibrous 90 %			
A-02	212062053-02	*No*	NAD (by CVES) by David W. Roderick on 06/12/12
	Location: Peaked Roof, Roof Tar		
Analyst Description: Grey, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 100 %			
A-03	212062053-03	*No*	NAD (by CVES) by David W. Roderick on 06/12/12
	Location: Peaked Roof, Roof Tar		
Analyst Description: Grey, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 100 %			
G-04	212062053-04	*No*	NAD (by CVES) by David W. Roderick on 06/12/12
	Location: Roof 6, Roofing		
Analyst Description: Black, Homogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Fibrous glass 25 %, Non-fibrous 75 %			
G-05	212062053-05	*No*	NAD (by CVES) by David W. Roderick on 06/12/12
	Location: Roof G Seam, Roofing		
Analyst Description: Black, Homogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Fibrous glass 25 %, Non-fibrous 75 %			

See Reporting notes on last page

PLM Bulk Asbestos Report

Hoffman Architects; T. Dwight Elementary School, Fairfield, CT

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
06	212062053-06	*No*	NAD (by CVES) by David W. Roderick on 06/12/12
Location: Roof G Patch, Roofing			
Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Synthetic fibers 10 %, Non-fibrous 90 %			
E-07	212062053-07	*No*	NAD (by CVES) by David W. Roderick on 06/12/12
Location: Roof E, Field Adj Drain, Roofing			
Analyst Description: Silver/Black, Heterogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Fibrous glass 5 %, Synthetic fibers 10 %, Non-fibrous 85 %			
E-08	212062053-08	*No*	NAD (by CVES) by David W. Roderick on 06/12/12
Location: Roof E, Seam Btw Roof D, Roofing			
Analyst Description: Silver/Black, Heterogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Fibrous glass 5 %, Synthetic fibers 10 %, Non-fibrous 85 %			
E-09	212062053-09	*No*	NAD (by CVES) by David W. Roderick on 06/12/12
Location: Roof E Adj Drain, Roofing			
Analyst Description: Silver/Black, Heterogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Synthetic fibers 10 %, Non-fibrous 90 %			
F-10	212062053-10	*No*	NAD (by CVES) by David W. Roderick on 06/12/12
Location: Roof F Field, Roof Field			
Analyst Description: Black, Homogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Fibrous glass 40 %, Non-fibrous 60 %			
F-11	212062053-11	*No*	NAD (by CVES) by David W. Roderick on 06/12/12
Location: Roof F Field, Roof Field			
Analyst Description: Black, Homogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Fibrous glass 40 %, Non-fibrous 60 %			

See Reporting notes on last page

PLM Bulk Asbestos Report

Hoffman Architects; T. Dwight Elementary School, Fairfield, CT

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
F-12	212062053-12	*No*	NAD (by CVES) by David W. Roderick on 06/12/12
	Location: Roof F Field, Roof Field		
Analyst Description: Black, Homogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Fibrous glass 40 %, Non-fibrous 60 %			
F-13	212062053-13	*No*	NAD (by CVES) by David W. Roderick on 06/12/12
	Location: Roof Skylight, Roof Tar		
Analyst Description: Black/Brown, Heterogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Cellulose 35 %, Fibrous glass 10 %, Non-fibrous 55 %			
F-14	212062053-14	*No*	NAD (by CVES) by David W. Roderick on 06/12/12
	Location: Roof East, Roof Tar		
Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Fibrous glass 5 %, Non-fibrous 95 %			
F-15	212062053-15	*No*	NAD (by CVES) by David W. Roderick on 06/12/12
	Location: Roof HVAC Unit, Roof Tar		
Analyst Description: Black, Homogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Cellulose 15 %, Non-fibrous 85 %			
D-1	212062053-16	*No*	NAD (by CVES) by David W. Roderick on 06/12/12
	Location: Roof D, Roof Field		
Analyst Description: Black/Brown, Heterogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Cellulose 40 %, Fibrous glass 10 %, Non-fibrous 50 %			
D-2	212062053-17	*No*	NAD (by CVES) by David W. Roderick on 06/12/12
	Location: Roof D, Roof Field		
Analyst Description: Black/Brown, Heterogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Cellulose 15 %, Fibrous glass 25 %, Non-fibrous 60 %			

See Reporting notes on last page

PLM Bulk Asbestos Report

Hoffman Architects; T. Dwight Elementary School, Fairfield, CT

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
D-3	212062053-18	*No*	NAD
	Location: Roof D, Roof Field		(by CVES) by David W. Roderick on 06/12/12
	Analyst Description: Black/Brown, Heterogeneous, Fibrous, Bulk Material		
	Asbestos Types:		
	Other Material: Cellulose 15 %, Fibrous glass 25 %, Non-fibrous 60 %		
D-4	212062053-19	*Yes*	Trace (<1 %)
1	**Location:** Roof D Drain, Roof Tar		(by CVES) by David W. Roderick on 06/12/12
	Analyst Description: Black, Homogeneous, Fibrous, Bulk Material		
	Asbestos Types: Chrysotile <1. %		
	Other Material: Fibrous glass 10 %, Non-fibrous 90 %		
D-5	212062053-20	*Yes*	5 %
1	**Location:** Roof D Skylight, Roof Tar		(by CVES) by David W. Roderick on 06/12/12
	Analyst Description: Black, Homogeneous, Fibrous, Bulk Material		
	Asbestos Types: Chrysotile 5.0 %		
	Other Material: Fibrous glass 5 %, Non-fibrous 90 %		
D-6	212062053-21		NA/PS
1	**Location:** Roof D Edge, Roof Tar		
	Analyst Description: Bulk Material		
	Asbestos Types:		
	Other Material:		
B-01	212062053-22	*No*	NAD
	Location: Roof B, Roof Field		(by CVES) by David W. Roderick on 06/12/12
	Analyst Description: Black/Brown, Heterogeneous, Fibrous, Bulk Material		
	Asbestos Types:		
	Other Material: Cellulose 10 %, Fibrous glass 40 %, Non-fibrous 50 %		
B-02	212062053-23	*No*	NAD
	Location: Roof B Adj Pitched Roof, Roof Field		(by CVES) by David W. Roderick on 06/12/12
	Analyst Description: Black/Brown, Heterogeneous, Fibrous, Bulk Material		
	Asbestos Types:		
	Other Material: Cellulose 10 %, Fibrous glass 40 %, Non-fibrous 50 %		

See Reporting notes on last page

PLM Bulk Asbestos Report

Hoffman Architects; T. Dwight Elementary School, Fairfield, CT

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
B-03	212062053-24	*No*	NAD (by CVES) by David W. Roderick on 06/12/12
Location: Roof B, Roof Field			
Analyst Description: Black/Brown, Heterogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Cellulose 10 %, Fibrous glass 40 %, Non-fibrous 50 %			
B-04	212062053-25	*No*	NAD (by CVES) by David W. Roderick on 06/12/12
Location: Roof B Edge / Seam, Roof Tar			
Analyst Description: Black, Homogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Fibrous glass 30 %, Synthetic fibers 10 %, Non-fibrous 60 %			
B-05	212062053-26	*No*	NAD (by CVES) by David W. Roderick on 06/12/12
Location: Roof B Seam, Roof Tar			
Analyst Description: Black, Homogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Fibrous glass 25 %, Synthetic fibers 20 %, Non-fibrous 55 %			
B-06	212062053-27	*No*	NAD (by CVES) by David W. Roderick on 06/12/12
Location: Roof B Penetration, Roof Tar			
Analyst Description: Black, Homogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Fibrous glass 10 %, Synthetic fibers 30 %, Non-fibrous 60 %			
C-01	212062053-28	*No*	NAD (by CVES) by David W. Roderick on 06/12/12
Location: Roof C, Roof Field			
Analyst Description: Black, Homogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Fibrous glass 15 %, Non-fibrous 85 %			
C-02	212062053-29	*No*	NAD (by CVES) by David W. Roderick on 06/12/12
Location: Roof C, Roof Field			
Analyst Description: Black/Brown, Heterogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Cellulose 10 %, Fibrous glass 50 %, Non-fibrous 40 %			

See Reporting notes on last page

PLM Bulk Asbestos Report

Hoffman Architects; T. Dwight Elementary School, Fairfield, CT

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
C-04	212062053-30	*No*	NAD (by CVES) by David W. Roderick on 06/12/12
Location: Roof C Edge, Roof Tar			
Analyst Description: Black, Homogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Cellulose 10 %, Synthetic fibers 5 %, Non-fibrous 85 %			
C-05	212062053-31	*No*	NAD (by CVES) by David W. Roderick on 06/12/12
Location: Roof C Corner, Roof Tar			
Analyst Description: Black, Homogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Cellulose 25 %, Non-fibrous 75 %			
66-32	212062053-32	*No*	NAD (by CVES) by David W. Roderick on 06/12/12
Location: Roof B Adj Roof F, Building Paper			
Analyst Description: Black, Homogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Cellulose 65 %, Non-fibrous 35 %			
66-33	212062053-33	*No*	NAD (by CVES) by David W. Roderick on 06/12/12
Location: Roof B Adj Drain, Building Paper W/Tar			
Analyst Description: Black, Homogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Cellulose 30 %, Non-fibrous 70 %			
66-34	212062053-34	*No*	NAD (by CVES) by David W. Roderick on 06/12/12
Location: Roof C, Building Paper			
Analyst Description: Black, Homogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Cellulose 65 %, Non-fibrous 35 %			
66-35	212062053-35	*No*	NAD (by CVES) by David W. Roderick on 06/12/12
Location: Roof D @ Skylight, Building Paper			
Analyst Description: Black, Homogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Cellulose 65 %, Non-fibrous 35 %			

See Reporting notes on last page

PLM Bulk Asbestos Report

Hoffman Architects; T. Dwight Elementary School, Fairfield, CT

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
66-36	212062053-36	*No*	NAD (by CVES) by David W. Roderick on 06/12/12
	Location: Roof H @ Edge, Building Paper		
Analyst Description: Black, Homogeneous, Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Fibrous glass 50 %, Non-fibrous 50 %			
66-37	212062053-37	*No*	NAD (by CVES) by David W. Roderick on 06/12/12
	Location: Roof B, Tar On Wood		
Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 100 %			
66-38	212062053-38	*No*	NAD (by CVES) by David W. Roderick on 06/12/12
	Location: Roof C, Tar On Wood		
Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 100 %			
66-39	212062053-39	*No*	NAD (by CVES) by David W. Roderick on 06/12/12
	Location: Roof D, Tar On Wood		
Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 100 %			
66-40	212062053-40	*No*	NAD (by CVES) by David W. Roderick on 06/12/12
	Location: Roof H, Tar On Wood		
Analyst Description: Black, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 100 %			
66-41	212062053-41	*No*	NAD (by CVES) by David W. Roderick on 06/12/12
	Location: Roof B Adj Roof D & Peaked, Caulk		
Analyst Description: Grey, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 100 %			

See Reporting notes on last page

PLM Bulk Asbestos Report

Hoffman Architects; T. Dwight Elementary School, Fairfield, CT

Client No. / HGA	Lab No.	Asbestos Present	Total % Asbestos
66-42	212062053-42	*No*	NAD (by CVES) by David W. Roderick on 06/12/12
Location: Roof C Adj Vent Roof & Peaked, Caulk			
Analyst Description: Grey, Homogeneous, Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 100 %			
66-43	212062053-43	*No*	NAD (by CVES) by David W. Roderick on 06/12/12
Location: Roof D Adj Chimney, Caulk			
Analyst Description: Grey, Homogeneous Non-Fibrous, Bulk Material **Asbestos Types:** **Other Material:** Non-fibrous 100 %			

Reporting Notes:

Analyzed by: David W. Roderick

*NAD/NSD =no asbestos detected; NA =not analyzed; NA/PS=not analyzed/positive stop; PLM Bulk Asbestos Analysis by EPA 600/M4-82-020 per 40 CFR 763 (NVLAP Lab Code 200546-0), ELAP PLM Method 198.1 for NY friable samples or 198.6 for NOB samples (NY ELAP Lab ID11480); Note:PLM is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound materials. NAD or Trace results by PLM are inconclusive, TEM is currently the only method that can be used to determine if this material can be considered or treated as non asbestos-containing in NY State (also see EPA Advisory for floor tile, FR 59,146,38970,8/1/94) National Institute of Standards and Technology Accreditation requirements mandate that this report must not be reproduced except in full without the approval of the lab.This PLM report relates ONLY to the items tested. AIHA Lab # 102843 RI Cert#AAL-094, CT Cert#PH-0186, Mass Cert#AA000054.

Reviewed By:_____ _____END OF REPORT_____

Please e-mail results to
rebenhack@hygenix.com
only! – Thank you ☺

21206205 3

ASBESTOS PLM BULK SAMPLE LOG

Client:

Site:

Type: PLM

Tech:

Date:

HYGENIX, Inc.

Environmental Consulting & Laboratory Services
49 Woodside Street
Stamford, CT 06902
(203) 324-2222 (phone) (203) 324-3876 (fax)

LAB ID#	SAMPLE #	SAMPLING LOCATION	DESCRIPTION	QTY.	RESULT

CHAIN OF CUSTODY

Relinquished By:	Date/Time:	Received By:	Date/Time:

Notes:

1346

Please e-mail results to
rebenhack@hygenix.com
only! – Thank you ☺

2120620S3

ASBESTOS PLM BULK SAMPLE LOG

Client:

Site:

Type: PLM

Tech:

Date:

HYGENIX, Inc.
Environmental Consulting & Laboratory Services
49 Woodside Street
Stamford, CT 06902
(203) 324-2222 (phone) (203) 324-3876 (fax)

LAB ID#	SAMPLE #	SAMPLING LOCATION	DESCRIPTION	QTY.	RESULT

CHAIN OF CUSTODY

Relinquished By:	Date/Time:	Received By:	Date/Time:
Ebenhack	6/6/12		

Notes:

66-37
66-38
66-39
66-40
66-41
66-42
66-43

Roof B
Roof C
Roof D
Roof H
Roof B
Roof C
Roof D

Hdj. roof D, pocketed
Hdj. vent, roof C, pocketed
Hdj. Chimney

Tar on wood
↓
Caulk
↓

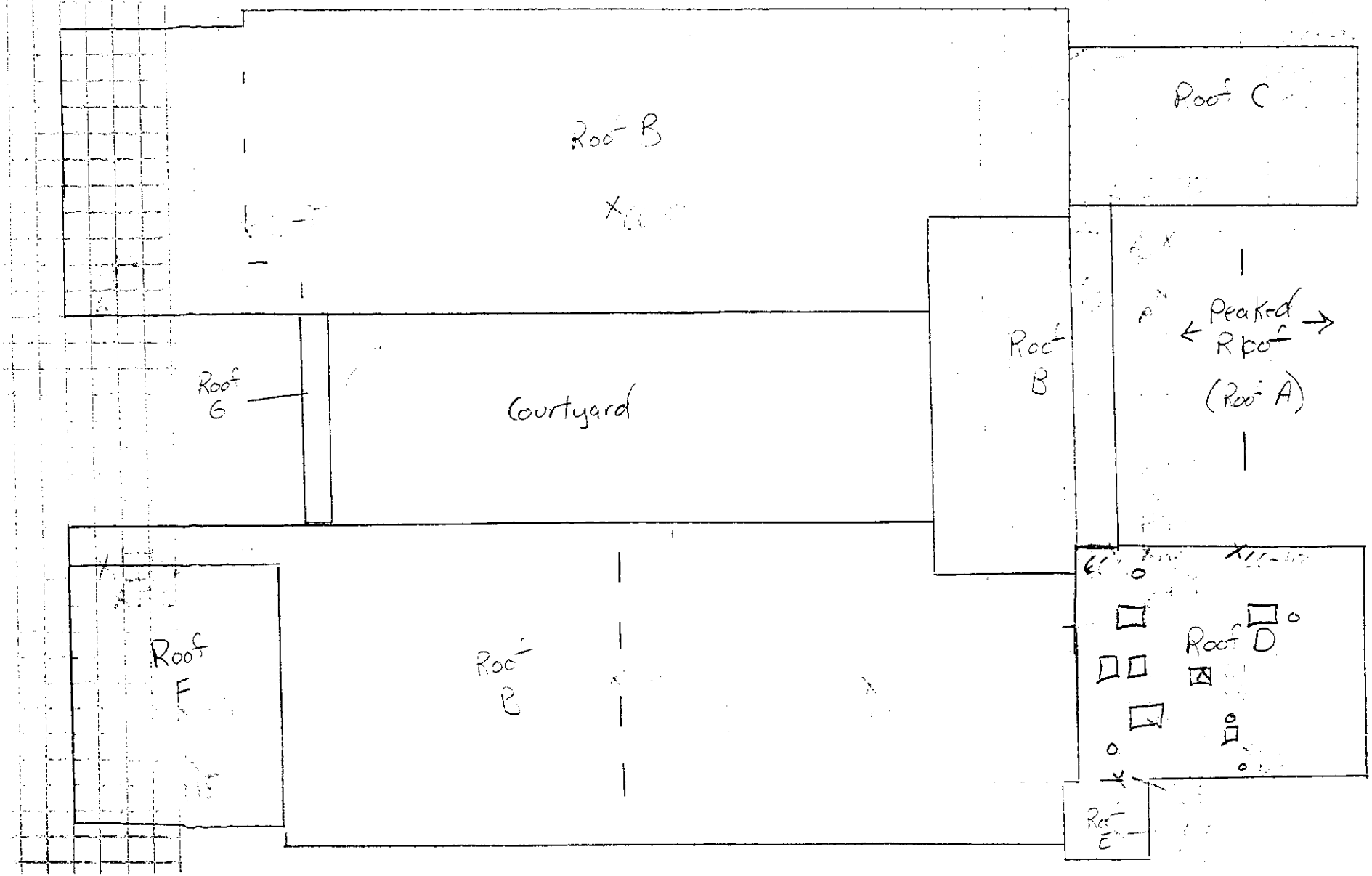
APPENDIX B

SITE SKETCH

Site Sketch

Dwight Elementary School
Fairfield, CT

Key
X - Sample location
X - Sample > 1% asbestos
Asbestos roof tar
roof cement



1 PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Blocking in roof openings and framing
B. Plywood sheathing
C. Preservative treatment of wood

