Sealed bids may be submitted to the Finance Office, 250 Main St. East Haven, Connecticut, 06512, on or before April 2nd, 2020 at 10:30 a.m., when they will be opened.

Scope: Removal and disposal of existing roof and installation of new EPDM System over the Assessor’s Office at 250 Main St. East Haven, Connecticut, 06512.

Specifications and Forms on which bids must be submitted will be available at the Finance Office, March 2nd, 2020, or they may be obtained online on the following Town Web Site:

www.townofeasthavenct.org

Addendum number 1: dated March 13, 2020, and subsequent addendums will be provided to all bidders.

The Director of Finance reserves the right to reject any or all bids to waive defects in same if it deems in the best interest of the Town to do so.

The Town of East Haven is an Affirmative Action Employer.

Jim Keeley
Acting Director of Finance

3/13/2020
TOWN OF EAST HAVEN

BID SPECIFICATIONS
AND
DOCUMENTS
CONTRACT REQUIREMENTS
FOR
THE REMOVAL AND DISPOSAL OF EXISTING ROOF AND
INSTALLATION OF NEW EPDM SYSTEM ABOVE ASSESSOR’S
OFFICE, TOWN HALL
250 MAIN STREET, EAST HAVEN, CT.
BID #20-06

PREPARED
BY THE
OFFICE OF THE TOWN ENGINEER
461 NORTH HIGH STREET
EAST HAVEN, CONNECTICUT
March 19th, 2020
# TABLE OF CONTENTS

## CONTRACT REQUIREMENTS

<table>
<thead>
<tr>
<th>Item</th>
<th>Section No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invitation to Bid</td>
<td>00010-1</td>
</tr>
<tr>
<td>Instruction to Bidders AIA Document 701</td>
<td>00100-5</td>
</tr>
<tr>
<td>Bid Form</td>
<td>00300-3</td>
</tr>
<tr>
<td>Statement of Bidder’s Qualifications</td>
<td>00310-2</td>
</tr>
<tr>
<td>Supplementary Instructions</td>
<td>00320-1</td>
</tr>
<tr>
<td>Non-Collusion Affidavit of Prime Bidder</td>
<td>00330-2</td>
</tr>
<tr>
<td>Notification to Bidders</td>
<td>00340-1</td>
</tr>
<tr>
<td>Contract Compliance Data Form</td>
<td>00350-1</td>
</tr>
<tr>
<td>Contractor’s Minority Business Enterprise Utilization Form</td>
<td>00360-1</td>
</tr>
<tr>
<td>Non-Collusion Affidavit of Subcontractor</td>
<td>00600-2</td>
</tr>
<tr>
<td>General Conditions of the Contract</td>
<td>00700-4</td>
</tr>
<tr>
<td>Notice to Labor Unions</td>
<td>00710-1</td>
</tr>
<tr>
<td>Affirmative Action Statement</td>
<td>00720-4</td>
</tr>
<tr>
<td>Bid Bond</td>
<td>00730-2</td>
</tr>
<tr>
<td>Human Rights</td>
<td>00740-5</td>
</tr>
<tr>
<td>Bid Surety</td>
<td>00750-1</td>
</tr>
<tr>
<td>Town of East Haven Insurance Requirements</td>
<td>00760-2</td>
</tr>
<tr>
<td>Certificate of Corporation</td>
<td>00770-1</td>
</tr>
<tr>
<td>Supplementary Conditions of the Contract</td>
<td>00800-2</td>
</tr>
<tr>
<td>List of Drawings (see attached)</td>
<td>00860-2</td>
</tr>
</tbody>
</table>

## DIVISION ONE-GENERAL REQUIREMENTS

<table>
<thead>
<tr>
<th>Item</th>
<th>Section No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summary of the Work</td>
<td>01010-2</td>
</tr>
<tr>
<td>Unit Prices</td>
<td>01026-1</td>
</tr>
<tr>
<td>Application for Payment</td>
<td>01027-4</td>
</tr>
<tr>
<td>Alternates</td>
<td>01030-2</td>
</tr>
<tr>
<td>Pre-Construction Meetings</td>
<td>01200-1</td>
</tr>
<tr>
<td>Shop Drawings, Product Dates and Samples</td>
<td>01340-2</td>
</tr>
<tr>
<td>Temporary Facilities and Controls</td>
<td>01500-4</td>
</tr>
<tr>
<td>Materials and Equipment</td>
<td>01600-4</td>
</tr>
<tr>
<td>Project Closeout</td>
<td>01700-3</td>
</tr>
</tbody>
</table>

## DIVISION TWO-SITEWORK

<table>
<thead>
<tr>
<th>Item</th>
<th>Section No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demolition</td>
<td>02070-3</td>
</tr>
</tbody>
</table>

## DIVISION SIX-WOOD AND PLASTICS

<table>
<thead>
<tr>
<th>Item</th>
<th>Section No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rough Carpentry</td>
<td>06100-3</td>
</tr>
</tbody>
</table>

## DIVISION SEVEN-THERMAL AND MOISTURE PROTECTION

<table>
<thead>
<tr>
<th>Item</th>
<th>Section No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fully Adhered Built Up Roofing System</td>
<td>07530</td>
</tr>
<tr>
<td>Roof Insulation</td>
<td>07220</td>
</tr>
<tr>
<td>DIVISION SIXTEEN-ELECTRICAL</td>
<td>SECTION NO. OF PAGES</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>Electrical</td>
<td>16000-15</td>
</tr>
</tbody>
</table>
TOWN OF EAST HAVEN

DEPARTMENT OF PUBLIC SERVICES

REMOVAL AND DISPOSAL OF EXISTING ROOF AND INSTALLATION

OF NEW EPDM SYSTEM AT

ASSESSOR’S OFFICE 250 MAIN STREET

1. RECEIPT AND OPENING OF BID FORM
Separate sealed bids will be received in the office of the Director of Finance, lower level, Town Hall, 250 Main Street, East Haven, Connecticut, 06512, until the time and date stated in the INVITATION TO BID. Bids shall then be publicly opened and read aloud.

All bids shall be submitted in sealed, envelopes clearly labeled with the name of the bidder, bidder’s address, and the words “BID DOCUMENTS- INSTALLATION OF NEW EPDM SYSTEM AT THE ASSESSOR’S OFFICE, 250 MAIN ST, EAST HAVEN, CT, 06512, as to guard against opening prior to the time set therefor. Bids may be forwarded by mail.

The Town may consider informal any bid not prepared and submitted in accordance with the provisions hereof and may waive any informalities in or reject any and all bids.

2. PREPARATION OF BID
Each bid must be submitted on the prescribed form and all blank spaces for bid prices must be filled, handwritten in ink or typewritten in both words and figures. Bid prices shall include all labor, materials and equipment and disposal fees necessary to complete the work in accordance with the Contract Documents. In case of discrepancy between the words and the numerals, the words shall govern. Ditto marks are not considered. Extraneous writing or printing shall not be used. The bidder shall sign his bid correctly. If the bid is made by an individual, his name and post office address must be shown. If made by a firm or partnership or by a corporation, the bid must be signed by an official of the firm, partnership or corporation authorized to sign contracts, and must also show the post office address of the firm, partnership, or corporation.

3. SECURITY FOR BIDS
Each bid must be accompanied by a Bid Bond with surety acceptable to the Town or a Certified Check of the bidder in the amount equal to FIVE PERCENT (5%) of the amount of the bid. The successful bidder, upon his failure or refusal to execute and deliver the Contract, Certificates of Insurance or Bonds required within FIFTEEN (15) DAYS, unless otherwise agreed upon, after he has received notice of the acceptance of the bid shall forfeit to the Town, as liquidated damages for such failure or refuse, the Bid Surety submitted with this bid. Such checks or bond will be returned to all except the lowest bidder, within ten (10) days after the opening of bids. The remaining checks or bond will be returned promptly after the Town and the accepted bidder have executed the contract, unless forfeited as hereinafter stipulated, or if no award has been made, within sixty (60) days after the date of the opening of the bids, upon demand of the bidder at any time thereafter, except that with the approval of the bidder and the surety, the Town may extend the time for the award and may retain the bid and certified check or bond of the low bidder for as long a time as may be agreed upon by the Town, Bidder and surety.

00010-1
1. DEFINITIONS
2. BIDDER’S REPRESENTATIONS
3. BIDDING DOCUMENTS
4. BIDDING PROCEDURES
5. CONSIDERATION OF BIDS
6. POST-BID INFORMATION
7. PERFORMANCE BOND AND PAYMENT BOND
8. FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR
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 the execution of the Contract.

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

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

1.4 A bid is a complete and properly signed 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 Document as the base, to which work may be added or deducted from the amount of the Base Bid if the corresponding change in the work, as described in their Bidding Documents, is accepted.