1.2 RELATED SECTIONS

A. Section 07212 – Roof Insulation Board
B. Section 07525 – Modified Bituminous Sheet Roofing
C. Section 07600 – Flashing and Sheet Metal
D. Section 07810 - Skylights
E. Section 07900 – Sealants

1.3 REFERENCES

A. Reference Standards: The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

1. American Society of Mechanical Engineers (ASME) Publications:

B18.2.1-10	Square, Hex, Heavy Hex and Askew Head Bolts and Hex, Heavy Hex, Hex Flange, Lobed Head and Lag Screws (Inch Series)
B18.6.1-81	Wood Screws (Inch Series)

2. American Wood Preservers' Association (AWPA) Standards:

T1-11	Processing and Treatment Standard
M6-07	Brands Used on Preservative Treated Materials

3. American Society for Testing and Materials (ASTM) Publications:

A 36-08	Carbon Structural Steel
A 307-10	Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength
F 1667-11	Driven Fasteners: Nails, Spikes, and Staples

4. Federal Specifications (FS) Publications:

A-A-1922A-95	Shield, Expansion (Caulking Anchors, Single Lead)

1.4 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: Provide technical data on wood preservative materials and application instructions.

C. Certificates of Grade: Attesting that products meet the grade requirements specified in lieu of grade markings where appearance is important and grade marks will deface material.

1.5 DELIVERY AND STORAGE

A. Deliver materials to the site in an undamaged condition. Carefully store materials off the ground to provide proper ventilation, drainage and protection against dampness. Remove defective and damaged materials and provide new materials.

1.6 GRADING AND MARKING

A. Lumber: Mark each piece of board lumber or each bundle of small pieces of lumber with the grade mark of a recognized association or independent inspection agency. Such association or agency shall be certified by the Board of Review, American Lumber Standards Committee, to grade the species used.

B. Preservative-Treated Lumber and Plywood: The Contractor shall be responsible for the quality of treated wood products. Each treated piece shall be permanently marked or branded, by the producer, in accordance with AWPA M6. The Contractor shall provide the Owner with the inspection report of an independent inspection agency, approved by the Owner, that offered products comply with applicable AWPA Standards. The AWPB Quality Mark "LP-22" on each piece will be accepted, in lieu of inspection reports, as evidence of compliance with applicable AWPA treatment standards.

C. Fire-Retardant Treated Lumber: Mark each piece in accordance with Mil. Spec. MIL-L-19140, except pieces that are to be natural or transparent finished. In addition, exterior fire-retardant lumber shall be distinguished by a permanent penetrating blue stain. Labels of a nationally recognized independent testing agency will be accepted as evidence of conformance to the fire-retardant requirements of Mil. Spec. MIL-L-19140.

1.7 SIZES AND SURFACING: Lumber shall be surfaced four (4) sides. Size references, unless otherwise specified, are nominal sizes, and actual sizes shall be within manufacturing tolerances allowed by the standard under which the product is produced.

1.8 MOISTURE CONTENT: Air-dry or kiln-dry lumber. Kiln-dry treated lumber after treatment. Maximum moisture content of wood products shall be as follows at the time of delivery to the job site:

A. Lumber and Boards: Nineteen percent (19%) maximum.
B. Materials other than lumber – Moisture content shall be in accordance with standard under which the product is produced.

1.9 PRESERVATIVE TREATMENT

A. Lumber and plywood shall be treated in accordance with T1. All wood shall be air or kiln dried after treatment. Specific treatments shall be verified by the report of an approved independent inspection agency, or the AWPB Quality Mark on each piece. Do not incise surfaces of lumber that will be exposed. Brush coat areas that are cut or drilled after treatment with either the same preservative used in the treatment or with a two percent (2%) copper napthenate solution. The following items shall be preservative treated:

1. Wood blocking and sills that are less than 24 inches from the ground and/or set into or in contact with concrete or masonry.

1.10 QUALITY ASSURANCE

A. Perform Work in accordance with the following agencies:

1. Lumber Grading Agency: Certified by ALSC.

2 PART 2 – PRODUCTS

2.1 ROUGH LUMBER

A. Lumber: Preservative treated lumber such as nailing strips, nailers, blocking, framing and board lumber shall be one (1) of the species listed in the table below. Minimum grade of species shall be as listed. Finger-jointed lumber may be used in the same applications as solid lumber of an equivalent species and grade, provided the finger-jointed lumber meets all the requirements of the certification and the quality control programs of the rules writing agency having jurisdiction and all applicable requirements of PS 56.

Table of Grades for Framing and Board Lumber

Grading Rules	Species	Framing/Board Lumber
WWPA standard 1 grading rules No. 3 Common	Mountain Hemlock Douglas Fir-Larch Douglas Fir South	All Species: Standard Light Framing or No. 3 Structural Light Framing

		(Stud Grade for 2 x 4 size, 10 feet and shorter)
WCLIB standard grading rules	Douglas Fir-Larch Hem-Fir	All Species: Standard Light Standard

2.2 PLYWOOD: Conform to the requirements of U.S. Product Standard PS 1 and the American Plywood Association. Products conforming to equivalent grading by TECO or Pittsburgh Testing Laboratory is also approved. Do not use particle panel products or other fabricated wood products. All plywood is to be glued and screwed.

A. Plywood Sheathing: C-D Grade, Exposure 1, fire treated, thickness as indicated on the Drawings.

2.3 ROUGH HARDWARE: Unless otherwise indicated or specified, rough hardware shall be of the type and size necessary for the project requirements. Sizes, types and spacing of fastenings of manufactured building materials shall be as recommended by the product manufacturer unless otherwise indicated or specified. Rough hardware exposed to the weather or embedded in or in contact with preservative treated wood, exterior masonry or concrete slabs shall be zinc-coated.

A. Bolts and Nuts: ASTM A 307.

B. Expansion Anchors: FS A-A-1922A; except as shown otherwise, maximum size of devices in Groups IV, V, VI and VII shall be as indicated on the drawings.

C. Adhesive Anchors: ASTM A 36; the adhesive capsules shall contain a vinylester resin as supplied in then Hilti HEA adhesive capsule.

D. Lag Screws and Lag Bolts: ANSI B18.2.1.

E. Wood Screws: ANSI B18.6.1.

F. Wire Nails: ASTM F 16

3 PART 3 – EXECUTION

3.1 INSTALLATION

A. Fit rough carpentry, set accurately to the required lines and levels and secure in place in a rigid manner. Provide as necessary for the proper completion of the work all framing members not indicated or specified. Spiking and nailing not indicated or specified otherwise shall be in accordance with the Nailing Schedule contained in UBC; perform bolting in an approved manner. Spikes, nails and bolts shall be drawn up tight.

B. Construct curb members of single pieces.

C. Curb roof openings except where prefabricated curbs exist. Form corners by alternating lapping side members.

D. Sills: Set sills level and square and wedge with steel or slate shims; point or grout with non-shrinking cement mortar to provide continuous and solid bearing. Anchor sills to the foundations as indicated. Provide at least two (2) bolts for each sill member. Lap and splice sills at corners and bolt through the laps or butt the ends and through-bolt not more than 6 inches from the ends. Provide bolts with plate washers and nuts. Bolts in exterior walls shall be zinc-coated.

E. Anchors in Masonry: Except where indicated otherwise, embed anchor bolts not less than 15 inches in masonry unit walls and provide each with a nut and a 2-inch-diameter washer at bottom end. Fully grout bolts with mortar.

F. Anchors in Concrete: Except where indicated otherwise, embed anchor bolts as indicated on the drawings in poured concrete walls and provide each with a nut and a 2-inch-diameter washer at bottom end. A bent end may be substituted for the nut and washer; bend shall be not less than 90 degrees.

G. Miscellaneous

1. Wood Blocking: Provide proper sizes and shapes at proper locations for the installation and attachment of wood and other finish materials, fixtures, equipment and items indicated or specified.
2. Wood Roof Nailers, Edge Strips and Curbs: Provide sizes and configurations indicated or specified and anchored securely to continuous construction.
3. Roof Edge Strips and Nailers: Provide at perimeter of roof, around openings through roof and where roofs abut walls, curbs and other vertical surfaces. Except where indicated otherwise, nailers shall be 6 inches wide and the same thickness as the insulation. Strips shall be grooved for edge venting; install at walls, curbs and other vertical surfaces with a ¼ to ½ inch air space. Where applicable, utilize existing anchor bolts that are firmly welded or attached to roof structural elements to anchor the base members before applying additional blocking. Provide additional galvanized nuts and washers as required to complement the existing anchor bolts. In the event that the perimeter wood blocking on the roof cannot be fastened to the structure utilizing existing anchor bolts or fasteners, the fastening schedule and details shall be completed in accordance with NRCA standards, which incorporates the Factory Mutual Loss Prevention Data Sheet 1-49 (1985) for perimeter flashing.
4. Curbs: Provide wood curbs for scuttles and ventilators and wood nailers bolted to tops of masonry curbs and at expansion joints, as indicated.

3.2 SITE APPLIED WOOD TREATMENT

A. Apply preservative treatment in accordance with manufacturer's instructions.

B. Brush apply one (1) coat of preservative treatment on wood in contact with cementitious materials, roofing and related metal flashing. Treat site-sawn cuts.

C. Allow preservative to dry prior to erecting members.

END OF SECTION

1 PART 1 – GENERAL

1.1 RELATED SECTIONS

A. Section 05300 – Metal Deck
B. Section 06100 – Rough Carpentry
C. Section 07525 – Modified Bituminous Sheet Roofing
D. Section 07565 – Roofing Removals and Preparation
E. Section 15410 – Plumbing Piping

1.2 REFERENCES

A. Reference Standards: The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

1. American Society for Testing and Materials (ASTM) Publications:

C 728-13	Perlite Thermal Insulation Board
C 1177-08	Glass Mat Gypsum Substrate for Use as Sheathing
D 4479-12	Asphalt Roof Coatings – Asbestos-Free
D 5643-06 (R 2012)	Coal Tar Roof Cement, Asbestos Free
E 84-13	Surface Burning Characteristics of Building Materials

2. Underwriters' Laboratories, Inc. (UL) Publication:

1256	Standard for Safety Fire Test of Roof Deck Constructions

3. Factory Mutual Engineering Corporation (FM) Publications:

4450	Approval Standard for Class 1 Insulated Steel Deck Roofs

1.3 QUALIFICATION OF INSTALLER: Certified by the manufacturer as qualified to install roof insulation systems.

1.4 SUBMITTALS

A. Samples: One (1) not larger than 12 inches square of each type of proposed insulating material.

B. Shop Drawings: Show complete description of the procedures for the installation of the roof insulation system indicating the type of materials, thicknesses, location of ridges and valleys, special methods for cutting and fitting of insulation and special precautions. Manufacturer's drawings based on field measurements may be submitted to supplement the information shown on the shop drawings. Provide

calculations verifying the total "U" value of the insulation assembly.

C. Certified Test Reports: Flame spread and smoke developed ratings for insulation in accordance with ASTM E 84 and FM 4450 and/or UL 1256. Provide certifications that materials or systems conform to listed UL and material/manufacturing standards as listed in this section per Section 1508 of the 2005 CSBC.

D. Manufacturer's Recommendations: Two (2) current copies of insulation manufacturer's recommendations for the following:

1. Location and spacing of wood nailers.
2. Type of insulation material(s).

E. Delivery and Storage:

1. Delivery: In compliance with Section 2603.2 of the 2005 Connecticut State Building Code (CSBC), deliver materials to the site in original sealed containers or packages bearing manufacturer's name and brand designation. Where materials are covered by a referenced specification, containers or packages shall bear specification number, type and class as applicable. Deliver materials in sufficient quantity to allow continuity of work.
2. Storage: Store, handle and install materials in a manner to protect them from damage, exposure to open flame or other ignition sources and from wetting and moisture absorption during entire construction period. Store materials on pallets or platforms and cover with waterproof tarpaulins. For twenty-four (24) hours immediately before laying, store felt rolls on ends in an area maintained at a temperature above 49 degrees F. Bundle insulation board by manufacturer's identity codes. Replace damaged material with new material.

1.5 ENVIRONMENTAL CONDITIONS: Do not install roof insulation during inclement weather or when air temperature is below 40 degrees F or is expected to go below 40 degrees F, within twenty-four (24) hours after installation, or when there is ice, frost or dampness visible on the roof deck.

1.6 PROTECTION OF PROPERTY: Provide protection as specified herein and in the General Conditions of this project.

A. Protective Coverings: Install protective coverings at paving and building walls adjacent to hoist prior to starting the work. Lap protective coverings at least 6 inches, secure against wind and vent to prevent collection of moisture on covered surfaces. Maintain protective coverings in place for duration of roofing work.

B. Special Protection: Provide approved special protection or avoid heavy traffic on completed work when ambient temperature is above 80 degrees F.

C. Damaged Work and Materials: Restore work and materials damaged to their original condition or replace with new materials.

1.7 QUALITY ASSURANCE

A. The applicator shall be licensed by the roofing manufacturer and shall present evidence of certification in writing to the Owner before beginning the work.

B. The foreman of the crew performing the work of this Section shall be a qualified roofing journeyman with at least five (5) years experience in placing insulation roofing systems.

2 PART 2 – PRODUCTS

2.1 MATERIALS: Shall conform to the respective specifications and standards and to requirements specified herein.

A. Roof Insulation: One (1) of or an assembly of not more than three (3), of the following materials. Provide starter, flat boards and filler blocks as required to provide the total thickness of insulation necessary to meet the specified thermal conductance. Mitered joints shall be factory fabricated and shall consist of two (2) diagonally cut boards. Identify each piece of tapered insulation board by color or other identity coding system which will allow identifying the different sizes of tapered insulation board required to complete the roof insulation system. The top layer of insulation shall be a flat sheet of perlite or cover board.

1. Polyisocyanurate Board:

a. Firestone Building Products, Indianapolis, IN (800.428.4442); **ISO 95+/Rhoflex**
b. Celotex Corporation, Wayne, PA (800.235.6839); **Hy-Therm AP**
c. CertainTeed Commercial Roofing Systems, Valley Forge, PA (610.341.7000); **FlintBoard ISO**
d. Substitutions: Under provisions of Section 01600.

2. Expanded Perlite Board: ASTM C 728:

a. International Permalite, Inc.
b. Celotex Corporation; **Celo-Therm**
c. Substitutions: Under provisions of Section 01600.

3. Cover Board: ASTM C 1177, except the top surface of the insulation shall have an impact resistant, factory applied facing:

    a. Georgia-Pacific Corporation, Atlanta, GA (800.284.5347); **Dens-Deck**
    b. Substitutions: Under provisions of Section 01600.

B. Tapered insulation board shall be:

1. ¼ inch per foot tapered polyisocyanurate as indicated in the documents, manufactured by Firestone or approved equal.
2. ½ inch per foot tapered polyisocyanurate on counter slopes of polyisocyanurate to provide a minimum ¼ inch counter slope to valleys indicated in the drawings for positive drainage to the roof drains as manufactured by Firestone or approved equal.

C. Insulation Thickness: The entire insulation assembly shall provide minimum thermal values as translated from the thermal ratings indicated in the construction documents for the average thickness of the rigid insulation system (including tapered insulation @ ¼ inch per foot slope), except the thickness at the low point shall be not less than 1½ inches.

D. Fire Safety Requirements: Rigid insulation board shall have a flame spread rating not greater than 25 and a smoke developed rating not greater than 50, exclusive of facing, when tested in accordance with ASTM E 84. Insulation listed in the UL Building Materials Directory and bearing labels indicating compliance with the flame spread and smoke developed ratings specified will be accepted in lieu of copies of certified test reports. Compliance with flame spread and smoke developed ratings will not be required when the insulation has been tested as a part of a roof construction assembly of the type used for this project and the construction is listed as being Fire-Classified in the UL Building Materials Directory, or listed as Class I roof deck construction in the FM Approval Guide.

E. Preformed Cants and Tapered Edge Strips: Of the same material as the roof insulation. If unavailable, provide standard machine cut fiberboard strips or wood to suit the details as recommended by the roofing manufacturer.

F. Asphalt (Cold): ASTM D 4479 Type I, cold adhesive asphalt. Use only that asphalt which has all of the following information printed on the asphalt packages or on the bills of lading covering bulk asphalt.

1. Viscosity: 20,000 cps at 77 degrees Fahrenheit.
2. Flash Point: 115 degrees Fahrenheit.
3. VOC: 205 g/liter, utilizing mineral spirits as the solvent, and a minimum of eighty percent (80%) solids.

G. Asphalt Roof Cement: ASTM D 5643, Type I.

H. Adhesive: Two-component, polyurethane construction grade, low-rise expanding adhesive for bonding insulation to various substrates. Apply in beads or ribbons per manufacturers recommendations based on temperature and FM guidelines.

1. Manufacturers:
   a. OMG, Inc., Agawam, MA (800.633.3800); **OlyBond 500 SpotShot**
   b. Substitutions: Under provisions of Section 01600.

3 PART 3 – EXECUTION

3.1 CONDITION OF SURFACES

A. Inspection of Surfaces: Surfaces on which insulation is to be installed shall be clean, smooth and dry. Condition of surfaces shall be inspected and approved by the Owner immediately before installation is started.

B. Preparation of Surfaces: Correct all deficiencies in roof deck surfaces prior to start of work.

3.2 INSTALLATION

A. Keep roof insulating materials dry before, during and after installation. Keep insulation ½ inch clear of vertical surfaces penetrating and projecting from the roof surface.

B. Wood Nailers: Pressure preservative treated wood nailers for securing insulation or for nailing of roofing felts, are specified in Section 06100 – Rough Carpentry. Verify prior to the installation of insulation that nailers the same thickness as insulation have been provided at eaves, edges, curbs, walls and roof openings for securing gravel stops and flashing flanges.

C. Insulation

1. Insulation Installation: Lay insulation so that end joints of each course break with those of adjoining courses. When using multiple layers of insulation, joints of each succeeding layer shall be parallel and broken in both directions with respect to the layer below.

   a. Insulation on (Exposed) Metal Decks: Secure insulation to deck by adhering. Insulation joints parallel to ribs of deck shall occur on solid bearing surfaces only, not over open ribs. When multiple layers of insulation are used, ahere using cold applied asphalt the second layer and all succeeding layers as specified herein for adhering layers of

insulation in place.

b. Insulation over Top Surface of Polyisocyanurate Board: Install cover board or expanded perlite board over the top surface of the polyisocyanurate board. Adhere using cold applied asphalt the overlayment board as specified herein for adhering layers of insulation in place. Joints of the overlayment board shall be staggered at least 6 inches with respect to the polyisocyanurate board below.

c. Cant Strips: Where indicated, provide cant strips at intersections of the roof with walls, parapets and curbs extending above the roof. The face of cant strips shall have an incline of 45 degrees and the minimum dimensions shall be 4 inches by 4 inches. Cant strips shall bear on the wood nailers and fit flush against vertical surfaces. Where possible, nail cant strips to adjoining surfaces. Where cant strips are installed against non-nailable materials, set cant strips in asphalt roof cement.

d. Tapered Edge Strips: Where indicated, provide edge strips in the right-angle formed by the junction of the roof and wood nailing strips that extend above the level of the roof. Edge strips shall be tapered from top of wood nailing strips to approximately 1/8 inch at a slope of one to 1½ inches per foot. Install edge strips flush against vertical surfaces of wood nailing strips. Where possible, nail edge strips to adjoining surfaces. Where installed against non-nailable materials, set tapered edge strips in asphalt roof cement.

3.3 PROTECTION OF APPLIED INSULATION

A. Completely cover each day's installation of insulation with roofing as specified in Section 07525 – Modified Bituminous Sheet Roofing. Apply glaze coat at the rate of 10 pounds per 100 square feet of area. Protect open ends of each day's work with temporary water cut-offs; remove cut-offs when work is resumed. Protect open spaces between insulation and parapets or other walls and spaces at curbs and expansion joints, until permanent roofing and flashing is applied. Storing, walking, wheeling or trucking will not be permitted directly on insulation or on roofed surfaces. Board or plank walkways, runways and platforms shall be provided and located near supports, as necessary, to distribute weight to conform to indicated live load limits of roof construction.

END OF SECTION

1 PART 1 – GENERAL

1.1 RELATED SECTIONS

A. Section 06100 – Rough Carpentry
B. Section 07212 – Rigid Insulation Board
C. Section 07565 – Roofing Removals and Preparation
D. Section 07600 – Flashing and Sheet Metal
E. Section 07900 – Sealants
F. Section 15410 – Plumbing Piping

1.2 REFERENCES

A. Reference Standards: The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

1. American Society for Testing and Materials (ASTM) Publications:

D 41-11	Asphalt Primer Used in Roofing, Dampproofing and Waterproofing
D 4479-07 (R 2012)	Asphalt Roof Coatings—Asbestos-Free
D 6164-11	Styrene-Butadiene-Styrene (SBS) Modified Bituminous Sheet Materials Using Polyester Reinforcements

1.3 SYSTEM DESCRIPTION

A. Modified Bitumen Conventional Roofing System: Two (2) ply membrane system with mineral surface cap sheet finish, on flat and tapered insulations. The Systems will be provided and installed in accordance with the specified manufacturer's twenty (20) year guarantee roofing system. The Systems will be installed on insulated roof deck surfaces.

1.4 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing the products specified in this Section with five (5) years documented experience.

B. Applicator: Company specializing in performing the work of this Section with ten (10) years documented experience and approved by system manufacturer.

C. Work of this Section to conform to NRCA Roofing and Waterproofing Manual and the manufacturer's instructions.

1.5 REGULATORY REQUIREMENTS

A. Conform to current Connecticut State Building Code and Connecticut Fire Safety codes for roof assembly fire hazard requirements.

B. Underwriters Laboratories, Inc. (UL): Class C Fire Hazard Classification.

C. Factory Mutual Engineering & Research Corporation (FM): Roof Assembly Classification, of Noncombustible Construction, wind uplift requirement of I-60 for field, I-90 for perimeter, and I-120 for corners, in accordance with FM Property Loss Prevention Data Sheets 1-28.

1.6 QUALITY ASSURANCE

A. Provide manufacturer's written proof of the manufacturer's approved applicators status, submitted by the Contractor.

B. Upon completion, provide an inspection by a representative of the manufacturer in order to ascertain that the roofing system has been installed according to their published specifications and details, and the drawing details that have been approved by them which may be a slight variance to their published details or cover conditions for which they have no published details.

1. Guarantee shall be issued upon approval of the installation by the manufacturer and acceptance by the Owner, whichever shall occur later.

a. In no event shall the effective date of the guarantee predate the acceptable completion of all operations affecting the roof membrane and associated flashing, terminations and the like.

1.7 SUBMITTALS

A. Submit 3 inch by 5 inch samples of roofing membrane and accessories, with manufacturer's identification labels attached.

B. Submit manufacturer's application manual, which describes completely the preparation of surfaces and application of specified materials.

C. Submit shop drawings showing details, fabrication and fastening devices for each condition encountered.

D. Submit samples of each type of mechanical fastener and stress plate.

E. Submit specimen's of the manufacturer's roofing systems standard twenty (20) year guarantee.

F. Letter from the membrane system manufacturer certifying that the selected insulation, and the methods used for attachment, are acceptable to the manufacturer for use with the specified membrane system to provide the required guarantee.

1.8 PRE-INSTALLATION CONFERENCE

A. Prior to ordering materials and commencing roofing, conduct a pre-installation conference to discuss the specified roofing system and its proper application. Notify the local manufacturer's representative when the pre-installation conference is scheduled.

1.9 DELIVERY, STORAGE AND HANDLING

A. Deliver roofing materials, insulation and accessories in manufacturer's original protective containers with labels intact and legible. Comply with manufacturer's published instructions for storage and handling.

B. Store materials in dry protected areas, on clean, raised platforms with securely anchored weather protective covering.

C. Store flammable products away from sparks or open flames.

D. Store roofing materials at a minimum of forty-five (45) degrees Fahrenheit prior to use as recommended by the manufacturer. Protect materials from freezing.

1.10 ENVIRONMENTAL REQUIREMENTS

A. Proceed with roofing work only when weather conditions comply with manufacturer's recommendations. Do not exceed temperature limitations recommended by the manufacturers.

1.11 GUARANTEE

A. Upon completion of the work, provide the manufacturer's non-prorated twenty (20) year guarantee, covering materials and workmanship, insuring a weather and watertight roofing system. This guarantee will not contain a pre-determined dollar limitation.

B. Provide self-adhesive emblems for each roof hatch, door or access way, notifying the user of the roof condition, precautionary measures and other conditions of use or maintenance of the roofing membranes.

2 PART 2 – PRODUCTS

2.1 SBS ROOFING MEMBRANE SYSTEM (MOD. BITUMEN ROOFING)

A. Roofing membrane (applicable for slopes up to and including but not exceeding 2/12) shall consist of a layer of granule surfaced SBS polymer modified sheet, with an SBS smooth polymer modified sheet, applied in accordance with manufacturer's recommendations to achieve the specified guarantee. The modifiers shall be styrene-butadiene-styrene (SBS). The reinforcement core shall be one (1) reinforcement layer of non-woven polyester.

B. Approved Manufacturers: Firestone Building Products Company, Indianapolis, IN (800.428.4442), Soprema Roofing and Waterproofing, Inc., Wadsworth, OH (800.356.3521), CertainTeed Commercial Roofing Systems, Valley Forge, PA (610.341.7000) or approved equal.

C. Approved Systems: 110mph wind design required.

1. Nailable (Insulated) Deck: Firestone **I-3233-M** (Red Shield System)
   Soprema **2043**
   CertainTeed **GMS-C-U2**

D. Modified Bituminous Membrane: Firestone **SBS Premium**
   Sopralene **180 Granules**
   CertainTeed **Flintastic Premium GMS**

1. Compound: Styrene Butadiene Styrene (SBS) Modified Asphalt.
2. Reinforcement: Minimum 160 g/m^2 polyester fabric mat.
3. Weight: Minimum 97 pounds per roll.
4. Thickness: Minimum 160 mil thick sheet, with a granular surface.
5. Application: Asphalt.
6. Surfacing: Mineral.
7. Color: Black.
8. Edges: Tapered edges are not permitted.

E. Base Sheet: Firestone **SBS Smooth 145**
   Soprema **Elastophene 180 Sanded**
   CertainTeed **Ultra Poly SMS Base**

1. Type: Asphalt saturated polyester mat conforming to ASTM D 6164.
2. Weight: Minimum 88 pounds per roll.

F. Asphalt Primer: ASTM D 41.

G. Asphalt (Cold): ASTM D 4479 Type I, cold adhesive asphalt. Use only that asphalt which has all of the following information printed on the asphalt packages

or on the bills of lading covering bulk asphalt.

1. Viscosity: 20,000 cps at 77 degrees Fahrenheit.
2. Flash Point: 115 degrees Fahrenheit.
3. VOC: 205 g/liter, utilizing mineral spirits as the solvent, and a minimum of eighty percent (80%) solids.

H. SBS Flashing Systems

1. Flashing: Firestone **SBS Premium**, CertainTeed **SBS** or approved equal as recommended by the manufacturer to suit each condition.
2. Adhesives: **FlintBond** by CertainTeed or adhesives recommended by manufacturer for use on its system.

2.2 ACCESSORIES

A. Nails for securing membranes to wood nailers shall be 1 inch long barbed and galvanized roofing nails let through minimum 2 inch diameter discs with minimum 26 gauge thickness.

B. Fasteners for securing membranes at the walls shall be Firestone all-purpose fastener or U.S. Intec, Inc. Drill-Tec Fastener with 2 inch diameter fastening plates at 8 inches on center.

C. Each fastener exposed to view in the finished work shall be provided with a gasket. Gasket shall not be less than 1/16 inch thick, and fabricated of cured EPDM sized so as to snugly fit the fastener shank and extend beyond the head edge by not less than 1/8 inch.

1. All exposed fastener heads shall be covered with a dab of sealant.

D. Vent Stack Boots: Provide manufacturer's standard rubber boots and flashing collars appropriate for purpose intended.

E. Walkway Pads: Selected system's top ply material, cut in sizes recommended per manufacturer, in contrasting color selected by Architect. SBS material laid as a continuous strip material is not acceptable.

F. Expansion Joints:

1. Compressible Tube Type: Preformed, compressible, resilient, nonstaining, nonwaxing, nonextruding strips of closed-cell polyethylene foam, nonabsorbent to liquid water and gas, nonoutgassing in unruptured state and of size, shape and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

G. Rubber Pipe Support Curbs: Provide manufacturer's standard low profile rubber pipe support curbs, **EcoCurb REC 9S** manufactured by Advanced Support Products, Tomball, TX (800.941.5737) or approved equal.

3 PART 3 – EXECUTION

3.1 EXAMINATION

A. Verify securely supported and attached deck, free of depressions, waves or projections.

B. Verify deck surfaces are dry and free of moisture in any form.

C. Verify proper placement of roof openings, pipes, curbs, sleeves, ducts, vents and other penetrations.

D. Verify proper securement of penetrating or roof mounted equipment.

3.2 JOB AND WEATHER CONDITIONS

A. Suspend all application and installation activities during inclement weather.

B. Protect adjacent building surfaces against damage and bitumen spillage.

C. Protect roof deck and insulation from moisture by providing water cut-offs at the end of each day's work or when the weather is threatening. Failure to protect the deck and roofing from moisture will result in the removal of damaged materials or materials containing excessive moisture. Remove water cut-offs prior to start of new work.

D. Remove debris from roof deck and site on a daily basis and dispose at an approved disposal site.

E. Do not permit traffic or material storage on completed roof surfaces.

3.3 ASPHALT

A. Application of Asphalt: Uniformly applied without voids as recommended by roofing manufacturer.

B. Type of asphalt.

1. Roofing Base Sheet to Insulation: Type I.
2. Modified Bitumen Membrane to Base Sheet: Type I.

C. Store adhesives in insulated, heated boxes to maintain adhesives at a workable temperature. Do not heat the adhesive with a torch or flame to compensate for cold weather.

D. Apply the asphalt with notched squeegee or spraying or as otherwise recommended by the manufacturer.

3.4 SUBSTRATE PREPARATION

A. Comply with manufacturer's published instructions for preparation of substrates to receive sheet roofing. Prior to priming, clean substrate of dust, debris and other substances detrimental to roofing work. All new insulations must be free of ridges or edges that will preclude the installation of the roof systems as recommended by the manufacturer.

3.5 SBS ROOFING INSTALLATION

A. SBS Base Sheet (and INTERPLY where required by manufacturer):

1. Install one (1) ply of base sheet over insulation in a full and uniform coating of asphalt, applied at the rate of 25 lbs per square.
2. Laps: 2 inch side laps and 4 inch end laps.

B. SBS Modified Bituminous Membrane:

1. Install one (1) ply of modified bituminous membrane to base sheet in a full and uniform coating of asphalt at the rate of 25 lbs per square.
2. Laps: 4 inch side laps and 6 inch end laps.
3. Finishing operations: Broadcast mineral granules provided by the manufacturer into asphalt material that extrudes between membranes during application. Apply sufficient granules to conceal all asphalt material while the asphalt is still hot, in a uniform and level manner, blending with the adjacent membrane material. **THIS OPERATION IS AN ABSOLUTE REQUIREMENT AND MUST BE COMPLIED WITH AT THE TIME OF FINAL MEMBRANE APPLICATION.**

C. SBS Flashings:

1. Prime metal and masonry surfaces prior to flashing application at the minimum rate of 1 gallon per 100 square feet.
2. Securely apply flashings over base sheets as recommended by the manufacturer. Install the top ply of the perimeter flashing in a full and uniform coat of asphalt.
3. Apply mineral surfaced membrane base flashings to seal membrane to vertical elements. The membrane should extend 6 inches minimum onto the roof deck.