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 their Bidding Documents, is accepted.

1.7 A unit price is an amount stated in the Bid as 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.

1.9 A Sub-Bidder is a person or entity who submits a bid to a Bidder for materials, equipment or labor for a proportion 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 and the Bid is made in accordance therewith.

2.1.2 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, for other portions of the Project, if any, being bid concurrently or presently under construction.

2.1.3 The bidder has visited the site, becomes 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 Document.

2.1.4 The Bid is based upon the materials, equipment and systems required by the Bidding Document 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 or others 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 the Engineer assumes responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.

3.1.4 In making copies of the Bidding Documents available on the above terms, the Owner and the Engineer do so only for the purpose of obtaining Bids on the Work and do not confer a license or grant permission for any other use 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 Engineer 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 engineer 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 or required function, dimension, appearance and quality to be met by any proposed substations.

3.3.2 No substitution will be considered prior to receipt of bids unless written request for approval has been received by the Engineer 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 and 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 substitutions is upon the proposer. The engineer’s decision of approval or disapproval of a proposed substitution shall be final.

3.3.3 If the engineer 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 Documents.

3.4 ADDENDA

3.4.1 Addenda will be mailed or delivered to all who are known by issuing the 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 No addenda will be issued 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 FORMS AND STYLE OF BIDS

4.1.1 Bids shall be submitted on forms identical to the form included with the bidding documents.

4.1.2 All blanks on the bid form shall be filled in by typewriter or manually in ink.

4.1.3 Where so indicated by the makeup of the bid form, sums shall be expressed in both words and figures, and in case of discrepancy between two, the amount written in words shall govern.

4.1.4 Interlineations, alterations, and erasures must be initialed by the signer to 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 id security, state the bidder’s refusal to accept award or less than the combination of bids stipulated by the bidder. The bidder shall make no additional stipulations on the id form nor qualify the bid in any other manner.

4.1.7 Each copy of the bid shall include the legal name of the bidder and a statement that the bidder is a sole proprietor, partnership, corporation or other legal entity. Each copy shall be signed by the person or person 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 If so stipulated in the advertisement or invitation to bid, or supplementary instructions to bidders, each bid shall be accompanied by a bid security in the form and amount required, pledging the bidder will enter into a contract or fail to furnish such bonds if required, the amount of the bid security shall be forfeited to the Owner liquidated damages, not as a penalty. The amount of the bid security shall no be forfeited to the owner in the event the owner fails to comply with sub-paragraph 6.2.1.

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 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 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, then 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.

4.4 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 shall be mailed and postmarked 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 modified or resubmitted.

ARTICLE 5
CONSIDERATION OF BIDS

5.1 OPENING BIDS

5.1.1 Unless stated otherwise in the advertisement or invitation to bid, the properly identified bids received on time will be opened publicly and will be read aloud. An abstract of the bids will be made available to bidders. When it has been stated that bids will be opened privately, an abstract of the same information may, the discretion of the owner, be made available to the bidders within a reasonable time.

5.2 REJECTION OF BIDS

5.2.1 The owner shall have the right to reject any or all bids, reject a bid not accompanied by a required bid security or by other data required by the bidding documents, or reject a bid which is in any way incomplete or irregular.

5.3 ACCEPTANCE OF BID (AWARD)

5.3.1 It is the intent of the owner to award a contract to the lowest responsible 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 or irregularities in a bid received and to accept the bid which, in the owner’s judgement, is in the owner’s own best interests.

5.3.2 The owner shall have the right to accept alternates in any order on combination, unless otherwise specifically provided in the bidding documents, and to determine the low bidder on the sum of the base bid and alternates accepted.

ARTICLE 6
POST-BID INFORMATION

6.1 CONTRACTOR’S QUALIFICATION STATEMENT

6.1.1 Bidders to whom award of a contract is under consideration shall submit to the engineer upon request, a properly executed AIA Document A306, 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

6.2.1 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 is furnished, the bidder will not be required to execute the agreement between the owner and the contractor.

6.3 SUBMITTALS

6.3.1 The bidder shall, as soon as practicable after notification of selection for the award of a contract, furnish to the owner through the engineer in writing:
   a. a designation of the work to be performed with the bidder’s own;
   b. names of the manufacturers, products and the suppliers of principal items or systems of materials and equipment proposed for the work; and
   c. 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 engineer 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 award of the contract, the engineer will notify the bidder in writing if either the owner or engineer, after due investigation, has reasonable objection to a person or entity proposed by the bidder. If the owner or engineer 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 difference in cost occasioned by such substitution. The owner may accept the adjusted bid price or disqualification, bid security will not be forfeited.

6.3.4 Persons and entities proposed by the Bidder and to whom the owner and engineer 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 engineer.

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 obligation 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 sub-paragraph 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

8.1 FORM TO BE USED

8.1.1 Unless otherwise required in the bidding documents, the agreement for the work will be written on AIA Document A101, Standard from of Agreement Between Owner and Contractor where the Basis of payment is a stipulated sum.
BID FORM

BID PROPOSAL

REMOVAL AND INSTALLATION OF ROOF

TOWN HALL-ASSESSOR’S OFFICE

250 MAIN STREET, EAST HAVEN, CONNECTICUT

TO:

PROPOSAL OF:  NAME______________________________

COMPANY NAME________________________

STREET ADDRESS________________________

CITY, STATE, ZIP________________________

I have reviewed the Bid Documents entitled “BID DOCUMENTS- INSTALLITION OF NEW EPDM SYSTEM AT THE ASSESSOR’S OFFICE, 250 MAIN ST. EAST HAVEN, CT. 06512.” As prepared by the Engineering Department, Town of East Haven, as listed in the Project Manual Table of Contents and Addenda numbered and dated as follows:

________________________________________________________________________

I have included the provisions of the above Bid Documents and Addenda in my Bid. I have examined the Bid documents and existing site and building, visited the site, and I submit the following bid:

In submitting this Bid, I agree as follows:

1. To hold open my bid for thirty days (30) after bid opening.
2. To enter into and execute a contract. If awarded on the basis of this bid, according to the Contract Form listed in The Project Manual.
3. To deliver properly executed Performance Bond and Payment Bond as described in The Instructions at the time of execution to The Contract. The amount of the premiums for the subject Bonds is included in the lump sum price below.
4. To accomplish the work in accord with the Contract documents.
5. To begin work within ________________ calendar days of official “Notice of Acceptance” of Bid or execution of Contract, whichever is first.
6. To substantially complete the work within ________________ Calendar days of “Acceptance of Bid” or execution of Contract, whichever is first, but not later than _________________.

00300-1
BASE BID:

will furnish ALL labor, materials, equipment, and services necessary to perform the work required by the Bid documents including installation of fully adhered EPDM Roofing System and Roof Insulation after complete removal of existing Roof System and Disposal of said existing Roof System in complete compliance with ALL Federal, State and Local Environmental Standards and Laws and will take in full payment therefore the Lump Sum Price of:

Dollars ($ ).

NOTE: The warranty quoted in the Base Bid for all labor and materials is the Industry Standard of 20 years.

QUOTED PRICES:

The following prices are for labor and materials that may be required as a result of change to the Contract Documents. These prices are hereby made a part of the Bid. These prices include overhead and profit.

By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in case of a joint bid, each party thereto certifies as to its own organization under penalty or perjury, that to the best of their knowledge and belief:

1. The prices in The Bid have been arrived at independently without collusion, consultation, communication, or Agreement, for the purpose of restricting competition. As to any matter relating to such prices with any other Bidder or with any competitor;

2. Unless otherwise required by law, the prices which have been quoted in this Bid have not been knowingly disclosed by The Bidder and will not knowingly be disclosed by The Bidder prior to opening, directly or indirectly, to any other Bidder or to any competitor; and

3. No attempt has been made or will be made by The Bidder to induce any other person partnership or corporation to submit or not submit a Bid for the purpose of restricting competition.
The Bidder, by submittal of this Bid, agrees with The Owner that the amount of the Bid security deposited with this Bid fairly and reasonably represents the amount of damages The Owner will suffer due to the failure of the Bidder to fulfill his/her Agreement as above provided:

_____________________________
(Firm Name)

By: __________________________________________
(Signature and Title of Authorized Representative)

_____________________________
(Business Address)

_____________________________
(Telephone Number) (Fax Number)

_____________________________
(City and State)

Date: __________________________

The bidder is:

1. Corporation, licensed in the State of ________________________________
2. Partnership
3. Individual

NOTE:
If the Bidder is a corporation, affix corporate seal and give below the names of its Presidents, Treasurer, and General Manager, if any; if a partnership, give full names and residential addresses of all partners; and if an individual, give residential address if different from business address.

Also, if the Bidder is a corporation, attach a statement of authorization to submit this proposal from the governing body of the corporation.