4. Secure to nailing strips at 4 inches o.c. and reglets.
5. Coordinate installation of roof drains and related flashings.
6. Seal flashings and flanges of items penetrating membrane.

3.6 FIELD QUALITY CONTROL

A. Provide on-the-job inspections, technical assistance and membrane application guidance as may be necessary to complete the roofing membrane application in accordance with the manufacturer's guarantee requirements.

B. As directed by the Owner, and at no additional cost, the contractor may be required to cut not more than four (4) roof cores, of approximately 200 square inches each, from every newly constructed built-up roofing area in order to establish the amount of materials used per square foot, and shall restore all such areas to sound and watertight conditions.

C. In the event that such core cuts disclose any deficiency in materials, or soundness of construction, the contractor shall, at his own expense, apply additional materials or otherwise correct the deficiencies to the satisfaction of the Owner.

3.7 JOB COMPLETION

A. Inspect completed roofing and correct all defects to meet the specification requirements.

B. The manufacturer's representative shall inspect the completed roofing system and notify the Contractor of any defects in the application.

C. Clean up all debris, excess materials and equipment and remove from site.

D. Clean any drips or spills of asphalt or primers. Apply additional granules as required to cover and conceal any asphalt bleed throughs.

E. In areas where finished surfaces are soiled by work of this Section, consult manufacturer of surfaces for cleaning advice and conform to their documented instructions.

F. Repair or replace defaced or disfigured finishes caused by work of this Section.

G. Restrict construction traffic and equipment movement on the completed roofing to only essential personnel. Provide appropriate protection against traffic and construction activities on completed roofs.

END OF SECTION

SECTION 07542 - THERMOPLASTIC POLYOLEFIN (TPO) 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 thermoplastic polyolefin (TPO) roofing system.
2. Roof insulation.

B. Related Requirements:

1. Section 061000 "Rough Carpentry" for wood nailers, curbs, and blocking.
2. Section 072100 "Thermal Insulation" for insulation beneath the roof deck.
3. Section 076200 "Sheet Metal Flashing and Trim" for metal roof flashings and counterflashings.
4. Section 077129 “Manufactured Roof Expansion Joints” for proprietary manufactured roof expansion-joint assemblies.
5. Section 079200 "Joint Sealants" for joint sealants, joint fillers, and joint preparation.
6. Section 221423 "Storm Drainage Piping Specialties" for roof drains.

1.3 DEFINITIONS

A. Roofing Terminology: Definitions in ASTM D 1079 and glossary in NRCA's "The NRCA Roofing and Waterproofing Manual" apply to work of this Section.

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Roofing Conference: Conduct conference at Project site.

1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, deck Installer, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
3. Review and finalize construction schedule, and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
4. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
5. Review structural loading limitations of roof deck during and after roofing.
6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that affects roofing system.

7. Review governing regulations and requirements for insurance and certificates if applicable.
8. Review temporary protection requirements for roofing system during and after installation.
9. Review roof observation and repair procedures after roofing installation.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. HPBS Submittals:

1. Product Data for Section 16a-38k-6(e)(11): For roof materials, documentation indicating that roof materials comply with Solar Reflectance Index requirement.
2. Product Data for Section 16a-38k-5(d): For adhesives and sealants used inside the weatherproofing system, documentation including printed statement of VOC content.

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

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

D. Samples: For the following products:

1. Sheet roofing and walkway pads, of color required.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer and manufacturer.

B. Manufacturer Certificates: Signed by roofing manufacturer certifying that roofing system complies with requirements specified in "Performance Requirements" Article.

1. Submit evidence of compliance with performance requirements.

C. Product Test Reports: For components of roofing system, tests performed by manufacturer and witnessed by a qualified testing agency.

D. Research/Evaluation Reports: For components of roofing system, from ICC-ES.

E. Field quality-control reports.

F. Sample Warranties: For manufacturer's special warranties.

1.7 CLOSEOUT SUBMITTALS

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

1.8 QUALITY ASSURANCE

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

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

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 FIELD 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 agrees to repair or replace components of 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, metal flashing, roofing accessories, and other components of roofing system.
2. Warranty Period: Thirty (30) years, non-prorated, from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Carlisle SynTec Incorporated
2. Firestone Building Products
3. Johns Manville
4. Substitutions: Under provisions of Section 012500 “Substitution Procedures”.

B. Source Limitations: Obtain components including roof insulation and fasteners for roofing system from same manufacturer as membrane roofing or manufacturer approved by membrane roofing manufacturer.

2.2 PERFORMANCE REQUIREMENTS

A. General Performance: Installed 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. Roofing and base flashings shall remain watertight.

1. Accelerated Weathering: Roofing system shall withstand two thousand (2000) hours of exposure when tested according to ASTM G 152, ASTM G 154, or ASTM G 155.
2. Impact Resistance: Roofing system shall resist impact damage when tested according to ASTM D 3746 or ASTM D 4272.

B. Material Compatibility: Roofing materials shall be compatible with one another and adjacent materials under conditions of service and application required, as demonstrated by roofing manufacturer based on testing and field experience.

C. Roofing System Design: Tested by a qualified testing agency to resist the following uplift pressures:

1. Corner Uplift Pressure: 120 lbf/sq. ft.
2. Perimeter Uplift Pressure: 90 lbf/sq. ft.
3. Field-of-Roof Uplift Pressure: 60 lbf/sq. ft.

D. Solar Reflectance Index: Not less than 78 when calculated according to ASTM E 1980, based on testing identical products by a qualified testing agency.

E. Energy Star Listing: Roofing system shall be listed on the DOE's ENERGY STAR "Roof Products Qualified Product List" for low-slope roof products.

F. Exterior Fire-Test Exposure: ASTM E 108 or UL 790, Class C; for application and roof slopes indicated; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

G. Fire-Resistance Ratings: Comply with fire-resistance-rated assembly designs indicated. Identify products with appropriate markings of applicable testing agency.

2.3 TPO ROOFING

A. Fabric-Reinforced TPO Sheet: ASTM D 6878, internally fabric- or scrim-reinforced, uniform, flexible fabric-backed TPO sheet.

1. Thickness: 80 mils, nominal.

2. Exposed Face Color: White.

2.4 AUXILIARY ROOFING MATERIALS

A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with 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:

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. Single-Ply Roof Membrane Sealants: 450 g/L.
g. Nonmembrane Roof Sealants: 300 g/L.
h. Sealant Primers for Nonporous Substrates: 250 g/L.
i. Sealant Primers for Porous Substrates: 775 g/L.
j. Other Adhesives and Sealants: 250 g/L.

B. Sheet Flashing: Manufacturer's standard unreinforced TPO sheet flashing, 55 mils thick, minimum, of same color as TPO sheet.

C. Bonding Adhesive: Manufacturer's standard, water based.

D. Slip Sheet: Manufacturer's standard, of thickness required for application.

E. Metal Termination Bars: Manufacturer's standard, predrilled stainless-steel or aluminum bars, approximately 1 by 1/8 inch thick; with anchors.

F. 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, compressible tubes and other accessories.

2.5 ROOF INSULATION

A. General: Preformed roof insulation boards manufactured or approved by TPO roofing manufacturer, selected from manufacturer's standard sizes suitable for application, of thicknesses indicated.

B. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, Class 1, Grade 2, felt or glass-fiber mat facer on both major surfaces.

C. Tapered Insulation: Provide factory-tapered insulation boards fabricated to slope of 1/8 and ¼ inch per 12 inches unless otherwise indicated.

D. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.

2.6 INSULATION ACCESSORIES

A. General: Roof insulation accessories recommended by insulation manufacturer for intended use and compatibility with roofing.

B. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Global 4470, designed for fastening roof insulation and cover boards to substrate, and acceptable to roofing system manufacturer.

C. Cover Board: ASTM C 1177, glass-mat, water-resistant gypsum substrate, thickness as required per manufacturer's system.

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. Firestone Building Products; **ISOGARD HD**
c. Substitutions: Under provisions of Section 012500 "Substitution Procedures".

2.7 WALKWAYS

A. Flexible Walkways: Factory-formed, nonporous, heavy-duty, slip-resisting, surface-textured walkway pads, approximately 3/16 inch thick, in contrasting color and acceptable to roofing system manufacturer.

PART 3 - EXECUTION

3.1 COMMISSIONING OF COMPONENTS AND SYSTEMS

A. Engage a manufacturer authorized representative who is familiar with this project, to participate and assist as necessary, in the functional performance testing of the components and systems included in this Division with the Commissioning Authority.

3.2 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the Work:

1. Verify that roof openings and penetrations are in place, curbs are set and braced, and 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.
3. Verify that surface plane flatness and fastening of steel roof deck complies with requirements in Section 053100 "Metal Decking."
4. Verify that deck is securely fastened with no projecting fasteners and with no adjacent units in excess of 1/16 inch out of plane relative to adjoining deck.
5. Verify that minimum concrete drying period recommended by roofing system manufacturer has passed.
6. Verify that concrete substrate is visibly dry and free of moisture. Test for capillary moisture by plastic sheet method according to ASTM D 4263.

7. Verify that concrete-curing compounds that will impair adhesion of roofing components to roof deck have been removed.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 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.

3.4 ROOFING INSTALLATION, GENERAL

A. Install roofing system according to roofing system manufacturer's written instructions.

B. 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.

3.5 INSULATION INSTALLATION

A. Coordinate installing roofing system components so insulation is not exposed to precipitation or left exposed at the end of the workday.

B. Comply with roofing system and insulation manufacturer's written instructions for installing roof insulation.

C. Install tapered insulation under area of roofing to conform to slopes indicated.

D. Install insulation under area of roofing to achieve required thickness. Where overall insulation thickness is 2.7 inches or greater, install two (2) or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches in each direction.

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 ¼ inch with insulation.

1. Cut and fit insulation within ¼ inch of nailers, projections, and penetrations.

G. Adhered Insulation (Concrete Decks): Install each layer of insulation and adhere to substrate as follows:

1. Set each layer of insulation in a uniform coverage of full-spread insulation adhesive, firmly pressing and maintaining insulation in place.

H. Mechanically Fastened and Adhered Insulation (Metal and Tectum Decks): Install each layer of insulation to deck using mechanical fasteners specifically designed and sized for fastening specified board-type roof insulation to deck type.

1. Fasten first layer of insulation to resist uplift pressure at corners, perimeter, and field of roof.
2. Set each subsequent layer of insulation in a uniform coverage of full-spread insulation adhesive, firmly pressing and maintaining insulation in place.

I. 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 in each direction. Loosely butt cover boards together and fasten to roof deck.

3.6 ADHERED ROOFING INSTALLATION

A. Adhere roofing over area to receive roofing according to roofing system manufacturer's written instructions. Unroll roofing and allow to relax before retaining.

B. Start installation of roofing in presence of roofing system manufacturer's technical personnel.

C. Accurately align 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 roofing at rate required by manufacturer, and allow to partially dry before installing roofing. Do not apply to splice area of roofing.

E. In addition to adhering, mechanically fasten roofing securely at terminations, penetrations, and perimeter of roofing.

F. Apply roofing with side laps shingled with slope of roof deck where possible.

G. Seams: Clean seam areas, overlap roofing, and hot-air weld side and end laps of 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.
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 do not comply with requirements.

3.7 BASE FLASHING INSTALLATION

A. Install sheet flashings and preformed flashing accessories, and adhere to substrates according to 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 and mechanically anchor to substrate through termination bars, where indicated.

3.8 WALKWAY INSTALLATION

A. Flexible Walkways: Install walkway products in locations indicated. Heat weld to substrate or adhere walkway products to substrate with compatible adhesive according to roofing system manufacturer's written instructions.

3.9 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified testing agency to inspect substrate conditions, surface preparation, membrane application, flashings, protection, and drainage components, and to furnish reports to Architect.

B. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion.

C. Repair or remove and replace components of roofing system where inspections indicate that they do not comply with specified requirements.

D. Additional testing and inspecting, at Contractor's expense, will be performed to determine if replaced or additional work complies with specified requirements.

3.10 PROTECTING AND CLEANING

A. Protect roofing system from damage and wear during remainder of construction period. When remaining construction does 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 roofing system that does not comply with requirements, repair substrates, and repair or reinstall 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.

END OF SECTION 07542

1 PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Removal of existing roofing in preparation for a new roof system. This will include the removal of existing membrane roofing and flashings, disposal of removed materials, protection of areas over which work traffic will move, work called for in the Drawings and other work necessitated by their operations.

1.2 RELATED SECTIONS

A. Section 05300 – Metal Deck
B. Section 06100 – Rough Carpentry
C. Section 07525 – Modified Bituminous Sheet Roofing
D. Section 07600 – Flashing and Sheet Metal
E. Section 07900 – Sealants

1.3 QUALIFICATIONS

A. Materials Removal Firm: Company specializing in performing the work of this Section with minimum ten (10) years documented experience. The foreman of the crew performing roofing removals shall be a qualified roofing or waterproofing journeyman with at least five (5) years experience in roofing removals.

1.4 ENVIRONMENTAL REQUIREMENTS

A. Do not remove existing roofing system when weather conditions threaten the integrity of the building contents or intended continued occupancy.

B. Maintain continuous temporary protection during and prior to installation of new roofing system.

C. Coordinate the Work so that removal of the existing roofing system and the installation of the new roofing system proceed in an orderly and timely manner.

D. Roof cuts are to be performed on the existing roofs by the Contractor. Existing material condition thickness and type shall be verified by the Contractor.

1.5 SCHEDULING

A. Schedule work under the provisions of Section 01300.

B. Schedule work to coincide with commencement of installation of new roofing system.

C. Remove only existing roofing materials that can be replaced with new materials

the same day and as the weather will permit.

1.6 COORDINATION

A. Coordinate work with other affected mechanical and electrical work associated with roof penetrations.

2 PART 2 – PRODUCTS

2.1 MATERIALS

A. Temporary Protection: Sheet polyethylene. Provide weights to retain sheeting in position.

3 PART 3 – EXECUTION

3.1 EXAMINATION

A. Verify existing site conditions under provisions of the general conditions of this contract.

B. Verify that existing roof surface is clear and ready for work of this Section.

3.2 PREPARATION

A. Sweep roof surface clean of loose matter. Remove loose refuse and dispose off site.

B. Control dust, noise and debris to the satisfaction of the Owner.

3.3 MATERIALS REMOVAL

A. Remove blocking and related material.
B. Remove membranes and associated components.
C. Repair existing deck surfaces to provide smooth working surface for new roof system.

3.4 TEMPORARY PROTECTION

A. Provide temporary protective sheeting over uncovered deck surfaces.

B. Turn sheeting up and over parapets and curbing. Retain sheeting in position with weights.
C. Provide for surface drainage from sheeting to existing drainage facilities.

D. Do not permit traffic over unprotected or repaired deck surface.

E. Provide temporary protective sheeting on furniture, equipment, flooring and other interior finishes in areas that will be subject to falling debris and underdeck materials. Professionally clean the interior spaces soiled by roofing removal and replacement operations before classes begin each day.

3.5 FIELD QUALITY CONTROL

A. Inspection will identify the exact limits of material removal.

END OF SECTION

1 PART 1 – GENERAL

1.1 WORK INCLUDED

A. Gravel stops, drip edges, termination bars and roof flashings

1.2 RELATED SECTIONS

A. Section 04100 – Mortar
B. Section 04300 – Unit Masonry System
C. Section 04330 – Cavity Wall Masonry System
D. Section 06100 – Rough Carpentry
E. Section 07525 – Modified Bituminous Sheet Roofing
F. Section 07900 – Sealants
G. Section 15410 – Plumbing Piping

1.3 REFERENCES

A. Reference Standards: The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

1. American Society for Testing and Materials (ASTM) Publications:

B 209-10	Aluminum and Aluminum-Alloy Sheet and Plate
D 41-11	Asphalt Primer Used in Roofing, Dampproofing and Waterproofing
D 5643-06	Coal Tar Roof Cement, Asbestos Free

2. Federal Specification (FS)

UU-B-790A-68	Building Paper, Vegetable Fiber

3. Single-Ply Roofing Institute (SPRI) Publications:

ES-1-03	Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems

1.4 REGULATORY REQUIREMENTS

A. Conform to ANSI/SPRI ES-1 in accordance with Section 1504.5 of the 2005 Connecticut State Building Code for edge securement.

1.5 SUBMITTALS

A. Samples:

1. Sheet Metal Materials: Two (2) pieces, 6 by 10 inches, of each type.
2. Gravel Stops and Fascia: One (1) piece, 6 inches long, and one (1) sample.
3. Nails and Other Fastenings: Two (2) each.

B. Shop Drawings: Indicate thicknesses, dimensions, fastenings and anchoring methods, expansion joints and other provisions necessary for thermal expansion and contraction. Scaled catalog cuts may be submitted for factory fabricated items.

1. Gravel stops and drip edges
2. Flashing at roof penetrations
3. Base and cap flashing (counter flashing)
4. Termination bars

C. Certificates of Compliance: Manufacturer's certificates attesting that materials meet specified requirements.

1.6 DELIVERY, HANDLING AND STORAGE: Package and protect materials during shipment. Uncrate and inspect materials for damage, dampness and wet-storage stains upon delivery to the job site. Remove from the site and replace damaged materials that cannot be restored to like-new condition. Handle sheet metal items to avoid damage to surfaces, edges, and ends. Store materials in dry, weather-tight, ventilated areas until immediately before installation.

1.7 WARRANTY

A. Warranty all work against defects in materials and workmanship for two (2) years following final acceptance.

1. Provide duplicate original warranties in writing on Contractor's letterhead.

B. Include with twenty (20) year edge-to-edge warranty provided under Section 07525 warranty.

2 PART 2 – PRODUCTS

2.1 MATERIALS

A. Furnish sheet metal items in 8 to 10 foot lengths. Single pieces less than 8 feet long may be used to connect to factory-fabricated inside and outside corners, and at ends of runs. Provide accessories and other items essential to complete the sheet metal installation. These accessories shall be made of the same materials as the items to which they are applied. Fabricate sheet metal items of the materials specified below and to the gauge, thickness or weight specified. Sheet metal items shall have manufacturer's durinodic coating finish unless specified

otherwise.

B. Exposed Sheet Metal Items: Shall be of the same material. The following items shall be considered as exposed sheet metal: Gravel stops, drip edges and all associated accessories.

C. Gravel Stops, Drip Edges and other Exposed Flashings: ASTM B 209; 0.050 inch thick aluminum, with two (2) coat Kynar finish (or approved equal), color to be selected by Architect and Owner from manufacturer's full range, meeting alloy standards 6063-T52. Provide for expansion and contraction, as well as cleats and other related items as recommended by the manufacturer.

1. Approved manufacturers:

a. Firestone Building Products, Indianapolis, IN (800.428.4442)
b. Architectural Products Company, Wood Ridge, NJ (800.631.8375)
c. Cheney Flashing Company, Trenton, NJ (800.322.2873)
d. Southern Aluminum Finishing Company, Atlanta, GA (800.241.7429)
e. Substitutions: Under provision of Section 01600.

D. Bituminous Plastic Cement: ASTM D 5643.

E. Building Paper: FS UU-B-790, Style 4, Grade B.

F. Asphalt Primer: ASTM D 41.

G. Fastener: Use the same metal or a metal compatible with the item fastened. Use stainless steel fasteners to fasten dissimilar materials.

3 PART 3 – EXECUTION

3.1 INSTALLATION

A. Requirements: Make surfaces to receive sheet metal plumb and true, clean, even, smooth, dry and free of defects and projections which might affect the application. For installation of items not shown in detail or not covered by specifications conform to the applicable requirements of the SMACNA Architectural Sheet Metal Manual. Join sheet metal together as recommended by the manufacturer or by the SMACNA manual.

B. Workmanship: Make lines, arises and angles sharp and true. Free exposed surfaces from visible wave, warp and buckle and tool marks. Fold back exposed edges neatly to form a ½ inch hem on the concealed side. Make sheet metal exposed to the weather watertight with provisions for expansion and contraction.

C. Nailing: Confine nailing of sheet metal generally to sheet metal having a maximum width of 18 inches. Confine nailing or flashing to one (1) edge only. Space nails evenly not over 3 inches on centers and approximately ½ inch from edge unless otherwise specified or indicated. Face nailing will not be permitted. Where sheet metal is applied to other than wood surfaces, include in shop drawings, the locations for nailing strips required to secure the work. Nailing strips are specified in Section 06100 – Rough Carpentry.

D. Cleats: Provide cleats for sheet metal 18 inches and over in width. Cleats shall be continuous and fastened not over 12 inches on centers unless otherwise specified or indicated. Cleating shall be of the same material and thickness as the sheet metal being installed. Secure one (1) end of the cleat with two (2) nails and the cleat folded back over the nail heads. Lock the other end into the seam. Pre-tin cleats for soldered seams.

E. Bolts, Rivets and Screws: Install bolts, rivets and screws where indicated or required. Provide compatible washers where required to protect surface of sheet metal and to provide a watertight connection.

F. Flat-Lock Seams: Finish not less than ¾ inch wide.

G. Protection from Contact with Dissimilar Materials:

1. Metal Surfaces: Paint surfaces in contact with mortar, concrete or other masonry materials with alkali-resistant coatings such as heavy-bodied bituminous paint.
2. Wood or Other Absorptive Materials: Paint surfaces that may become repeatedly wet and in contact with metal with two (2) coats of aluminum paint or a coat of heavy-bodied bituminous paint.

H. Expansion and Contraction: Provide expansion and contraction joints at not more 32 foot intervals for aluminum and at not more than 40 foot intervals for other metals. Where the distance between the last expansion joint and the end of the continuous run is more than half the required interval, an additional joint shall be provided. Space joints evenly.

I. Base Flashing: Extend up vertical surfaces of the flashing not less than 8 inches and not less than 4 inches under the roof covering. Where finish wall coverings form a counter flashing, extend the vertical leg of the flashing up behind the applied wall covering not less than 6 inches. Overlap the flashing strips with the previously laid flashing not less than 3 inches. Fasten the strips at their upper edge to the deck, with compatible, large-head roofing nails. Install and fit the flashings so as to be completely weather-tight. Base flashing for interior and exterior corners shall be factory fabricated.

J. Counter Flashing: End counter flashing at termination bars as indicated on Drawings. Seal termination bar with sealant as specified in Section 07900 – Sealants.

K. Gravel Stops, Drip Edges and other Exposed Flashings: Prefabricate in the shapes and sizes indicated and in lengths not less than 8 feet. Extend flange at least 4 inches onto roofing. Provide prefabricated, mitered corners internal and external corners. Nail flange securely to wood nailer with large-head, barbed-shank roofing nails 1.5 inches long spaced not more than 3 inches on centers.

1. Edge Strip: Hook the lower edge of fascias at least ¾ inch over a continuous strip of the same material bent outward at an angle not more than 45 degrees to form a drip. Nail hook strip to a wood nailer at 6 inches maximum on centers. Where fastening is made to concrete or masonry, use screws spaced 12 inches on centers driven in expansion shields set in the concrete or masonry. Where horizontal wood nailers are slotted to provide for insulation venting, install strips to prevent obstruction of vent slots. Where necessary, install strips over 1/16 inch thick compatible spacer or washers.
2. Joints: Leave open the section ends of gravel stops and fascias ¼ inch and backed with a formed flashing plate, mechanically fastened in place and lapping each section end a minimum of 4 inches set laps in plastic cement. Face nailing will not be permitted.

L. Flashing at Roof Penetrations and Equipment Supports: Provide metal flashing for all pipes, ducts and conduits projecting through the roof surface and for equipment supports, guy wire anchors and similar items supported by or attached to the roof deck. Provide new or salvage existing rain hoods, ventilator shields, etc.

1. Single Pipe Vents: Set flange of sleeve in cement and nail 3 inches on centers. Bend the top of sleeve over and extend down into the vent pipe a minimum of 2 inches. For long runs or long rises above the deck, where it is impractical to cover the vent pipe with lead, use a two-piece formed metal housing. Set metal housing with a metal sleeve having a 4 inch roof flange in bituminous plastic cement and nailed 3 inches on centers. Extend sleeve a minimum of 8 inches above the roof deck and lapped a minimum of 3 inches by a metal hood secured to the vent pipe by a draw band. Seal the area of hood in contact with vent pipe with an approved sealant. Sealants are covered under Section 07900 – Sealants.

3.2 PAINTING: Field-paint sheet metal for separation of dissimilar materials.

3.3 CLEANING

A. Clean exposed sheet metal work at completion of installation. Remove grease and oil films, handling marks, contamination from steel wool, fittings and drilling debris and scrub-clean. Free the exposed metal surfaces of dents, creases, waves, scratch marks and solder or weld marks.

3.4 REPAIRS TO FINISH

A. Scratches, abrasions and minor surface defects of finish may be repaired in accordance with the manufacturer's printed instructions and as approved. Repair damaged surfaces caused by scratches, blemishes and variations of color and surface texture. Replace items which cannot be repaired.

3.5 FIELD QUALITY CONTROL

A. Establish and maintain a quality control procedure for sheet metal used in conjunction with roofing to assure compliance of the installed sheet metalwork with the contract requirements. Work not in compliance with the contract shall be promptly removed and replaced or corrected. Quality control shall include, but not be limited to, the following:

1. Observation of environmental conditions; number and skill level of sheet metal workers; condition of substrate.
2. Verification of compliance before, during and after installation.
3. Inspection of sheet metalwork, for proper size and thickness, fastening and joining and proper installation.
4. Verification of compliance with roofing manufacturer’s standard details.

B. Procedure: Submit for approval prior to start of roofing work. Include a checklist of points to be observed. Document the actual quality control observations and inspections.

END OF SECTION

1 PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Skylights with integral insulated curb
B. Replacement skylight lens for broken skylight
C. Counter flashings

1.2 RELATED SECTIONS

A. Section 06100 – Rough Carpentry
B. Section 07212 – Roof Insulation Board
C. Section 07525 – Modified Bitumen Roofing
D. Section 07600 – Flashing and Sheet Metal

1.3 REFERENCES

A. Reference Standards: The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

1. American Society for Testing and Materials (ASTM) Publications:

D 635-06	Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position

2. American Architectural Manufacturer's Association (AAMA) Publications:

101/I.S.2/NAFS-02	Skylights

1.4 PERFORMANCE REQUIREMENTS

A. System to provide for expansion and contraction within system components caused by a cycling temperature range of 170 degrees F without causing detrimental effects to system or components. The light-transmitting plastic materials shall have a combustibility classification of CC1 in accordance with ASTM D 635.

B. Design and size members to withstand dead loads and live loads caused by snow, hail and pressure or suction of wind acting vertically as calculated in accordance with Chapter 16 of the Connecticut State Building Code (CSBC). The domes shall also be designed to withstand loads required by OSHA 1910.23(a)(4). Plastic skylights must meet the requirements of AAMA 101/I.S.2/NAFS, which requires polycarbonate thickness adequate to withstand a positive and negative test pressure as calculated in accordance with Section 2405.5.1 of the CSBC.

C. Skylight glazing shall be of such construction and mounting that they are capable of withstanding a load of at least 200 pounds applied perpendicularly at any one (1) area on the skylight as required by OSHA 1910.23(e)(8).

D. Thermal transmittance (U-factor) shall be 1.30 and solar heat gain coefficient (SHGC) shall be 0.62 in accordance with Table 502.3 of the 2006 International Energy Conservation Code.

1.5 SUBMITTALS

A. Provide configurations, dimensions, locations, fastening methods and installation details.

B. Include characteristics of light admitted, transparency and insulation value of unit.

C. Submit manufacturer's installation instructions under provisions of Section 01300.

1.6 SEQUENCING AND SCHEDULING

A. Coordinate work of this Section with the installation of wood curbs and roofing system.

1.7 WARRANTY

A. Provide two (2) year manufacturer's warranty under provisions of Section 01740.
B. Warranty: Include coverage of weather and water tightness of skylight assembly and seal with roofing system.

2 PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. New Skylights: Basis of Design:

1. American Skylights, Inc., Arlington, TX (800.772.7401); **Model TCM-FG**

B. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Wasco Products, Sanford, ME (800.338.0293)
2. Naturalite, (800.527.4018)

C. Substitutions: Under provisions of Section 01600.

2.2 MATERIALS

A. Nominal Size: Sized to match existing, verify in field.

B. Configuration: Single units.

C. Shape: Circular dome form.

D. Double Dome: Polycarbonate plastic, 1/8 inch thick; clear outer dome, white translucent inner dome; air sealed.

E. Unit Frame: Extruded aluminum, thermally broken, reinforced and welded joints, integral curb frame mounting flange and counter flashing to receive roof flashing system, with integral condensation drainage gutter.

2.3 ACCESSORIES

A. Anchorage Devices: Type recommended by manufacturer, concealed.
B. Counter Flashings: Same metal type and finish as roof flashing metal.
C. Sealant: As specified in Section 07900.

2.4 FABRICATION

A. Fabricate free of visual distortion and defects.
B. Provide for removal of condensation.
C. Provide weathertight assembly.
D. Fabricate to drain water entering joints, or migrating moisture occurring within unit, to exterior.

2.5 FACTORY FINISHING

A. Aluminum: Clear anodized.

2.6 REPLACEMENT SKYLIGHT (Roof G)

A. Basis of Design:

1. Tecta America (860.828.0380); **SunOptics Lens Assembly**
    1. Nominal Size: Sized to match existing, verify in field.
    2. Configuration: Single unit.
    3. Shape: Square dome form.
    4. Double Dome: Polycarbonate plastic, 1/8 inch thick; clear outer dome, white translucent inner dome; air sealed.

2 Replace skylight and frame on existing curbing, flashing and attaching as recommended by the manufacturer.

3 PART 3 – EXECUTION

3.1 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Coordinate with installation of related flashings.

C. Apply bituminous paint on aluminum surfaces of units in contact with cementitious materials or dissimilar metals.

D. Provide weathertight installation.

END OF SECTION

1 PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Building and site sealants

1.2 RELATED SECTIONS

A. Section 07531 – Elastomeric Sheet Roofing
B. Section 07600 – Flashing and Sheet Metal
C. Section 07631 – Gutters and Downspouts
D. Section 15410 – Plumbing Piping

1.3 REFERENCES

A. Reference Standards: The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

1. American Society for Testing and Materials (ASTM) Publications:

C 920-11 Elastomeric Joint Sealants

1.4 SUBMITTALS

A. Certificates of Conformance: Submit certificates from the manufacturers attesting that materials meet the specified requirements.

B. Manufacturers' Data: Clearly mark data to identify material type to be provided.

C. Sealants: Data for sealant shall include:

1. Application instructions and precautions.
2. Shelf life.
3. Mixing instructions for multi-component sealants.
4. Recommended cleaning solvents.

D. Primer(s)

E. Backstop Material(s)

F. Colors: Submit one (1) sample of each color for each sealant type to verify that products match the colors indicated. Where colors are not indicated, submit not less than three (3) different samples of manufacturers' standard colors for selection by the Architect and Owner.

G. Manufacturer's Test Report: Indicate sealant compatibility with commonly used substrates.

1.5 SAMPLE JOINTS: Before sealant work is started, provide a sample of each type of finished joint where directed. Sample shall show the workmanship, bond, and color of sealant. The workmanship, bond, and color of sealant throughout the project shall match the approved sample joints.

1.6 ENVIRONMENTAL CONDITIONS: The ambient temperature shall be within the limits of 40 and 100 degrees F when sealant is applied.

1.7 DELIVERY AND STORAGE: Deliver materials to the job site in unopened manufacturers' external shipping containers, with brand names, date of manufacture, color, and material designation clearly marked thereon. Elastomeric sealant containers shall be labeled to identify type, class, grade, and use. Carefully handle and store materials to prevent inclusion of foreign materials or subjection to sustained temperatures exceeding 100 degrees F or less than 40 degrees F.

2 PART 2 – PRODUCTS

2.1 JOINT SEALANTS: Provide one part polysulfide sealants that have been tested and found suitable for the substrates to which it will be applied.

A. For joints in vertical surfaces, provide ASTM C 920, Type S, Class 25, Grade NS, Use NT. For joints at aluminum surfaces, provide ASTM C 920, Type S, Class 25, Grade NS, Use A. For joints in horizontal surfaces, provide ASTM C 920, Type S, Class 25, Use T. Color as selected by Architect and Owner from manufacturer’s full color range. Location(s) shall be as follows, at a minimum:

1. Metal-to-metal joints where sealant is indicated or specified.
2. Joints between ends of gravel stops and adjacent walls.

B. Manufacturers: The following manufacturers are approved for use:

1. Tremco Incorporated, Ashland, OH (800.321.7906)
2. Pecora Corporation, Harleysville, PA (800.523.6688)
3. Sika Corporation, Lyndhurst, NJ (800.933.7452)
4. Substitutions: In accordance with Section 01600.

2.2 PRIMER FOR SEALANT: Provide a non-staining, quick-drying type of consistency recommended by the sealant manufacturer for the particular application.