Corporate Seal:

END OF BID FORM SECTION

00300-3
STATEMENT OF BIDDER’S QUALIFICATIONS

(To be submitted with the bid)

All questions MUST be answered, and the data given MUST be clear and comprehensive. This statement MUST be notarized. If necessary, questions may be answered on separate attached sheets. The Bidder may submit any additional information he/she desires.

1. Name of Bidder
2. Permanent main office address
3. When organized
4. If a corporation, where incorporated
5. How many years have you been engaged in the contracting business under your present firm or trade name?
6. Contracts on hand: (schedule these showing amount of each contract and the appropriate anticipated dates of completion).
7. General character of work performed by your company
8. Have you ever failed to complete the work awarded to you?
   a. If so, where and why?
9. Have you ever defaulted on a contract?
   a. If so, when and why?
10. List the more important projects recently completed by your company, stating the approximate cost for each, and the month and year completed.
11. List all major equipment available for this project.
12. List the experiences you have in work that is similar to this project
13. List the background and experience of the principal members of your organization, including officers.
14. List the work to be performed by subcontractors and summarize the dollar value of each subcontract.
15. Credit available
   $____________________
16. Give bank references:

17. Will you, upon request, fill out a detailed financial statement and furnish any other information that may be required by the owner?
18. The undersigned hereby authorized and request any person, firm or corporation to furnish any information requested by the owner in verification of the recitals comprising this Statement of Bidder's Qualifications.

Dated this __________________day of________________________, 20____.

___________________________________________

(Name of Bidder)

By: _________________________________________

Title: _________________________________________

State of _______________________________________

County of _______________________________________ 

______________________________________________ 

deposes and says that he/she is ___________________ of____________________ 

______________________________________________ 

(Name of Organization)

and that the answers to the foregoing questions and all statements therein contained are true and correct.

Subscribed and sworn to before me this ________ day of _____________, 20____.

______________________________________________ 

(Notary Public)

My commission expires ____________________________________

END OF BIDDER QUALIFICATION STATEMENT FORM

00310-2
SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

1. The following supplements modify the “Instruction to Bidders,” AIA Document A701m Fourth Edition, 1987. Where a portion of the Instructions to Bidders is modified or deleted by these Supplementary Instructions to Bidders, the unaltered portions of the Instructions to Bidders shall remain in effect.

2. Article 2; Bidder’s Representations
   a. 2.1.3 Add the following clause 2.1.3.1 to subparagraph 2.1.3:
      i. 2.1.3.1 Each prime bidder shall visit the site and examine the existing conditions prior to bidding.

3. Article 4; Bidding Procedure
   a. 4.1 Form and Style of Bids
      i. 4.1.1 Add the following sentence to subparagraph 4.1.1: Submit Bids in Duplicate, not Triplicate

Add the following Subparagraphs 4.1.8, 4.1.9, to Article 4, Paragraph 4.1;

4.1.8 For additional work that is authorized and performed by the General Contractor, the cost to the Owner will include an allowance for overhead and profit, which is fifteen percent (15%) added to the total of time performed and material necessary to accomplish said work. For additional work that may be authorized and performed by subcontractors, the General Contractor’s overhead and profit shall not exceed a total of ten percent (10%) of the subcontractor’s cost as calculated by means stated in the previous sentences.

4.1.9 State number of calendar days after award of contract that work will begin and the number of calendar days to substantially complete the work in accordance with the contract documents. If information supplied to Owner is not satisfactory, the owner shall notify the successful bidder of same, and bidder may revise said information to satisfy the owner’s requirements. If no resolution is found acceptable, the owner may reject said bid.

END OF SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

00320-1
TOWN OF EAST HAVEN

NON-COLLUSION AFFIDAVIT OF PRIME BIDDER

State of ________________________________

ss

County of ________________________________

being first duly sworn, deposes and says that:

1. He/She is (owner, partner, officer, representative, or agent of)

the bidder that submitted the bid.

2. He/She is fully informed respecting the preparation and contents of the attached bid and of all pertinent circumstances respecting such bid.

3. Such bid is genuine and is not collusive or sham bid.

4. Neither the said bidder nor any of its officers, partners, owners, agents, representatives, employees, or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly with any other bidder, firm or person to submit a collusive or sham bid in connection with the contract for which the attached bid has been submitted or to refrain from bidding in connection with such contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other bidder, firm or person to fix the price or prices in the attached bid or of any other bidder, or to fix any overhead, profit or cost element of the bid prices or the bid price of any other bidder, or to secure through nay collusion, conspiracy, connivance or unlawful agreement any advantage against the Town of East Haven or any person interested in the proposed contract.

5. The price or prices quoted in the attached bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the bidder or any of its agents, representatives, owners, employees or parties in interest, including his affiant: and

00330-1
6. That no officer or employee or other person whose salary payable in whole or in part from the Town Treasury is directly or indirectly interested in this bid, or in the supplies, materials, equipment, work or labor to which relates, or in any of the profits thereof.

________________________________________
Signed

________________________________________
Title

Subscribed and sworn to before me on this ___________ day of ____________, 20____.

________________________________________
Signed

________________________________________
Title

Seal Required:

My commission expires ____________________________, 20____.
NOTIFICATION TO BIDDERS

This contract to be awarded is subject to contract compliance requirements mandated by Section 4-114a of the Connecticut General Statutes and, when the awarding agency is the state, Section 46a-71(d) of the Connecticut General Statutes. There are Contract Compliance Regulations codified at Section 4-114a-1 et seq. of the Regulations of Connecticut State Agencies which establish a procedure for the awarding of all contracts covered by Section 4-114a and 46a-71(d) of the Connecticut General Statutes.

According to Section 4-114a-3(9) of the Regulations of Connecticut State Agencies regarding Contract Compliance, every agency awarding a contract subject to the contract compliance requirements has an obligation to “aggressively solicit the participation of legitimate minority business enterprises as bidder, contractors, subcontractors and suppliers of materials.” “Minority business enterprise” is defined in Section 4-114a of the Connecticut General Statutes as a business wherein fifty-one percent or more of the capital stock, or assets belong to a person or persons: “(1) Who are active in the daily affairs of the enterprise; (2) who have the power to direct the management and policies of the enterprise; and (3) who are member of a minority, as such term is defined in Section 32-9n(a).” “Minority” groups are defined in Section 32-9n(a) of the Connecticut General Statutes as “(1) Black Americans (2) Hispanics Americans... (3) Women... (4) Asian Pacific Americans and Pacific Island or (5) American Indians...” The above definitions apply to the contract compliance requirements by virtue of Section 4-114a-1(1) of the Regulations of Connecticut State Agencies regarding Contract Compliance.

The awarding agency will consider the following factors when reviewing the bidder’s qualifications under the contract compliance requirements:

(a) The bidder’s success in implementing an affirmative action plan:
(b) The bidder’s success in developing an apprenticeship program complying with Section 46a-68-1 to 46a-68-17 inclusive, of the Regulations of Connecticut State Agencies:
(c) The bidder’s promise to develop and implement a successful affirmative action plan:
(d) The bidder’s submission of EEO-1 data indicating that the composition of its work force is at or near parity when compared to the racial and sexual composition of the work force in the relevant labor market area: and
(e) The bidder’s promise to set aside a portion of the contract for legitimate minority business enterprises. See Section 4-114a-3(10) of the Regulations of Connecticut State Agencies regarding Contract Compliance.

INSTRUCTION: Bidder must sign acknowledgement below, detach along dotted line, and return acknowledgement to Awarding Agency along with bid proposal.

The undersigned acknowledges receiving and reading a copy of the “Notification to Bidders.”

______________  ______________
Signature                        Date
On behalf of: __________________________

00340-1
CONTRACT COMPLIANCE DATA FORM
(If your organization filed a Federal EEO-1 or EEO-4 form, substitute it for this form.)

<table>
<thead>
<tr>
<th>PRIME CONTRACTOR (name)</th>
<th>PRINCIPAL OFFICER (name)</th>
<th>(title)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADDRESS (contractor) (street) (town) (zip)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Use figures for pay period ending nearest 15th of previous month.