2.3 BOND BREAKERS: Provide the type and consistency recommended by the sealant manufacturer for the particular application.

2.4 BACKSTOPS: Provide glass fiber roving or neoprene, butyl, polyurethane or polyethylene foams free from oil or other staining elements as recommended by sealant manufacturer. Backstop material shall be compatible with sealant.

2.5 CLEANING SOLVENTS: Provide type(s) recommended by the sealant manufacturer.

3 PART 3 – EXECUTION

3.1 SURFACE PREPARATION: Surfaces shall be clean, dry to the touch and free from dirt frost, moisture, grease, oil, wax, lacquer, paint and other foreign matter that would tend to destroy or impair adhesion. When resealing an existing joint, remove existing caulk or sealant prior to applying new sealant.

A. Steel Surfaces: Remove loose mill scale by sandblasting or, if sandblasting is impractical or would damage finish work, scraping and wire brushing. Remove protective coatings by sandblasting or using a residue-free solvent.

B. Aluminum or Bronze Surfaces: Remove temporary protective coatings from surfaces that will be in contact with sealant. When masking tape is used as a protective coating, remove tape and any residual adhesive just prior to sealant application. For removing protective coatings and final cleaning, use non-staining solvents recommended by the manufacturer of the item(s) containing aluminum or bronze surfaces.

3.2 SEALANT PREPARATION: Do not add liquids, solvents, or powders to the sealant. Mix multi-component elastomeric sealants in accordance with manufacturer's instructions.

3.3 APPLICATION

A. Joint Width-To-Depth Ratios:

1. Acceptable Ratios:

JOINT WIDTH

	Minimum	Maximum
For metal, glass, or other nonporous surfaces:		
¼ inch (minimum)	¼ inch	¼ inch
Over ¼ inch	½ of width	Equal to width
For wood:		
¼ inch (minimum)	¼ inch	¼ inch
Over ¼ inch to ½ inch	¼ inch	Equal to width

Over ½ inch to 2 inches	½ inch	5/8 inch
Over 2 inches	(As recommended by sealant manufacturer)	

2. Unacceptable Ratios: Where joints of acceptable width-to-depth ratios have not been provided, clean out joints to acceptable depths and grind or cut to acceptable widths without damage to the adjoining work. Grinding shall not be required on metal surfaces.

B. Backstops: Install backstops dry and free of tears or holes. Tightly pack the back or bottom of joint cavities with backstop material to provide a joint of the depth specified. Install backstops in the following locations:

1. Where indicated.
2. Where backstop is not indicated but joint cavities exceed the acceptable maximum depths specified in paragraph entitled, "Joint Width-to-Depth Ratios."

C. Primer: Immediately prior to application of sealant, clean out loose particles from joints. Where recommended by sealant manufacturer, apply primer to joints in concrete masonry units, wood and other porous surfaces in accordance with sealant manufacturer's instructions. Do not apply primer to exposed finish surfaces.

D. Bond Breaker: Provide bond breakers to the back or bottom of joint cavities, as recommended by the sealant manufacturer for each type of joint and sealant used, to prevent sealant from adhering to these surfaces. Carefully apply the bond breaker to avoid contamination of adjoining surfaces or breaking bond with surfaces other than those covered by the bond breaker.

E. Sealants: Provide a sealant compatible with the material(s) to which it is applied. Do not use a sealant that has exceeded shelf life or has jelled and can not be discharged in a continuous flow from the gun. Apply the sealant in accordance with the manufacturer's instructions with a gun having a nozzle that fits the joint width. Force sealant into joints to fill the joints solidly without air pockets. Tool sealant after application to ensure adhesion. Sealant shall be uniformly smooth and free of wrinkles. Upon completion of sealant application, roughen partially filled or unfilled joints, apply sealant and tool smooth as specified.

3.4 PROTECTION AND CLEANING

A. Protection: Protect areas adjacent to joints from sealant smears. Masking tape may be used for this purpose if removed five to ten (5-10) minutes after the joint is filled.

B. Final Cleaning: Upon completion of sealant application, remove remaining smears and stains and leave the work in a clean and neat condition.

1. Masonry and Other Porous Surfaces: Immediately scrape off fresh sealant that has been smeared on masonry and rub clean with a solvent as recommended by the sealant manufacturer. Allow excess sealant to cure for twenty-four (24) hours then remove by wire brushing or sanding.
2. Metal and Other Non-Porous Surfaces: Remove excess sealant with a solvent-moistened cloth.

END OF SECTION

1 PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Surface preparation and field application of paints and coatings

1.2 REFERENCES

A. Reference Standards: The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

1. American Society for Testing and Materials (ASTM) Publications:

D 16-11 Paint, Related Coatings, Materials and Applications

1.3 DEFINITIONS

A. Conform to ASTM D 16 for interpretation of terms used in this Section.

1.4 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: Provide data on all finishing products.

C. Samples: Submit two (2) sample sleeves, illustrating range of colors available for each surface finishing product scheduled. Architect will select colors from manufacturer's full color line.

D. Manufacturer's Instructions: Indicate special surface preparation procedures and substrate conditions requiring special attention.

1.5 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three (3) years documented experience.

B. Applicator: Company specializing in performing the work of this section with minimum five (5) years documented experience.

1.6 REGULATORY REQUIREMENTS

A. Conform to Connecticut Building Code for flame and smoke rating requirements for finishes.

1.7 DELIVERY, STORAGE AND HANDLING

A. Deliver, store, protect and handle products to site under provisions of Section 01600.

B. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

C. Container label to include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation and instructions for mixing and reducing.

D. Store paint materials at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.8 ENVIRONMENTAL REQUIREMENTS

A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.

B. Minimum Application Temperatures for Latex Paints: 45 degrees F for interiors; 50 degrees F for exterior; unless required otherwise by manufacturer's instructions.

2 PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers – Paint

1. ICI Paints, Cleveland, OH (800.454.3336)
2. PPG Industries, Inc., Pittsburgh, PA (412.434.3131)
3. Sherwin Williams Stores Division (800.474.3794)

B. Manufacturers – Paint (Metal Surfaces)

1. Hunting Specialty Products; **Hammerite**
2. Benjamin Moore & Co., Montvale, NJ (800.344.0400); **Eggshell Finish House Paint with IronClad Galvanized Metal Latex Primer**

C. Substitutions: Under provisions of Section 01600.

2.2 MATERIALS

A. Coatings: Ready mixed, except field catalyzed coatings. Process pigments to a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating; good flow and brushing properties; capable of drying or curing free of streaks or sags.

B. Accessory Materials: Linseed oil, shellac, turpentine, paint thinners and other materials not specifically indicated but required to achieve the finishes specified, of commercial quality.

C. Fastener Head Cover Materials: Latex filler.

2.3 FINISHES

A. Finish ratings of interior paints and coatings shall conform to the following criteria:

1. Exits: Class A.

a. All other Areas: Class A or B.

3 PART 3 – EXECUTION

3.1 EXAMINATION

A. Verify that surfaces and substrate conditions are ready to receive work as instructed by the product manufacturer.

B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.

C. Test shop applied primer for compatibility with subsequent cover materials.

D. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces is below the following maximums:

1. Plaster and Gypsum Wallboard: Twelve percent (12%).
2. Masonry, Concrete and Concrete Unit Masonry: Twelve percent (12%).

3.2 PREPARATION

A. Remove or mask electrical plates, hardware, light fixture trim, escutcheons and fittings prior to preparing surfaces or finishing.

B. Correct defects and clean surfaces which affect work of this section. Remove existing coatings that exhibit loose surface defects.

C. Seal with shellac and seal marks which may bleed through surface finishes.

D. Existing Coatings: Remove surface irregularities by scraping or sanding to produce uniform substrate for coating application.

E. Impervious Surfaces: Remove mildew by scrubbing with solution of tri-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.

F. Gypsum Board Surfaces: Fill minor defects with filler compound. Spot prime defects after repair.

G. Galvanized Surfaces: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.

H. Shop Primed Steel Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Prime metal items including shop primed items with incompatible surfaces to the finished coating system.

I. Concrete and Unit Masonry Surfaces Scheduled to Receive Paint Finish: Remove dirt, loose mortar, scale, salt or alkali powder and other foreign matter. Remove oil and grease with a solution of tri-sodium phosphate; rinse well and allow to dry. Remove stains caused by weathering of corroding metals with a solution of sodium metasilicate after thoroughly wetting with water. Allow to dry.

3.3 APPLICATION

A. Apply products in accordance with manufacturer's instructions.

B. Do not apply finishes to surfaces that are not dry.

C. Apply each coat to uniform finish.

D. Apply each coat of paint slightly darker than preceding coat unless otherwise approved.

E. Sand wood and metal lightly between coats to achieve required finish.

F. Vacuum clean surfaces free of loose particles. Use tack cloth just prior to applying next coat.

G. Allow applied coat to dry before next coat is applied.

3.4 CLEANING

A. Clean work under provisions of 01700.
B. Collect waste material which may constitute a fire hazard, place in closed metal containers and remove daily from site.

3.5 SCHEDULE

A. Steel – Galvanized:

1. One (1) coat galvanized primer.
2. Two (2) coats of alkyd enamel, gloss.

B. Steel – Primed:

1. Touch-up with latex primer.
2. Two (2) coats of latex enamel, gloss.

C. Gypsum Board (Dry Environments):

1. One (1) coat of latex primer sealer.
2. Two (2) coats of latex enamel, eggshell.

D. Concrete, Concrete Block:

1. One (1) coat of primer sealer latex.
2. Two (2) coats of acrylic latex, gloss.

END OF SECTION

1 PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes preformed, rigid and flexible pipe insulation; insulating cements; field-applied jackets; accessories and attachments; and sealing compounds.

B. Related Sections include the following:

1. Section 15062 – Hangers and Supports: Pipe insulation shields and protection saddles

1. 3 SUBMITTALS

A. Submit under provisions of General Requirements and Section 15010.

B. Product Data: Provide product description, list of materials and thickness for each service and locations.

C. Manufacturer's Installation Instructions: Indicate procedures which ensure acceptable workmanship and installation standards will be achieved.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing the work of this Section with minimum three (3) years experience.

B. Fire-Test-Response Characteristics: As determined by testing materials identical to those specified in this Section according to ASTM E 84, by a testing and inspecting agency acceptable to authorities having jurisdiction. Factory label insulation and jacket materials and sealer and cement material containers with appropriate markings of applicable testing and inspecting agency.

1. Insulation Installed Indoors: Flame-spread rating of 25 or less, and smoke-developed rating of 50 or less.
2. Insulation Installed Outdoors: Flame-spread rating of 75 or less, and smoke-developed rating of 150 or less.

1.5 DELIVERY, STORAGE, PROTECTION AND HANDLING

A. Deliver, store, protect and handle products to site under provisions of General Requirements.

B. Deliver materials to site in original factory packaging labeled with manufacturer's identification, including product density and thickness.

C. Store insulation in original wrapping and protect from weather and construction traffic.

D. Protect insulation against dirt, water, chemical and mechanical damage.

1.6 COORDINATION

A. Coordinate size and location of supports, hangers and insulation shields specified in Section 15062.

B. Coordinate clearance requirements with piping installer for insulation application.

1.7 ENVIRONMENTAL REQUIREMENTS

A. Maintain ambient temperatures and conditions required by manufacturers of adhesives, mastics and insulation cements.

B. Maintain temperature during and after installation for a minimum period of twenty-four (24) hours.

1.8 SCHEDULING

A. Schedule insulation application after testing piping systems and, where required, after installing and testing heat-trace tape. Insulation application may begin on segments of piping that have satisfactory test results.

2 PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one (1) of the following:

1. Mineral-Fiber Insulation:

a. CertainTeed Manson
b. Knauf FiberGlass GmbH
c. Owens-Corning Fiberglas Corp.
d. Schuller International, Inc.

2.2 INSULATION MATERIALS

A. Mineral-Fiber Insulation: Glass fibers bonded with a thermosetting resin complying with the following:

1. Preformed Pipe Insulation: Comply with ASTM C 547, Type 1, with factory-applied, all-purpose, vapor-retarder jacket.
2. Blanket Insulation: Comply with ASTM C 553, Type II, without facing.
3. Fire-Resistant Adhesive: Comply with MIL-A-3316C in the following classes and grades:

a. Class 1, Grade A for bonding glass cloth and tape to unfaced glass-fiber insulation, for sealing edges of glass-fiber insulation and for bonding lagging cloth to unfaced glass-fiber insulation.
b. Class 2, Grade A for bonding glass-fiber insulation to metal surfaces.

4. Vapor-Retarder Mastics: Fire- and water-resistant, vapor-retarder mastic for indoor applications. Comply with MIL-C-19565C, Type II.
5. Mineral-Fiber Insulating Cements: Comply with ASTM C 195.
6. Expanded or Exfoliated Vermiculite Insulating Cements: Comply with ASTM C 196.
7. Mineral-Fiber, Hydraulic-Setting Insulating and Finishing Cement: Comply with ASTM C 449.

B. Prefabricated Thermal Insulating Fitting Covers: Comply with ASTM C 450 for dimensions used in performing insulation to cover valves, elbows, tees and flanges.

C. All insulating materials for interior application shall have a Flame Spread Rating less than or equal to 25; and a Smoke Developed Rating less than or equal to 50.

2.3 FIELD-APPLIED JACKETS

A. General: ASTM C 921, Type 1, unless otherwise indicated.

B. PVC Jacket: High-impact, ultraviolet-resistant PVC; 20 mils thick; roll stock ready for shop or field cutting and forming. (Provide for exposed storm and radon piping above grade/slab.)

1. Adhesive: As recommended by insulation material manufacturer.

2. PVC Jacket Color: White or gray, as selected by Architect
3. Flame Spread: 25 or less.
4. Smoke Developed: 50 or less.

C. Heavy PVC Fitting Covers: Factory-fabricated fitting covers manufactured from 30-mil-thick, high-impact, ultraviolet-resistant PVC.

1. Shapes: 45- and 90-degree, short- and long-radius elbows, tees, valves, flanges, reducers, end caps, soil-pipe hubs, traps, mechanical joints and P-trap and supply covers for handicapped accessible lavatories.
2. Adhesive: As recommended by insulation material manufacturer.

2.4 ACCESSORIES AND ATTACHMENTS

A. Glass Cloth and Tape: Comply with MIL-C-20079H, Type I for cloth and Type II for tape. Woven glass-fiber fabrics, plain weave, presized a minimum of 8 oz./sq. yd.

1. Tape Width: 4 inches.

B. Bands: ¾ inch wide, in one (1) of the following materials compatible with jacket:

1. Stainless Steel: ASTM A 666, Type 304; 0.020 inch thick.
2. Galvanized Steel: 0.005 inch thick.
3. Aluminum: 0.007 inch thick.
4. Brass: 0.010 inch thick.
5. Nickel-Copper Alloy: 0.005 inch thick.

C. Wire: 0.080-inch, nickel-copper alloy; 0.062-inch, soft-annealed, stainless steel; or 0.062-inch, soft-annealed, galvanized steel.

2.5 VAPOR RETARDERS

A. Mastics: Materials recommended by insulation material manufacturer that are compatible with insulation materials, jackets and substrates.

3 PART 3 – EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions for compliance with requirements for installation and other conditions affecting performance of insulation application.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Preparation: Clean and dry pipe and fitting surfaces. Remove materials that will adversely affect insulation application.

3.3 GENERAL APPLICATION REQUIREMENTS

A. Apply insulation materials, accessories and finishes according to the manufacturer's written instructions; with smooth, straight and even surfaces; free of voids throughout the length of piping, including fittings, valves and specialties.

B. Refer to schedules at the end of this Section for materials, forms, jackets and thicknesses required for each piping system.

C. Use accessories compatible with insulation materials and suitable for the service. Use accessories that do not corrode, soften or otherwise attack insulation or jacket in either wet or dry state.

D. Apply insulation with longitudinal seams at top and bottom of horizontal pipe runs.

E. Apply multiple layers of insulation with longitudinal and end seams staggered.

F. Do not weld brackets, clips or other attachment devices to piping, fittings and specialties.

G. Seal joints and seams with vapor-retarder mastic on insulation indicated to receive a vapor retarder.

H. Keep insulation materials dry during application and finishing.

I. Apply insulation with tight longitudinal seams and end joints. Bond seams and joints with adhesive recommended by the insulation material manufacturer.

J. Apply insulation with the least number of joints practical.

K. Apply insulation over fittings, valves and specialties, with continuous thermal and vapor-retarder integrity, unless otherwise indicated. Refer to special instructions for applying insulation over fittings, valves and specialties.

L. Hangers and Anchors: Where vapor retarder is indicated, seal penetrations in insulation at hangers, supports, anchors and other projections with vapor-retarder mastic.