<table>
<thead>
<tr>
<th>Job Categories</th>
<th>Overall Totals Male &amp; Female</th>
<th>A. White (not of Hispanic Origin)</th>
<th>B. Black (not of Hispanic Origin)</th>
<th>C. Hispanic</th>
<th>D. Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Officials &amp; Managers</td>
<td>Male Female</td>
<td>Male Female</td>
<td>Male Female</td>
<td>Male Female</td>
<td>Male Female</td>
</tr>
<tr>
<td>Professionals</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technicians</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sales Workers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Office and Clerical</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Craft Wkrs. (skilled)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operatives (semi-skilled)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laborers (unskilled)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Service workers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Totals Above</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Totals one year ago</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apprentices</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Is the composition of your work force at or near parity when compared to the racial and sexual composition of the work force in the relevant labor market area? Yes { } No { }

Does the contractor promise to set aside a portion of the contract for legitimate minority business enterprises? Yes { } No { }

CONTRACTOR'S AUTHORIZED SIGNATURE
00350-1
CONTRACTOR'S MINORITY BUSINESS ENTERPRISES
UTILIZATION FORM

<table>
<thead>
<tr>
<th>NAME AND ADDRESS OF AWARDING AGENCY:</th>
<th>NAME AND ADDRESS OF CONTRACTOR:</th>
</tr>
</thead>
</table>

| CONTRACT |

NOTICE TO CONTRACTOR: Under Section 4-114a-3 of the Contract Compliance Regulations, contractors are required to make GODD FAITH EFFORTS to employ Minority Business Enterprises (MBEs) as subcontractors and suppliers of materials on all projects subject to contract compliance requirements. The contract which is referenced above is subject to contract compliance requirements.

INSTRUCTIONS: List the names and addresses of all MBEs you have selected as subcontractors and suppliers of materials for this project. If the MBEs selected as subcontractors and suppliers of materials meet the criteria for MBEs set out in Section 4-114a of the Connecticut General Statutes, Concurrently registered with the Department of Economic Development and if the contractor wishes the Commission on Human Rights and Opportunities (CHMO) to consider favorable the selection of an unregistered MBE in the evaluation of the contractor's good faith efforts, contractors MUST complete the triplicate, with the original sent to the CHMO, Contract Compliance Unit, 10 Washington Street, Hartford, Connecticut, 06106; one copy sent to the Awarding Agency; one copy retained by contractor. If the contractor does not wish the CHRO to consider selection of an unregistered MBE in its evaluation of the contractor's good faith efforts, no affidavit need be made.

(Attach additional pages if necessary, using same headings)

<table>
<thead>
<tr>
<th>NAME AD ADDRESS OF ALL MBE SUBCONTRACTOR(S) OR SUPPLIER(S) OF MATERIALS:</th>
<th>Check here if MBE(s) qualify under Section 4-114a of the Conn. Gen. Stats.</th>
<th>Check here if MBE(s) is unregistered but wants consideration for good faith effort</th>
</tr>
</thead>
</table>

00360-1
TOWN OF EAST HAVEN
NON-COLLUSION AFFIDAVIT OF PRIME BIDDER

State of ____________________________

ss

County of ____________________________

being first duly sworn, deposes and says that:

1. He/She is (owner, partner, officer, representative, or agent of)

   the bidder that submitted the bid.

2. He/She is fully informed respecting the preparation and contents of the attached bid and of
   all pertinent circumstances respecting such bid.

3. Such bid is genuine and is not collusive or sham bid.

4. Neither the said bidder nor any of its officers, partners, owners, agents, representatives,
   employees, or parties in interest, including this affiant, has in any way colluded, conspired,
   connived or agreed, directly or indirectly with any other bidder, firm or person to submit a
   collusive or sham bid in connection with the contract for which the attached bid has been
   submitted or to refrain from bidding in connection with such contract, or has in any manner,
   directly or indirectly, sought by agreement or collusion or communication or conference
   with any other bidder, firm or person to fix the price or prices in the attached bid or of any
   other bidder, or to fix any overhead, profit or cost element of the bid prices or the bid price
   of any other bidder, or to secure through nay collusion, conspiracy, connivance or unlawful
   agreement any advantage against the Town of East Haven or any person interested in the
   proposed contract.

5. The price or prices quoted in the attached bid are fair and proper and are not tainted by any
   collusion, conspiracy, connivance or unlawful agreement on the part of the bidder or any
   of its agents, representatives, owners, employees or parties in interest, including his affiant:

00330-2
6. That no officer or employee or other person whose salary payable in whole or in part from the Town Treasury is directly or indirectly interested in this bid, or in the supplies, materials, equipment, work or labor to which relates, or in any of the profits thereof.

________________________________________
Signed

________________________________________
Title

Subscribed and sworn to before me on this ______ day of ____________, 20___.

________________________________________
Signed

________________________________________
Title

Seal Required:
My commission expires __________________________, 20___.
GENERAL CONDITIONS

A. GENERAL

The director of Public Services or his designated agent shall be the Town’s direct contact with the contractor. Periodic conferences may be held to review the status of work. Written status reports may also be required of the contractor. The contractor shall designate one (1) person who shall be the Contactor’s contact with the Town, who shall have the authority to act in accordance with the terms of this contract.

The contractor shall employ only honest and responsible employees, skilled in the tasks assigned to them. The contractor shall be responsible for all conduct of his employees. The contractor shall furnish the Town of East Haven upon request, a list of names, addresses and ages of employees working for the contractor.

All work shall be completed in a thoroughly professional and workmanlike manner in strict accordance with the contract documents.

B. INDEMNITY

The contractor agrees to indemnify the Town against and save the Town harmless from any and all liability and loss from any demand, claim, suit, or action based upon any alleged injury or death of any person including any employee of the contractor and for damage to any property that may occur or that may be alleged to have occurred as part of or in the course of the performance of the work, or from failure to guard against the same, and for any governmental fine or penalty or enforcement action (including but not limited to such action with regard to environmental regulations) whether such act or failure to act is by the contractor or any subcontractor anyone directly or indirectly employed by any of them or by anyone for whose acts any of them may be liable, and the contractor agrees, at its own expense, to pay all charges for attorneys in connection with the defense against any such claim, and if any judgment or penalty should be rendered against the Town in any such action, the contractor will satisfy and discharge the same without cost or expense to the Town.

C. INSURANCE

Before commencing work, the contractor shall obtain certificates of insurance and deliver same to the Director of Finance and shall maintain insurance of kinds and in at least the amounts specified hereunder in a form satisfactory to the Town; during the performance of the work such certificates shall contain provisions that the Town shall be given thirty (30) days advance written notice by registered mail of change in, or cancellation of, coverage and the Town shall be named additional insured therein;
REQUIREMENTS

Workers Compensation: The contractor shall obtain compensation insurance as required under the Worker’s Compensation Law of the State of Connecticut, covering all his employees and further agrees to indemnify and save harmless the Town from all liability, demands, losses and expenses that may arise on account of any injury to any of his said employees or as a result of any action or inaction by the contractor. If self-insured, the contractor shall certify that it is not in arrears to second injury funds payments.

Liability insurance: the contractor shall carry manufacturer’s and contractor’s public liability insurance with limits of $1,000,000 C.S.L. to protect the contractor and its subcontractors against claims for injury to or death of one or more than one person because of accidents which may occur or result from operations under the contract. Such insurance shall cover the use of all equipment, including but not limited to excavating machinery, trenching machines, cranes, hoists, rollers, concrete mixers, mother vehicles, Bulky Waste compacting and hauling vehicles, etc., in the execution of this contract.

Property Damage: The contractor shall carry, during the life of the contract, property damage insurance in an amount of not less than $500,000 to protect it and its subcontractors from claims for property damage which might arise from operations under the contract.

Automobile Insurance: The contractor shall carry, and require that its subcontractors carry automobile insurance covering all motor vehicles used on the work with limits of $1,000,000 C.S.L. personal injury liability and $500,000 property damage liability, to protect against claims which might arise from the operations of this contract.

Product Liability Insurance: The contractor shall carry during the life of the contract, product liability insurance with limits of not less than $1,000,000 to protect against claims which might arise from operations under this contract.

Additional Named Insured: The successful bidder shall provide certificates of insurance showing coverage by an insurance carrier authorized by the State of Connecticut to write insurance in the state. The certificate shall show the Town of East Haven as an additional name insured and shall be submitted to the Director of Finance prior to providing any services under the contract. Said certificate should contain the following endorsements:

The contractor agrees to hold harmless and indemnify the Town for claims arising out of negligence, gross negligence and/or willful acts of the contractor or any of its subcontractors in the performance of its services under this agreement.
The contractor and insurance carrier waive governmental immunity in the
adjustment of claims or defense of any suit, action or claim brought against the
Town of East Haven.

In addition, please note that all certificates of insurance must include:

1. Endorsement of the work description, contract name and number and
   location;
2. An endorsement that the insurance company will give at least thirty
   (30) days written notice to the Town prior to any modifications or
   cancellation of any such insurance coverage; and
3. An endorsement that the contractor will be responsible for the payment
   of all insurance premiums and/or changes.

Various Insurance: At the direction of the Town, the contractor may be asked to
submit copies of its Worker’s Compensation and Manufacturer’s and Contractor’s
Public Liability, Property Damage, Automobile, Fire and Extended Coverage, if
applicable, Insurance Policies to the Town of East Haven for review and approval.
The Town of East Haven may, in writing, notify the contractor of any disapproval of
any such policies, and satisfactory policies shall be provided in place of those
disapproved. The contractor shall require its subcontractors to obtain policies of
similar insurance before each commences work. All such insurance shall be carried
with financially responsible insurance companies, licensed in the State of
Connecticut and approved by the Town of East Haven and shall be kept in force
until the contractor’s work is accepted by the Town of East Haven. Contacts of
Insurance covering all operations under this contract which expire before the
contractor’s work is accepted by the Town of East Haven shall be renewed and new
Certificates of Insurance submitted to the Town of East Haven for its approval.

The above insurance requirements shall also apply to all subcontractors and the
contractor shall not permit any subcontractor to commence work until the
subcontractor has acquired the necessary insurance and approval is granted for same.

D. Failure to Perform:
If the contractor is adjudged as bankrupt, or if he makes a general assignment for the
benefit of his creditors, or if a receiver is appointed on account of his insolvency, or if he
fails to supply enough properly skilled laborers or proper equipment or material, or if he
fails to make prompt payment to his employees, or persistently disregards instruction of
the Town, or fails to prosecute the work or any separate part thereof with such diligence
as will insure its completion in accordance with the terms of this contract, or fails to
observe or perform the provisions of the contract documents, or otherwise be guilty of a
violation of any provision of the contract documents, the Town may serve written notice
00700-3
to the contractor, without prejudice to any other rights or remedies of the Town of its intention to terminate the contract, such notices to contain the reasons for such intention to terminate the contract, and unless within five (5) days after the serving of such notice upon the contractor, such violation shall be corrected or delay shall cease, the contract shall, upon expiration of said five (5) days, cease and terminate.

In such event, the Town will take over the work and prosecute the same to completion by contract or otherwise, the contractor and his sureties shall be liable to the Town for any excess cost occasioned to the Town thereby. The foregoing provisions are in addition to, and not in limitation of the rights of the Town under any other provisions of the contract document.
NOTICE TO LABOR UNIONS OR OTHER ORGANIZATIONS OF WORKERS
NONDISCRIMINATION IN EMPLOYMENT

TO: ____________________________
   (Name of union or organization of workers)

The undersigned currently holds contract(s) with ____________________________
   (Name of Applicant)
   Town of East Haven

or (a) subcontract(s) with a prime contractor holding such contract(s).

You are advised that under the provisions of the above contract(s) or subcontract(s) and in accordance
with Executive Order 11246, as amended, dated September 24, 1965, as amended, the undersigned is
obliged not to discriminate against any employee or applicant for employment because of race, color,
creed, or national origin. This obligation not to discriminate in employment includes, but is not limited
to, the following:

HIRING, PLACEMENT, UPGRAING, TRANSFER, OR DEMOTION,
RECRUITMENT, ADVERTISING, OR SOLICITATION FOR EMPLOYMENT,
TRAINING DURING EMPLOYMENT, RATES OF PAY OR OTHER FORMS OF
COMPENSATION, SELECTION FOR TRAINING INCLUDING
APPRENTICESHIP, LAYOFF OR TERMINATION.

This notice is furnished you pursuant to the provisions of the above contract(s) or subcontract(s) and
Executive Order 11246, as amended.

Copies of this notice will be posted by the undersigned in conspicuous places available to employees
or applicants for employment.

____ We are an open Shop.

____ We are a closed Shop.

__________________________
Company Name

__________________________
Address

__________________________
City and State

__________________________
Contractor or Subcontractor

__________________________
Date

00710-1
TOWN OF EAST HAVEN
AFFIRMATIVE ACTION STATEMENT

REQUIREMENT-

Any vendor or bidder seeking to do business with the Town of East Haven must, upon request, supply the Finance Office with any information concerning the Affirmative Action/Equal Employment Practices of the vendor/bidder. Failure to supply such information, when requested, will result in the termination of any further transactions between the vendor/bidder and the Town of East Haven.

NOTE-

All vendor/bidders with more than ten (10) employees shall be required to complete the Affirmative Action/Equal Opportunity Employment Requirements Statement on an annual basis except as noted below:

1. All vendors/bidders with less than ten (10) employees are exempt from this requirement:
2. All vendors/bidders that have completed this form within the last year:

If either of the above applies, please indicate the:

   a. Number of Employees: ______________________
   b. Completed this form within one (1) year: yes { } no { }
      Date Completed: _____________________________

FOR SEALED BIDS-

All bidders submitting a sealed bid will be required to complete the Affirmative Action Statement. If the form has been completed in the past year, please include a Xerox copy of the initial form included with your bid. If significant changes have taken place in the past year, please update the changes on this form.

Contact Person

Company Name

Address and Zip Code

Telephone Number

Fax Number

Type of Organization (Please check one)

   Corporation       Partnership       Individual

00720-1
If vendor/bidder filling this application is not the above-named company, please provide the name, address, telephone and fax number of the reporting unit, branch agent, or representative.

Agent/Representative

Unit

Address and Zip Code

Telephone Number

Fax Number

EQUAL EMPLOYMENT OPPORTUNITY:
The vendor/bidder is instructed to complete the following:

1. Does the company have a written policy statement regarding equal employment opportunity? Yes { } No { } (If yes, attach a copy)

2. In recruiting employees, are all sources of recruitment notified that all qualified applicants will receive equitable consideration? Yes { } No { } (If yes, provide a brief description of what methods were employed)

3. Do all recruitment advertisements state that you are an Equal Opportunity Employer? Yes { } No { }

4. Please list by name any contact person, any local community agency or other group providing minority and female placement service which you have contacted in the last twelve (12) months. If none, please state:

5. If additional means are employed to advertise or solicit minority and female applicants for employment opportunities within your company please indicate.

00720-2
6. Does your company maintain a written Affirmative Action Plan for the employment of minorities and females? Yes { } No { } (If yes, attach a copy)

7. Please indicate the name and address of the company official(s) responsible for carrying out the Equal Opportunity/Affirmative Action Program for your Company.

8. If a written Affirmative Action for your company is not in place, please estimate the number of vacancies expected during the next twelve (12) months and indicate the numerical or percentage goals you have set for the employment of minority people and females to make your labor force reflective of the labor market in which you operate.

The vendor is hereby notified that failure to complete the above form in a satisfactory manner will preclude such vendor from being actively considered to contract with the Town of East Haven. The vendor is further advised the Affirmative Action Statement included with the bid document will become a part of the contract and that any breach of such statements will constitute a breach of contract subject to such remedies provided by law.

I certify that there are no misrepresentations, omissions, or falsifications in the foregoing statements and answers and that all entries above are true, complete and correct to the best of my knowledge and belief.

Subscribed and sworn to before me on this ____________ day of ________________, 20___.

Signed

Title

Seal Required:

My commission expires ________________________________, 20___.

00720-3
# REFERENCES

<table>
<thead>
<tr>
<th>Project Name:</th>
<th>Contract Amount:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location of Project:</td>
<td>Telephone #:</td>
</tr>
<tr>
<td>Contact Person:</td>
<td></td>
</tr>
<tr>
<td>Address:</td>
<td></td>
</tr>
<tr>
<td>Project Name:</td>
<td>Contract Amount:</td>
</tr>
<tr>
<td>Location of Project:</td>
<td>Telephone #:</td>
</tr>
<tr>
<td>Contact Person:</td>
<td></td>
</tr>
<tr>
<td>Address:</td>
<td></td>
</tr>
<tr>
<td>Project Name:</td>
<td>Contract Amount:</td>
</tr>
<tr>
<td>Location of Project:</td>
<td>Telephone #:</td>
</tr>
<tr>
<td>Contact Person:</td>
<td></td>
</tr>
<tr>
<td>Address:</td>
<td></td>
</tr>
<tr>
<td>Project Name:</td>
<td>Contract Amount:</td>
</tr>
<tr>
<td>Location of Project:</td>
<td>Telephone #:</td>
</tr>
<tr>
<td>Contact Person:</td>
<td></td>
</tr>
<tr>
<td>Address:</td>
<td></td>
</tr>
<tr>
<td>Project Name:</td>
<td>Contract Amount:</td>
</tr>
<tr>
<td>Location of Project:</td>
<td>Telephone #:</td>
</tr>
<tr>
<td>Contact Person:</td>
<td></td>
</tr>
<tr>
<td>Address:</td>
<td></td>
</tr>
<tr>
<td>Project Name:</td>
<td>Contract Amount:</td>
</tr>
<tr>
<td>Location of Project:</td>
<td>Telephone #:</td>
</tr>
<tr>
<td>Contact Person:</td>
<td></td>
</tr>
<tr>
<td>Address:</td>
<td></td>
</tr>
</tbody>
</table>

00720-4
TOWN OF EAST HAVEN

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that they undersigned

______________________________ as PRINCIPAL, held firmly bound

unto the Town of East Haven, Connecticut hereinafter call the “Town,” in the penal sum of

_________________________ dollars, ($_________), lawful money of the United States for the

payment of which sum well and truly to be made, we bind ourselves, heirs, executors,
administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that where as the Principal has

submitted the Accompanying Bid, dated ________________________ , 20____, for

______________________________________________________________

NOW THEREFORE, if the Principal shall not withdraw said Bid within the period

specified therein after the opening of the same, or within any extended time period agreed to by

the Principal, Surety and Town, or, if no period be specified, within ninety (90) days after the

said opening, and shall within the period specified therefore, or if no period be specified, within

ten (10) days after the prescribed forms are presented to him for signature, enter into a written

contract with the Town in accordance with the bid as accepted, and give bond with good and

sufficient surety or sureties, as may be required, for the faithful performance and proper

fulfillment of such contract or in the event of the withdrawal of said bid within the period

specified, or failure to enter into such said bid and the amount for which the Town may procure

the required work or supplies or both, if the latter be in excess of the former, then the above

obligation shall be void and of no effect, otherwise to remain in full force and virtue.