1. Apply insulation continuously through hangers and around anchor attachments.

2. For insulation application where vapor retarders are indicated, extend insulation on anchor legs at least 12 inches from point of attachment to pipe and taper insulation ends. Seal tapered ends with a compound recommended by the insulation material manufacturer to maintain vapor retarder.
3. Install insert materials and apply insulation to tightly join the insert. Seal insulation to insulation inserts with adhesive or sealing compound recommended by the insulation material manufacturer.
4. Cover inserts with jacket material matching adjacent pipe insulation. Install shields over jacket, arranged to protect the jacket from tear or puncture by the hanger, support and shield.

M. Insulation Terminations: For insulation application where vapor retarders are indicated, taper insulation ends. Seal tapered ends with a compound recommended by the insulation material manufacturer to maintain vapor retarder.

N. Apply adhesives and mastics at the manufacturer's recommended coverage rate.

O. Apply insulation with integral jackets as follows:

1. Pull jacket tight and smooth.
2. Circumferential Joints: Cover with 3-inch-wide strips, of same material as insulation jacket. Secure strips with adhesive and outward clinching staples along both edges of strip and spaced 4 inches o.c.
3. Longitudinal Seams: Overlap jacket seams at least 1½ inches. Apply insulation with longitudinal seams at bottom of pipe. Clean and dry surface to receive self-sealing lap. Staple laps with outward clinching staples along edge at 4 inches o.c.
4. Exception: Do not staple longitudinal laps on insulation having a vapor retarder.
5. Vapor-Retarder Mastics: Where vapor retarders are indicated, apply mastic on seams and joints and at ends adjacent to flanges, unions, valves and fittings.
6. At penetrations in jackets for thermometers and pressure gages, fill and seal voids with vapor-retarder mastic.

P. Roof Penetrations: Apply insulation for interior applications to a point even with top of roof flashing.

1. Seal penetrations with vapor-retarder mastic.
2. Apply insulation for exterior applications tightly joined to interior insulation ends.
3. Extend metal jacket of exterior insulation outside roof flashing at least 2 inches below top of roof flashing.
4. Seal metal jacket to roof flashing with vapor-retarder mastic.

Q. Exterior Wall Penetrations: For penetrations of below-grade exterior walls, terminate insulation flush with mechanical sleeve seal. Seal terminations with vapor-retarder mastic.

R. Interior Wall and Partition Penetrations: Apply insulation continuously through walls and floors.

S. Fire-Rated Wall and Partition Penetrations: Apply insulation continuously through penetrations of fire-rated walls and partitions.

1. Use only approved firestopping at penetrations of fire and smoke barriers.

T. Floor Penetrations: Apply insulation continuously through floor assembly.

1. For insulation with vapor retarders, seal insulation with vapor-retarder mastic where floor supports penetrate vapor retarder.

3.4 MINERAL-FIBER INSULATION APPLICATION

A. Apply insulation to straight pipes and tubes as follows:

1. Secure each layer of preformed pipe insulation to pipe with wire, tape or bands without deforming insulation materials.
2. Where vapor retarders are indicated, seal longitudinal seams and end joints with vapor-retarder mastic. Apply vapor retarder to ends of insulation at intervals of 15 to 20 feet to form a vapor retarder between pipe insulation segments.
3. For insulation with factory-applied jackets, secure laps with outward clinched staples at 6 inches o.c.
4. For insulation with factory-applied jackets with vapor retarders, do not staple longitudinal tabs but secure tabs with additional adhesive as recommended by the insulation material manufacturer and seal with vapor-retarder mastic.

B. Apply insulation to flanges as follows:

1. Apply preformed pipe insulation to outer diameter of pipe flange.
2. Make width of insulation segment the same as overall width of the flange and bolts, plus twice the thickness of the pipe insulation.
3. Fill voids between inner circumference of flange insulation and outer circumference of adjacent straight pipe segments with mineral-fiber blanket insulation.
4. Apply canvas jacket material with manufacturer's recommended adhesive, overlapping seams at least 1 inch, and seal joints with vapor-retarder mastic.

C. Apply insulation to fittings and elbows as follows:

1. Apply premolded insulation sections of the same material as straight segments of pipe insulation when available. Secure according to manufacturer's written instructions.
2. When premolded insulation elbows and fittings are not available, apply mitered sections of pipe insulation, or glass-fiber blanket insulation, to a thickness equal to adjoining pipe insulation. Secure insulation materials with wire, tape or bands.
3. Cover fittings with heavy PVC fitting covers. Overlap PVC covers on pipe insulation jackets at least 1 inch at each end. Secure fitting covers with manufacturer's attachments and accessories. Seal seams with tape and vapor-retarder mastic.

D. Apply insulation to valves and specialties as follows:

1. Apply premolded insulation sections of the same material as straight segments of pipe insulation when available. Secure according to manufacturer's written instructions.
2. When premolded insulation sections are not available, apply glass-fiber blanket insulation to valve body. Arrange insulation to permit access to packing and to allow valve operation without disturbing insulation. For check valves, arrange insulation for access to strainer basket without disturbing insulation.
3. Apply insulation to flanges as specified for flange insulation application.
4. Use preformed heavy PVC fitting covers for valve sizes where available. Secure fitting covers with manufacturer's attachments and accessories. Seal seams with tape and vapor-retarder mastic.
5. For larger sizes where PVC fitting covers are not available, seal insulation with canvas jacket and sealing compound recommended by the insulation material manufacturer.

3.5 FIELD-APPLIED JACKET APPLICATION

A. Apply PVC jacket for exposed piping in finished spaces.

3.6 PIPING SYSTEM APPLICATIONS

A. Insulation materials and thicknesses are specified in schedules at the end of this Section.

B. Items Not Insulated: Unless otherwise indicated, do not apply insulation to the following systems, materials and equipment:

1. Flexible connectors.
2. Vibration-control devices.
3. Fire-suppression piping.
4. Drainage piping located in crawl spaces or below slab or grade, unless otherwise indicated.
5. Chrome-plated pipes and fittings, unless potential for personnel injury.
6. Air chambers, unions, strainers, check valves, plug valves and flow regulators.

3.7 FIELD QUALITY CONTROL

A. Inspection: Owner will engage a qualified inspection agency to perform the following field quality-control inspections, after installing insulation materials, jackets and finishes, to determine compliance with requirements:

B. Inspection: Engage a qualified inspection agency to perform the following field quality-control inspections, after installing insulation materials, jackets and finishes, to determine compliance with requirements:

1. Inspect fittings and valves randomly selected by Architect.
2. Remove fitting covers from twenty (20) elbows or one percent (1%) of elbows, whichever is less, for various pipe sizes.
3. Remove fitting covers from twenty (20) valves or one percent (1%) of valves, whichever is less, for various pipe sizes.

C. Insulation applications will be considered defective if sample inspection reveals noncompliance with requirements. Remove defective Work and replace with new materials according to these Specifications.

D. Reinstall insulation and covers on fittings and valves uncovered for inspection according to these Specifications.

3.8 INSULATION APPLICATION SCHEDULE, GENERAL

A. Refer to insulation application schedules for required insulation materials, vapor retarders and field-applied jackets.

B. Application schedules identify piping system and indicate pipe size ranges and material, thickness and jacket requirements.

3.9 INTERIOR INSULATION APPLICATION SCHEDULE

A. Service: Rainwater Conductors (Interior, Above Slab Storm Piping)

1. Operating Temperature: 32 to 100 deg F (0 to 38 deg C).

2. Insulation Material: Mineral fiber.
3. Insulation Thickness: 1 inch.
4. Field-Applied Jacket: None, except mechanical rooms.
5. Vapor Retarder Required: Yes.
6. Finish: None.

B. Service: Roof drain bodies.
1. Operating Temperature: 32 to 100 deg F (0 to 38 deg C).
2. Insulation Material: Mineral fiber.
3. Insulation Thickness: 1 inch.
4. Field-Applied Jacket: None, except mechanical rooms.
5. Vapor Retarder Required: Yes.
6. Finish: None.

END OF SECTION

1 PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Pipe and pipe fittings
B. Pipe hangers, supports, isolators and associated anchors
C. Storm water drainage system (drain)

1.2 RELATED SECTIONS

A. Section 06100 – Rough Carpentry
B. Section 07525 – Modified Bitumen Roofing
C. Section 07900 – Sealants
D. Section 15260 – Piping Insulation

1.3 REFERENCES

A. Reference Standards: The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

1. American Society for Testing and Materials (ASTM) Publications:

A 74-09	Cast Iron Soil Pipe and Fittings
C 564-11	Rubber Gaskets for Cast Iron Soil Pipe and Fittings

2. America Society of Mechanical Engineers (ASME) Publications:

A112.6.4-03	Roof, Deck and Balcony Drains

3. International Association of Plumbing and Mechanical Officials (IAPMO) Publications:

IGC 187-09Roof Drains with Integral Overflow Drain or Air Vent

1.4 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: Provide data on pipe materials, pipe fittings, valves and accessories. Provide manufacturers catalog information. Indicate valve data and ratings.

C. Submit manufacturer’s product data on the drains.

1.5 PROJECT RECORD DOCUMENTS

A. Submit under provisions of Section 01700.

1.6 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three (3) years documented experience.

B. Installer: Company specializing in performing the work of this section with minimum three (3) years experience.

2 PART 2 – PRODUCTS

2.1 STORM WATER PIPING, ABOVE GRADE

A. Cast Iron Pipe: ASTM A 74 extra heavy weight.

1. Fittings: Cast iron.
2. Joints: ASTM C 564, neoprene gasket system.

2.2 ROOF DRAINS

A. Manufacturers

1. Standard Roof Drain:

a. Zurn Industries, Inc., Falconer, NY (716.665.1132); **Series RD-2120**
b. Josam Company, Michigan City, ID (800.365.6726); **Series 21500**
c. Substitutions: Under provisions of Section 01600.

B. Roof Drain:

1. Compliance: ANSI/ASME A112.6.4 and IAPMO IGC 187.
2. Provide drain with adjustable extensions and underdeck clamp. Provide with cast iron dome(s), no hub outlet(s) and combined flashing clamp(s) and gravel stop(s). Size for conditions in the field. The Contractor will verify all roof leader sizes before submitting shop drawings.

2.3 PIPE HANGERS AND SUPPORTS

A. Hangers for Pipe Sizes 2 to 4 Inches and Cold Pipe Sizes 6 Inches and Over: Carbon steel, adjustable, clevis.

B. Multiple or Trapeze Hangers: Steel channels with welded spacers and hanger rods.

C. Shield for Insulated Piping 2½ Inches and Larger: Pipe covering protective saddles.

2.4 HANGER RODS

A. Steel Hanger Rods: Threaded both ends, threaded one end or continuous threaded.

3 PART 3 – EXECUTION

3.1 PREPARATION

A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.
B. Remove scale and dirt, on inside and outside, before assembly.
C. Prepare piping connections to equipment with flanges or unions.

3.2 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Provide non-conducting dielectric connections wherever jointing dissimilar metals.

C. Route piping in orderly manner and maintain gradient.

D. Install piping to conserve building space and not interfere with use of space.

E. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.

F. Provide clearance for installation of insulation.

3.3 DRAIN INSTALLATION

A. Remove all deleterious material from the opening.
B. Cut or adjust the opening to accommodate the new drain assembly.
C. Install the drain in accordance with the manufacturer’s instructions, adjusting the fitting to the existing scupper or leader.

3.4 PIPE HANGERS AND SUPPORTS

A. Support horizontal piping as follows:

PIPE SIZE	MAX. HANG. SPACING	HANG. DIAMETER
½ to 1¼ inch	6'-6"	3/8"
1½ to 2 inch	10'-0"	3/8"
2½ to 3 inch	10'-0"	½"
Cast Iron Drain & Vent	See Below	

B. Install hangers to provide minimum ½ inch space between finished covering and adjacent work.

C. Use hangers with 1½ inch minimum vertical adjustment.

D. Support horizontal cast iron pipe adjacent to each hub, with 5 feet maximum spacing between hangers.

E. Where several pipes can be installed in parallel and at same elevation, provide multiple or trapeze hangers.

F. Support riser piping independently of connected horizontal piping.

3.5 ERECTION TOLERANCES

A. Establish invert elevations, slopes for drainage to ¼ inch per foot minimum. Maintain gradients.

3.6 SERVICE CONNECTIONS

A. Provide new storm drain branches, connecting to existing storm leaders. Before commencing work check elevations required for storm drain connections, confirming ceiling elevations and ensure that the storm branches can be properly connected with slope for drainage above the existing ceiling systems.

3.7 JOB COMPLETION

A. Inspect completed drain network and correct all defects to meet the specification requirements.

B. Clean up all debris, excess materials and equipment and remove from site.

C. Replace damaged or removed ceiling tiles and underlayment with ceiling materials to match existing. Touch up paint wall and ceilings damaged by Contractor's operations and as permitted by the Owner.

D. Repair or replace defaced or disfigured other finishes and equipment caused by work of this Section.

E. Restrict construction traffic and equipment movement within the buildings to only essential personnel. Provide appropriate protection against traffic and construction activities.

END OF SECTION

1 PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes preformed, rigid and flexible pipe insulation; insulating cements; field-applied jackets; accessories and attachments; and sealing compounds.

B. Related Sections include the following:

1. Section 15062 – Hangers and Supports: Pipe insulation shields and protection saddles

1. 3 SUBMITTALS

A. Submit under provisions of General Requirements and Section 15010.

B. Product Data: Provide product description, list of materials and thickness for each service and locations.

C. Manufacturer's Installation Instructions: Indicate procedures which ensure acceptable workmanship and installation standards will be achieved.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing the work of this Section with minimum three (3) years experience.

B. Fire-Test-Response Characteristics: As determined by testing materials identical to those specified in this Section according to ASTM E 84, by a testing and inspecting agency acceptable to authorities having jurisdiction. Factory label insulation and jacket materials and sealer and cement material containers with appropriate markings of applicable testing and inspecting agency.

1. Insulation Installed Indoors: Flame-spread rating of 25 or less, and smoke-developed rating of 50 or less.
2. Insulation Installed Outdoors: Flame-spread rating of 75 or less, and smoke-developed rating of 150 or less.

1.5 DELIVERY, STORAGE, PROTECTION AND HANDLING

A. Deliver, store, protect and handle products to site under provisions of General Requirements.

B. Deliver materials to site in original factory packaging labeled with manufacturer's identification, including product density and thickness.

C. Store insulation in original wrapping and protect from weather and construction traffic.

D. Protect insulation against dirt, water, chemical and mechanical damage.

1.6 COORDINATION

A. Coordinate size and location of supports, hangers and insulation shields specified in Section 15062.

B. Coordinate clearance requirements with piping installer for insulation application.

1.7 ENVIRONMENTAL REQUIREMENTS

A. Maintain ambient temperatures and conditions required by manufacturers of adhesives, mastics and insulation cements.

B. Maintain temperature during and after installation for a minimum period of twenty-four (24) hours.

1.8 SCHEDULING

A. Schedule insulation application after testing piping systems and, where required, after installing and testing heat-trace tape. Insulation application may begin on segments of piping that have satisfactory test results.

2 PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one (1) of the following:

1. Mineral-Fiber Insulation:

a. CertainTeed Manson
b. Knauf FiberGlass GmbH
c. Owens-Corning Fiberglas Corp.
d. Schuller International, Inc.

2.2 INSULATION MATERIALS

A. Mineral-Fiber Insulation: Glass fibers bonded with a thermosetting resin complying with the following:

1. Preformed Pipe Insulation: Comply with ASTM C 547, Type 1, with factory-applied, all-purpose, vapor-retarder jacket.
2. Blanket Insulation: Comply with ASTM C 553, Type II, without facing.
3. Fire-Resistant Adhesive: Comply with MIL-A-3316C in the following classes and grades:

a. Class 1, Grade A for bonding glass cloth and tape to unfaced glass-fiber insulation, for sealing edges of glass-fiber insulation and for bonding lagging cloth to unfaced glass-fiber insulation.
b. Class 2, Grade A for bonding glass-fiber insulation to metal surfaces.

4. Vapor-Retarder Mastics: Fire- and water-resistant, vapor-retarder mastic for indoor applications. Comply with MIL-C-19565C, Type II.
5. Mineral-Fiber Insulating Cements: Comply with ASTM C 195.
6. Expanded or Exfoliated Vermiculite Insulating Cements: Comply with ASTM C 196.
7. Mineral-Fiber, Hydraulic-Setting Insulating and Finishing Cement: Comply with ASTM C 449.

B. Prefabricated Thermal Insulating Fitting Covers: Comply with ASTM C 450 for dimensions used in performing insulation to cover valves, elbows, tees and flanges.