Failure to comply with the aforementioned condition shall result in the forfeiture of the

bid bond as liquidated damages.

IN WITNESS WHEREOF, the above bounded parties have exacted this instrument under

their several seal this __________ day of ____________, 20___, the name and corporate

seal of each by its undersigned representative, pursuant to authority of its governing body.

No extension of time or other modification of this bid bond shall be valid unless agreed to in

writing by the parties to this bond.

00730-1
In presence of:

__________________________________________ Individual Principal (Seal)

__________________________________________ Business Address

__________________________________________ Individual Principal (Seal)

__________________________________________ Business Address

Attest:

By: ______________________________________ Corporate Principal (Seal)

__________________________________________ Business Address

Attest:

By: ______________________________________ Corporate Principal (Seal)

__________________________________________ Business Address

Counter signed by: ____________________________________________

*Attorney-in-Fact, State of

*Power-of-Attorney for person signing for surety company must be attached to this bond.
COMMISSION ON HUMAN RIGHTS AND OPPORTUNITIES
CONTRACT COMPLIANCE REGULATIONS
NOTIFICATION TO BIDDERS
(Revised 09/17/87)

The contract to be awarded is subject to contract compliance requirements mandated by Sections 4a-60 and 4a-60a of the Connecticut General Statutes; and, when the awarding agency is the State, Sections 46a-71(d) and 46a-81h(d) of the Connecticut General Statutes. There are Contract Compliance Regulations codified at Section 46a-68j-21 through 43 of the Regulations of Connecticut State Agencies, which establish a procedure for awarding all contracts covered by Sections 4a-60 and 46a-71(d) of the Connecticut General Statutes.

According to Section 46a-68j-30(9) of the Contract Compliance Regulations, every agency awarding a contract subject to the contract compliance requirements has an obligation to “aggressively solicit the participation of legitimate minority business enterprises as bidders, contractors, subcontractors and suppliers of materials.” “Minority business enterprise” is defined in Section 4a-60 of the Connecticut General Statutes as a business wherein fifty-one percent or more of the capital stock, or assets belong to a person or persons: “(1) Who are active in daily affairs of the enterprise; (2) who have the power to direct the management and policies of the enterprise; and (3) who are members of a minority, as such term is defined in subsection (a) of Section 32-9n.” “Minority” groups are defined in Section 32-9n of the Connecticut General Statutes as “(1) Black Americans . . . (2) Hispanic Americans . . . (3) persons who have origins in the Iberian Peninsula . . . (4) Women . . . (5) Asian Pacific Americans and Pacific Islanders; (6) American Indians . . .” An individual with a disability is also a minority business enterprise as provided by Section 4a-60g of the Connecticut General Statutes. The above definitions apply to the contract compliance requirements by virtue of Section 46a-68j-21(11) of the Contract Compliance Regulations.

The awarding agency will consider the following factors when reviewing the bidder’s qualifications under the contract compliance requirements:

(a) the bidder’s success in implementing an affirmative action plan;
(b) the bidder’s success in developing an apprenticeship program complying with Sections 46a-68-1 to 46a-68-17 of the Administrative Regulations of Connecticut State Agencies, inclusive;
(c) the bidder’s promise to develop and implement a successful affirmative action plan;
(d) the bidder’s submission of employment statistics contained in the “Employment Information Form”, indicating that the composition of its workforce is at or near parity when compared to the racial and sexual composition of the workforce in the relevant labor market area; and
(e) the bidder’s promise to set aside a portion of the contract for legitimate minority business enterprises. See Section 46a-68j-30(10)(E) of the Contract Compliance Regulations.

INSTRUCTIONS AND OTHER INFORMATION

The following BIDDER CONTRACT COMPLIANCE MONITORING REPORT must be completed in full, signed, and submitted with the bid for this contract. The contract awarding agency and the Commission on Human Rights and Opportunities will use the information contained therein to determine the bidders compliance to Sections 4a-60 and 4a-60a CONN. GEN. STAT., and Sections 46a-68j-23 of the Regulations of Connecticut State Agencies regarding equal employment opportunity, and the bidder’s good faith efforts to include minority business enterprises as subcontractors and suppliers for the work of the contract.

1) Definition of Small Contractor

Section 4a-60g CONN. GEN. STAT. defines a small contractor as a company that has been doing business under the same management and control and has maintained its principal place of business in Connecticut for at least thirty years, prior to its application for certification. Section 4a-60g CONN. GEN. STAT. further defines a small contractor as a nonprofit corporation if such nonprofit corporation meets the requirements of subparagraphs (A) and (B) of subdivision 4a-60g CONN. GEN. STAT.
MANAGEMENT: Managers plan, organize, direct, and control the major functions of an organization through subordinates who are at the managerial or supervisory level. They make policy decisions and set objectives for the company or departments. They are not usually directly involved in production or providing services. Examples include top executives, public relations managers, managers of operations specialties (such as financial, human resources, or purchasing managers), and construction and engineering managers.

BUSINESS AND FINANCIAL OPERATIONS: These occupations include managers and professionals who work with the financial aspects of the business. These occupations include accountants and auditors, purchasing agents, management analysts, labor relations specialists, and budget, credit, and financial analysts.

MARKETING AND SALES: Occupations related to the act or process of buying and selling products and/or services such as sales engineer, retail sales workers and sales representatives including wholesale.

LEGAL OCCUPATIONS: In-House Counsel who is charged with providing legal advice and services in regards to legal issues that may arise during the course of standard business practices. This category also includes assistive legal occupations such as paralegals, legal assistants.

COMPUTER SPECIALISTS: Professionals responsible for the computer operations within a company are grouped in this category. Examples of job titles in this category include computer programmers, software engineers, database administrators, computer scientists, systems analysts, and computer support specialists.

ARCHITECTURE AND ENGINEERING: Occupations related to architecture, surveying, engineering, and drafting are included in this category. Some of the job titles in this category include electrical and electronic engineers, surveyors, architects, drafters, mechanical engineers, materials engineers, mapping technicians, and civil engineers.

OFFICE AND ADMINISTRATIVE SUPPORT: All clerical-type work is included in this category. These jobs involve the preparing, transcribing, and preserving of written communications and records; collecting accounts; gathering and distributing information and records; telephone operations, billing and account collectors, customer service representatives, dispatchers, secretaries and administrative assistants, computer operators and clerks (such as payroll, shipping, stock, mail, and file).

BUILDING AND GROUNDS CLEANING AND MAINTENANCE: This category includes occupations involving landscaping, housekeeping, and janitorial services. Job titles found in this category include supervisors of landscaping or housekeeping, janitors, maids, grounds maintenance workers, and pest control workers.

CONSTRUCTION AND EXTRACTION: This category includes construction trades and related occupations. Job titles found in this category include boilermakers, masons (all types), carpenters, construction laborers, electricians, plumbers (and related trades), roofers, sheet metal workers, elevator installers, hazardous materials removal workers, paperhangers, and painters. Paving, surfacing, and tamping equipment operators; drywall and ceiling tile installers; and carpet, floor and tile installers and finishers are also included in this category. First line supervisors, foremen, and helpers in these trades are also grouped in this category.

INSTALLATION, MAINTENANCE AND REPAIR: Occupations involving the installation, maintenance, and repair of equipment are included in this group. Examples of job titles found here are heating, ac, and refrigeration mechanics and installers; telecommunication line installers and repairers; heavy vehicle and mobile equipment service technicians and mechanics; small engine mechanics; security and fire alarm system installers; electric/electronic repair, industrial, utility and transportation equipment; millwrights; riggers; and manufactured building and mobile home installers. First line supervisors, foremen, and helpers for these jobs are also included in the category.

MATERIAL MOVING WORKERS: The job titles included in this group are Crane and tower operators; dredge, excavating, and lading machine operators; hoist and winch operators; industrial truck and tractor operators; cleaners of vehicles and equipment; laborers and freight, stock, and material movers, hand; machine feeders and offbearers; packers and packagers, hand; pumping station operators; refuse and recyclable material collectors; and miscellaneous material moving workers.

PRODUCTION WORKERS: The job titles included in this category are chemical production machine setters, operators and tenders; crushing/grounding workers; cutting workers; inspectors, testers sorters, samplers, weighers; precious stone/metal workers; painting workers; cementing/gluing machine operators and tenders; etchers/engravers; molders, shapers and casters except for metal and plastic; and production workers.
White (not of Hispanic Origin)- All persons having origins in any of the original peoples of Europe, North Africa, or the Middle East.
Black (not of Hispanic Origin)- All persons having origins in any of the Black racial groups of Africa.
Hispanic- All persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race.

Asian or Pacific Islander- All persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands. This area includes China, India, Japan, Korea, the Philippine Islands, and Samoa.
American Indian or Alaskan Native- All persons having origins in any of the original peoples of North America, and who maintain cultural identification through tribal affiliation or community recognition.

BIDDER CONTRACT COMPLIANCE MONITORING REPORT

PART I - Bidder Information

Company Name
Street Address
City & State
Chief Executive

Bidder Federal Employer
Identification Number
Or
Social Security Number

Bidder Identification
(response optional/definitions on page 1)

-Bidder is a small contractor. Yes__ No__
-If yes, check ownership category

-Bidder identifies as Asian American

-Bidder identifies as American Indian/Alaskan Native

-Bidder identifies as Hispanic

-Bidder identifies as Black

-Bidder identifies as Native Hawaiian or Other Pacific Islander

-Bidder identifies as Female

-Bidder is certified as above by State of CT Yes__ No__

PART II - Bidder Nondiscrimination Policies and Procedures

1. Does your company have a written Affirmative Action/Equal Employment Opportunity statement posted on company bulletin boards? Yes__ No__

2. Does your company have the state-mandated sexual harassment prevention in the workplace policy posted on company bulletin boards? Yes__ No__

3. Do you notify all recruitment sources in writing of your company’s Affirmative Action/Equal Employment Opportunity employment policy? Yes__ No__

4. Do your company advertisements contain a written statement that you are an Affirmative Action/Equal Opportunity Employer? Yes__ No__

5. Do you notify the Ct. State Employment Service of all employment openings with your company? Yes__ No__

6. Does your company have a collective bargaining agreement with workers? Yes__ No__

   6a. If yes, do the collective bargaining agreements contain non-discrimination clauses covering all workers? Yes__ No__

   6b. Have you notified each union in writing of your commitments under the nondiscrimination requirements of contracts with the state of Ct? Yes__ No__

7. Do all of your company contracts and purchase orders contain non-discrimination statements as required by Sections 4a-50 & 4a-50a Conn. Gen. Stat.? Yes__ No__

8. Do you, upon request, provide reasonable accommodation to employees, or applicants for employment, who have physical or mental disability? Yes__ No__

9. Does your company have a mandatory retirement age for all employees? Yes__ No__

10. If your company has 50 or more employees, have you provided at least two (2) hours of sexual harassment training to all of your supervisors? Yes__ No__ NA__

11. If your company has apprenticeship programs, do they meet the Affirmative Action/Equal Employment Opportunity requirements of the apprenticeship standards of the Ct. Dept. of Labor? Yes__ No__ NA__

12. Does your company have a written affirmative action Plan? Yes__ No__

   If no, please explain.

13. Is there a person in your company who is responsible for equal employment opportunity? Yes__ No__

   If yes, give name and phone number.
1. Will the work of this contract include subcontractors or suppliers?  Yes__ No__

1a. If yes, please list all subcontractors and suppliers and report if they are a small contractor and/or a minority business enterprise. (Defined on page 1 / use additional sheet if necessary)

1b. Will the work of this contract require additional subcontractors or suppliers other than those identified in 1a. above?  Yes__ No__

**PART IV - Bidder Employment Information**

<table>
<thead>
<tr>
<th>JOB CATEGORY *</th>
<th>OVERALL TOTALS</th>
<th>WHITE (not of Hispanic origin)</th>
<th>BLACK (not of Hispanic origin)</th>
<th>HISPANIC</th>
<th>ASIAN or PACIFIC ISLANDER</th>
<th>AMERICAN INDIAN or ALASKAN NATIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>Management</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business &amp; Financial Cpt</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marketing &amp; Sales</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Legal Occupations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computer Specialists</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Architecture/Engineering</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Office &amp; Admin Support</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IT/Systems/Networks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction &amp; Maintenance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Installation, Maintenance &amp; Repair</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Material Moving Workers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Production Occupations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTALS ABOVE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total One Year Ago</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*NOTE: JOB CATEGORIES CAN BE CHANGED OR ADDED TO (EX. SALES CAN BE ADDED OR REPLACE A CATEGORY NOT USED IN YOUR COMPANY)
### PART V - Bidder Hiring and Recruitment Practices

1. Which of the following recruitment sources are used by you? (Check yes or no, and report percent used)

<table>
<thead>
<tr>
<th>SOURCE</th>
<th>YES</th>
<th>NO</th>
<th>% of applicants provided by source</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Employment Service</td>
<td></td>
<td></td>
<td>Work Experience</td>
</tr>
<tr>
<td>Private Employment Agencies</td>
<td></td>
<td></td>
<td>Ability to Speak or Write English</td>
</tr>
<tr>
<td>Schools and Colleges</td>
<td></td>
<td></td>
<td>Written Test</td>
</tr>
<tr>
<td>Newspaper Advertisement</td>
<td></td>
<td></td>
<td>High School Diploma</td>
</tr>
<tr>
<td>Walk-ins</td>
<td></td>
<td></td>
<td>College Degree</td>
</tr>
<tr>
<td>Present Employees</td>
<td></td>
<td></td>
<td>Union Membership</td>
</tr>
<tr>
<td>Labor Organizations</td>
<td></td>
<td></td>
<td>Personal Recommendation</td>
</tr>
<tr>
<td>Minority/Community Organizations</td>
<td></td>
<td></td>
<td>Height or Weight</td>
</tr>
<tr>
<td>Others (please identify)</td>
<td></td>
<td></td>
<td>Car Ownership</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Arrest Record</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Wage Garnishment</td>
</tr>
</tbody>
</table>

2. Check (X) any of the below listed requirements that you use as a hiring qualification (X)

- Work Experience
- Ability to Speak or Write English
- Written Test
- High School Diploma
- College Degree
- Union Membership
- Personal Recommendation
- Height or Weight
- Car Ownership
- Arrest Record
- Wage Garnishment

3. Describe below any other practices or actions that you take which show that you hire, train, and promote employees without discrimination

---

Certification (Read this form and check your statements on it CAREFULLY before signing). I certify that the statements made by me on this BIDDER CONTRACT COMPLIANCE MONITORING REPORT are complete and true to the best of my knowledge and belief, and are made in good faith. I understand that if I knowingly make any misstatements of facts, I am subject to be declared in non-compliance with Section 4a-60, 4a-60a, and related sections of the CONN. GEN. STAT.

<table>
<thead>
<tr>
<th>Signature</th>
<th>Title</th>
<th>Date Signed</th>
<th>Telephone</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
BID SURETY

For purposes of this bid, the value of bid surety to be submitted is established at TEN PERCENT (10%) of the bid for the first year of the contract, per the provisions of the specifications.

Surety must be in the form of a bid bond or certified check and must accompany the sealed bid.

PERFORMANCE BOND

The successful bidder shall provide a performance bond, in an amount equal to one hundred percent (100%) of the amount of the contract price. Should the contractor fail to perform as outlined in these specifications, such bond will be used by the Town to have contract completed to specification in a timely fashion, saving the Town whole. The performance bond must be executed by a company authorized to do business in the State of Connecticut, on a form to be supplied by the Town or other form acceptable to the Town.

INSURANCE

Insurance requirements are on the next two (2) pages. Contractor must provide the Town with a certificate of insurance naming the Town as additional insured prior to execution of the contract. Insurance must be kept in force during the life of the contract period.
TOWN OF EAST HAVEN

INSURANCE REQUIREMENTS

A. The contractor shall carry or require that there be carried, Worker's Compensation Insurance for all company employees and those of its subcontractors engaged in work at the site, in accordance with State of Connecticut Worker's Compensation Laws. If self-insured, the contractor shall certify that it is not in arrears to Second Injury Fund payments.