C. All insulating materials for interior application shall have a Flame Spread Rating less than or equal to 25; and a Smoke Developed Rating less than or equal to 50.

2.3 FIELD-APPLIED JACKETS

A. General: ASTM C 921, Type 1, unless otherwise indicated.

B. PVC Jacket: High-impact, ultraviolet-resistant PVC; 20 mils thick; roll stock ready for shop or field cutting and forming. (Provide for exposed storm and radon piping above grade/slab.)

1. Adhesive: As recommended by insulation material manufacturer.

2. PVC Jacket Color: White or gray, as selected by Architect
3. Flame Spread: 25 or less.
4. Smoke Developed: 50 or less.

C. Heavy PVC Fitting Covers: Factory-fabricated fitting covers manufactured from 30-mil-thick, high-impact, ultraviolet-resistant PVC.

1. Shapes: 45- and 90-degree, short- and long-radius elbows, tees, valves, flanges, reducers, end caps, soil-pipe hubs, traps, mechanical joints and P-trap and supply covers for handicapped accessible lavatories.
2. Adhesive: As recommended by insulation material manufacturer.

2.4 ACCESSORIES AND ATTACHMENTS

A. Glass Cloth and Tape: Comply with MIL-C-20079H, Type I for cloth and Type II for tape. Woven glass-fiber fabrics, plain weave, presized a minimum of 8 oz./sq. yd.

1. Tape Width: 4 inches.

B. Bands: ¾ inch wide, in one (1) of the following materials compatible with jacket:

1. Stainless Steel: ASTM A 666, Type 304; 0.020 inch thick.
2. Galvanized Steel: 0.005 inch thick.
3. Aluminum: 0.007 inch thick.
4. Brass: 0.010 inch thick.
5. Nickel-Copper Alloy: 0.005 inch thick.

C. Wire: 0.080-inch, nickel-copper alloy; 0.062-inch, soft-annealed, stainless steel; or 0.062-inch, soft-annealed, galvanized steel.

2.5 VAPOR RETARDERS

A. Mastics: Materials recommended by insulation material manufacturer that are compatible with insulation materials, jackets and substrates.

3 PART 3 – EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions for compliance with requirements for installation and other conditions affecting performance of insulation application.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Preparation: Clean and dry pipe and fitting surfaces. Remove materials that will adversely affect insulation application.

3.3 GENERAL APPLICATION REQUIREMENTS

A. Apply insulation materials, accessories and finishes according to the manufacturer's written instructions; with smooth, straight and even surfaces; free of voids throughout the length of piping, including fittings, valves and specialties.

B. Refer to schedules at the end of this Section for materials, forms, jackets and thicknesses required for each piping system.

C. Use accessories compatible with insulation materials and suitable for the service. Use accessories that do not corrode, soften or otherwise attack insulation or jacket in either wet or dry state.

D. Apply insulation with longitudinal seams at top and bottom of horizontal pipe runs.

E. Apply multiple layers of insulation with longitudinal and end seams staggered.

F. Do not weld brackets, clips or other attachment devices to piping, fittings and specialties.

G. Seal joints and seams with vapor-retarder mastic on insulation indicated to receive a vapor retarder.

H. Keep insulation materials dry during application and finishing.

I. Apply insulation with tight longitudinal seams and end joints. Bond seams and joints with adhesive recommended by the insulation material manufacturer.

J. Apply insulation with the least number of joints practical.

K. Apply insulation over fittings, valves and specialties, with continuous thermal and vapor-retarder integrity, unless otherwise indicated. Refer to special instructions for applying insulation over fittings, valves and specialties.

L. Hangers and Anchors: Where vapor retarder is indicated, seal penetrations in insulation at hangers, supports, anchors and other projections with vapor-retarder mastic.

1. Apply insulation continuously through hangers and around anchor attachments.

2. For insulation application where vapor retarders are indicated, extend insulation on anchor legs at least 12 inches from point of attachment to pipe and taper insulation ends. Seal tapered ends with a compound recommended by the insulation material manufacturer to maintain vapor retarder.
3. Install insert materials and apply insulation to tightly join the insert. Seal insulation to insulation inserts with adhesive or sealing compound recommended by the insulation material manufacturer.
4. Cover inserts with jacket material matching adjacent pipe insulation. Install shields over jacket, arranged to protect the jacket from tear or puncture by the hanger, support and shield.

M. Insulation Terminations: For insulation application where vapor retarders are indicated, taper insulation ends. Seal tapered ends with a compound recommended by the insulation material manufacturer to maintain vapor retarder.

N. Apply adhesives and mastics at the manufacturer's recommended coverage rate.

O. Apply insulation with integral jackets as follows:

1. Pull jacket tight and smooth.
2. Circumferential Joints: Cover with 3-inch-wide strips, of same material as insulation jacket. Secure strips with adhesive and outward clinching staples along both edges of strip and spaced 4 inches o.c.
3. Longitudinal Seams: Overlap jacket seams at least 1½ inches. Apply insulation with longitudinal seams at bottom of pipe. Clean and dry surface to receive self-sealing lap. Staple laps with outward clinching staples along edge at 4 inches o.c.
4. Exception: Do not staple longitudinal laps on insulation having a vapor retarder.
5. Vapor-Retarder Mastics: Where vapor retarders are indicated, apply mastic on seams and joints and at ends adjacent to flanges, unions, valves and fittings.
6. At penetrations in jackets for thermometers and pressure gages, fill and seal voids with vapor-retarder mastic.

P. Roof Penetrations: Apply insulation for interior applications to a point even with top of roof flashing.

1. Seal penetrations with vapor-retarder mastic.
2. Apply insulation for exterior applications tightly joined to interior insulation ends.
3. Extend metal jacket of exterior insulation outside roof flashing at least 2 inches below top of roof flashing.
4. Seal metal jacket to roof flashing with vapor-retarder mastic.

Q. Exterior Wall Penetrations: For penetrations of below-grade exterior walls, terminate insulation flush with mechanical sleeve seal. Seal terminations with vapor-retarder mastic.

R. Interior Wall and Partition Penetrations: Apply insulation continuously through walls and floors.

S. Fire-Rated Wall and Partition Penetrations: Apply insulation continuously through penetrations of fire-rated walls and partitions.

1. Use only approved firestopping at penetrations of fire and smoke barriers.

T. Floor Penetrations: Apply insulation continuously through floor assembly.

1. For insulation with vapor retarders, seal insulation with vapor-retarder mastic where floor supports penetrate vapor retarder.

3.4 MINERAL-FIBER INSULATION APPLICATION

A. Apply insulation to straight pipes and tubes as follows:

1. Secure each layer of preformed pipe insulation to pipe with wire, tape or bands without deforming insulation materials.
2. Where vapor retarders are indicated, seal longitudinal seams and end joints with vapor-retarder mastic. Apply vapor retarder to ends of insulation at intervals of 15 to 20 feet to form a vapor retarder between pipe insulation segments.
3. For insulation with factory-applied jackets, secure laps with outward clinched staples at 6 inches o.c.
4. For insulation with factory-applied jackets with vapor retarders, do not staple longitudinal tabs but secure tabs with additional adhesive as recommended by the insulation material manufacturer and seal with vapor-retarder mastic.

B. Apply insulation to flanges as follows:

1. Apply preformed pipe insulation to outer diameter of pipe flange.
2. Make width of insulation segment the same as overall width of the flange and bolts, plus twice the thickness of the pipe insulation.
3. Fill voids between inner circumference of flange insulation and outer circumference of adjacent straight pipe segments with mineral-fiber blanket insulation.
4. Apply canvas jacket material with manufacturer's recommended adhesive, overlapping seams at least 1 inch, and seal joints with vapor-retarder mastic.

C. Apply insulation to fittings and elbows as follows:

1. Apply premolded insulation sections of the same material as straight segments of pipe insulation when available. Secure according to manufacturer's written instructions.
2. When premolded insulation elbows and fittings are not available, apply mitered sections of pipe insulation, or glass-fiber blanket insulation, to a thickness equal to adjoining pipe insulation. Secure insulation materials with wire, tape or bands.
3. Cover fittings with heavy PVC fitting covers. Overlap PVC covers on pipe insulation jackets at least 1 inch at each end. Secure fitting covers with manufacturer's attachments and accessories. Seal seams with tape and vapor-retarder mastic.

D. Apply insulation to valves and specialties as follows:

1. Apply premolded insulation sections of the same material as straight segments of pipe insulation when available. Secure according to manufacturer's written instructions.
2. When premolded insulation sections are not available, apply glass-fiber blanket insulation to valve body. Arrange insulation to permit access to packing and to allow valve operation without disturbing insulation. For check valves, arrange insulation for access to strainer basket without disturbing insulation.
3. Apply insulation to flanges as specified for flange insulation application.
4. Use preformed heavy PVC fitting covers for valve sizes where available. Secure fitting covers with manufacturer's attachments and accessories. Seal seams with tape and vapor-retarder mastic.
5. For larger sizes where PVC fitting covers are not available, seal insulation with canvas jacket and sealing compound recommended by the insulation material manufacturer.

3.5 FIELD-APPLIED JACKET APPLICATION

A. Apply PVC jacket for exposed piping in finished spaces.

3.6 PIPING SYSTEM APPLICATIONS

A. Insulation materials and thicknesses are specified in schedules at the end of this Section.

B. Items Not Insulated: Unless otherwise indicated, do not apply insulation to the following systems, materials and equipment:

1. Flexible connectors.
2. Vibration-control devices.
3. Fire-suppression piping.
4. Drainage piping located in crawl spaces or below slab or grade, unless otherwise indicated.
5. Chrome-plated pipes and fittings, unless potential for personnel injury.
6. Air chambers, unions, strainers, check valves, plug valves and flow regulators.

3.7 FIELD QUALITY CONTROL

A. Inspection: Owner will engage a qualified inspection agency to perform the following field quality-control inspections, after installing insulation materials, jackets and finishes, to determine compliance with requirements:

B. Inspection: Engage a qualified inspection agency to perform the following field quality-control inspections, after installing insulation materials, jackets and finishes, to determine compliance with requirements:

1. Inspect fittings and valves randomly selected by Architect.
2. Remove fitting covers from twenty (20) elbows or one percent (1%) of elbows, whichever is less, for various pipe sizes.
3. Remove fitting covers from twenty (20) valves or one percent (1%) of valves, whichever is less, for various pipe sizes.

C. Insulation applications will be considered defective if sample inspection reveals noncompliance with requirements. Remove defective Work and replace with new materials according to these Specifications.

D. Reinstall insulation and covers on fittings and valves uncovered for inspection according to these Specifications.

3.8 INSULATION APPLICATION SCHEDULE, GENERAL

A. Refer to insulation application schedules for required insulation materials, vapor retarders and field-applied jackets.

B. Application schedules identify piping system and indicate pipe size ranges and material, thickness and jacket requirements.

3.9 INTERIOR INSULATION APPLICATION SCHEDULE

A. Service: Rainwater Conductors (Interior, Above Slab Storm Piping)

1. Operating Temperature: 32 to 100 deg F (0 to 38 deg C).

2. Insulation Material: Mineral fiber.
3. Insulation Thickness: 1 inch.
4. Field-Applied Jacket: None, except mechanical rooms.
5. Vapor Retarder Required: Yes.
6. Finish: None.

B. Service: Roof drain bodies.
1. Operating Temperature: 32 to 100 deg F (0 to 38 deg C).
2. Insulation Material: Mineral fiber.
3. Insulation Thickness: 1 inch.
4. Field-Applied Jacket: None, except mechanical rooms.
5. Vapor Retarder Required: Yes.
6. Finish: None.

END OF SECTION

1 PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Pipe and pipe fittings
B. Pipe hangers, supports, isolators and associated anchors
C. Storm water drainage system (drain)

1.2 RELATED SECTIONS

A. Section 06100 – Rough Carpentry
B. Section 07525 – Modified Bitumen Roofing
C. Section 07900 – Sealants
D. Section 15260 – Piping Insulation

1.3 REFERENCES

A. Reference Standards: The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

1. American Society for Testing and Materials (ASTM) Publications:

A 74-09	Cast Iron Soil Pipe and Fittings
C 564-11	Rubber Gaskets for Cast Iron Soil Pipe and Fittings

2. America Society of Mechanical Engineers (ASME) Publications:

A112.6.4-03	Roof, Deck and Balcony Drains

3. International Association of Plumbing and Mechanical Officials (IAPMO) Publications:

IGC 187-09Roof Drains with Integral Overflow Drain or Air Vent

1.4 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: Provide data on pipe materials, pipe fittings, valves and accessories. Provide manufacturers catalog information. Indicate valve data and ratings.

C. Submit manufacturer’s product data on the drains.

1.5 PROJECT RECORD DOCUMENTS

A. Submit under provisions of Section 01700.

1.6 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three (3) years documented experience.

B. Installer: Company specializing in performing the work of this section with minimum three (3) years experience.

2 PART 2 – PRODUCTS

2.1 STORM WATER PIPING, ABOVE GRADE

A. Cast Iron Pipe: ASTM A 74 extra heavy weight.

1. Fittings: Cast iron.
2. Joints: ASTM C 564, neoprene gasket system.

2.2 ROOF DRAINS

A. Manufacturers

1. Standard Roof Drain:

a. Zurn Industries, Inc., Falconer, NY (716.665.1132); **Series RD-2120**
b. Josam Company, Michigan City, ID (800.365.6726); **Series 21500**
c. Substitutions: Under provisions of Section 01600.

B. Roof Drain:

1. Compliance: ANSI/ASME A112.6.4 and IAPMO IGC 187.
2. Provide drain with adjustable extensions and underdeck clamp. Provide with cast iron dome(s), no hub outlet(s) and combined flashing clamp(s) and gravel stop(s). Size for conditions in the field. The Contractor will verify all roof leader sizes before submitting shop drawings.

2.3 PIPE HANGERS AND SUPPORTS

A. Hangers for Pipe Sizes 2 to 4 Inches and Cold Pipe Sizes 6 Inches and Over: Carbon steel, adjustable, clevis.

B. Multiple or Trapeze Hangers: Steel channels with welded spacers and hanger rods.

C. Shield for Insulated Piping 2½ Inches and Larger: Pipe covering protective saddles.

2.4 HANGER RODS

A. Steel Hanger Rods: Threaded both ends, threaded one end or continuous threaded.

3 PART 3 – EXECUTION

3.1 PREPARATION

A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.
B. Remove scale and dirt, on inside and outside, before assembly.
C. Prepare piping connections to equipment with flanges or unions.

3.2 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Provide non-conducting dielectric connections wherever jointing dissimilar metals.

C. Route piping in orderly manner and maintain gradient.

D. Install piping to conserve building space and not interfere with use of space.

E. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.

F. Provide clearance for installation of insulation.

3.3 DRAIN INSTALLATION

A. Remove all deleterious material from the opening.
B. Cut or adjust the opening to accommodate the new drain assembly.
C. Install the drain in accordance with the manufacturer’s instructions, adjusting the fitting to the existing scupper or leader.

3.4 PIPE HANGERS AND SUPPORTS

A. Support horizontal piping as follows:

PIPE SIZE	MAX. HANG. SPACING	HANG. DIAMETER
½ to 1¼ inch	6'-6"	3/8"
1½ to 2 inch	10'-0"	3/8"
2½ to 3 inch	10'-0"	½"
Cast Iron Drain & Vent	See Below	

B. Install hangers to provide minimum ½ inch space between finished covering and adjacent work.

C. Use hangers with 1½ inch minimum vertical adjustment.

D. Support horizontal cast iron pipe adjacent to each hub, with 5 feet maximum spacing between hangers.

E. Where several pipes can be installed in parallel and at same elevation, provide multiple or trapeze hangers.

F. Support riser piping independently of connected horizontal piping.

3.5 ERECTION TOLERANCES

A. Establish invert elevations, slopes for drainage to ¼ inch per foot minimum. Maintain gradients.

3.6 SERVICE CONNECTIONS

A. Provide new storm drain branches, connecting to existing storm leaders. Before commencing work check elevations required for storm drain connections, confirming ceiling elevations and ensure that the storm branches can be properly connected with slope for drainage above the existing ceiling systems.

3.7 JOB COMPLETION

A. Inspect completed drain network and correct all defects to meet the specification requirements.

B. Clean up all debris, excess materials and equipment and remove from site.

C. Replace damaged or removed ceiling tiles and underlayment with ceiling materials to match existing. Touch up paint wall and ceilings damaged by Contractor's operations and as permitted by the Owner.

D. Repair or replace defaced or disfigured other finishes and equipment caused by work of this Section.

E. Restrict construction traffic and equipment movement within the buildings to only essential personnel. Provide appropriate protection against traffic and construction activities.

END OF SECTION