B. The contractor shall carry or require manufacturer's and contractor's public liability insurance with limits of $1,000,000 C.S.L. to protect the contractor and its subcontractors against claims for injury to or death of one or more than one person because of accidents which may occur or result from operations under the contract. Such insurance shall cover the use of all equipment, including but not limited to excavating machinery, trenching machines, cranes, hoists, rollers, concrete mixers, mother vehicles, Bulky Waste compacting and hauling vehicles, etc., in the execution of this contract.

C. The contractor shall carry, during the life of the contract, property damage insurance in an amount of not less than $500,000 to protect it and its subcontractors from claims for property damage which might arise from operations under the contract.

D. The contractor shall carry, and require that its subcontractors carry automobile insurance covering all motor vehicles used on the work with limits of $1,000,000 C.S.L. personal injury liability and $500,000 property damage liability, to protect against claims which might arise from the operations of this contract.

E. The contractor shall carry during the life of the contract, product liability insurance with limits of not less than $1,000,000 to protect against claims which might arise from operations under this contract.

F. The successful bidder shall provide certificates of insurance showing coverage by an insurance carrier authorized by the State of Connecticut to write insurance in the state. The certificate shall show the Town of East Haven as an additional name insured and shall be submitted to the Director of Finance prior to providing any services under the contract. Said certificate should contain the following endorsements:

   a. The contractor agrees to hold harmless and indemnify the Town for claims arising out of negligence, gross negligence and/or willful acts of the contractor or any of its subcontractors in the performance of its services under this agreement.

   b. The contractor and insurance carrier waive governmental immunity in the adjustment of claims or defense of any suit, action or claim brought against the Town of East Haven.

In addition, please note that all certificates of insurance must include:

   i. Endorsement of the work description, contract name and number and location;

   ii. An endorsement that the insurance company will give at least thirty (30) days written notice to the Town prior to any modifications or cancellation of any such insurance coverage; and
iii. An endorsement that the contractor will be responsible for the payment of all insurance premiums and/or changes.

At the direction of the Town, the contractor may be asked to submit copies of its Worker's Compensation and Manufacturer's and Contractor's Public Liability, Property Damage, Automobile, Fire and Extended Coverage, if applicable, Insurance Policies to the Town of East Haven for review and approval. The Town of East Haven may, in writing, notify the contractor of any disapproval of any such policies, and satisfactory policies shall be provided in place of those disapproved. The contractor shall require its subcontractors to obtain policies of similar insurance before each commences work. All such insurance shall be carried with financially responsible insurance companies, licensed in the State of Connecticut and approved by the Town of East Haven and shall be kept in force until the contractor's work is accepted by the Town of East Haven. Contacts of Insurance covering all operations under this contract which expire before the contractor's work is accepted by the Town of East Haven shall be renewed and new Certificates of Insurance submitted to the Town of East Haven for its approval.
CERTIFICATE OF CORPORATION

I, ____________________________, certify that I am the Secretary of the Corporation named in the foregoing instrument, that I have been duly authorized to affix the seal of the Corporation to such papers that require the seal; that ____________________________, who signed said instrument on behalf of the Corporation was then ____________________________ of said corporation; that said instrument was duly signed for and in behalf of said Corporation by authority of its governing body and is within the scope of its corporation powers.

____________________________________
(Signature of Person Certifying)

(Corporate Seal)
SUPPLEMENTARY CONDITIONS

1. THE GENERAL CONDITIONS
The work of this contract shall be subject to the American Institute of Architects
herein referred to as the General Conditions.

2. THE 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.

3. ARTICLE 1-CONTRACT DOCUMENTS
   a. 1.1 DEFINITIONS
      i. Add the following item:
         1.1.19 SUBCONTRACTOR
         A person, firm or corporation supplying labor and materials or
         only labor, for work at the site of the project, for and under
         separate Contract or Agreement with the Contractor.
   b. 1.1.10 APPRENTICE
      i. A person employed and individually registered in a bona fide
         apprenticeship program registered with U.S. Department of Labor, Bureau
         of Apprenticeship agency recognized by the Bureau; or (2) a person in
         his/her first ninety (90) days of probationary employment as an apprentice
         in such apprenticeship program, who is not individually registered in the
         program; but who has been certified by the Bureau of Apprenticeship and
         Training or a State Apprenticeship Council (where appropriate) to be
         eligible for probationary employment as an apprentice.
   c. 1.1.11 TRAINEE
      A person receiving on-the-job training in a construction occupation under a
      program which is approved (but not necessarily sponsored) by the U.S.
      Department of Labor, Manpower Administration, Bureau of Apprenticeship and
      Training, and which is reviewed from time to time by the Manpower
      Administration to ensure that the training meets adequate standards.
   d. 1.1.12 ARCHITECT V. ENGINEER
      When the word “Architect” appears in the specifications/contract/addenda, the
      term “Engineer” can be substituted.

SUBCONTRACTING
The contractor agrees not to transfer, sublet or assign this contract or any portion thereof
to any person, firm or corporation or in any way vary the terms of this contract without the
written authorization of the Town.

00800-1
COMPLIANCE WITH LAWS, ORDINANCES, ETC.

All work performed in accordance with the contract shall comply in every respect with all applicable laws, ordinances or regulations now in effect or hereafter adopted by the *Federal Government*, the State of Connecticut and the Town.

COMPETENCY OF CONTRACTORS

1. Each bidder shall submit with his proposal a listing of recent Municipal work performed within the State of Connecticut. Submission of such listing constitutes permission for the Town to inquire of the entities so listed as to any matter or matters deemed by the Town. In its soft discretion, to be relevant to the awarding of Contract.

2. Each bidder shall have the minimum of five (5) years’ experience as a Municipal Contractor.

3. All bidders shall be responsible to familiarize themselves with existing site conditions and shall be responsible to inspect each site prior to their submission of a bid and must be familiar with the streets and municipal buildings in the Town of East Haven. Submission of a proposal shall mean the bidder has complied with the provisions of this paragraph.

SUPPLEMENTARY CONDITIONS

BONDS

1. **BID BOND**

   Each bid must be accompanied by a Bid Bond with a surety acceptable to the Town or a certified check of the bidder in the amount equal to ten (10%) percent of the amount bid.

2. **PERFORMANCE BOND**

   The selected contractor shall be required to provide a performance bond equal to 100% of the contract amount to the Town of East Haven prior to the execution of the contract. The performance bond shall be written on the form provided and by a License Surety Agency authorized to transact business in the State of Connecticut. The bond shall be subject to approval by the Town Attorney. The performance bond shall be kept in effect for the entire duration of the contract.
Division One

General

Requirements
SUMMARY OF WORK

PART I-GENERAL

1. Related Sections
   a. General Conditions
   b. Supplemental General Conditions
   c. Other Sections of Division 1
   d. Specific Project Requirements

2. System Description
   a. **The Project:** consists of the entire removal of the existing roof system down to
      the concrete decking and installation of a new roofing system and a new air
      conditioning unit at the East Haven Town Hall.
   b. The Work: Includes, but it is not necessarily limited to the following:
      i. The removal of existing roof system and any insulation and associated
         flashings. Also included in the total lump sum price is removal of the
         five-ton Trane TSCO60 air condition unit and replacement with new
         Lennox 13 ACX Merit Series air condition unit as specified. Duct work
         will be fitted to existing duct work loading into ceiling of Assessor’s
         Office. Flashing for said unit is included in lump sum prices.
      ii. The removal of the existing roof system and insulation and disposal
          thereof will conform to ALL Federal, State, and Local Laws including
          Environmental Standards for handling. An analysis of the existing roof
          decking and areas that need to be replaced will take place between the
          Owner and the Contractor. A unit cost for concrete deck replacement
          will be included in the bid and the total square footage removed and replaced will
          be multiplied by the per/square footage price for said work.

3. Contractor Use of Premises:
   a. Limit use of premises to construction activities in work areas; allow for and
      coordinate with owner occupancy to minimize disturbance.
   b. Keep driveways and entrances serving the premises clear and available to the
      owner, the owner’s employees and the public at all times. Coordinate areas for
      parking, delivery and storage of material with owner. Schedule deliveries to
      maximize space and time requirements for storage of materials and equipment
      onsite.
   c. Maintain the existing building 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.
   d. The contractor’s use of premises is limited by the owner’s right to perform
      construction operations with its own forces, to employ separate contractors on
      portions of the project and to continue daily operations.
   e. Private utilities, contractors and other parties may be expected to be working
      01010-1
within the contract area during this contract. It shall be the responsibility of the contractor to coordinate his work under this contract with the work being done by others in order that construction may proceed in an efficient and logical manner. The contractor shall have no claim or claims whatever against the owner, architect, or other parties due to delays or other reasons caused by the work of others or his failure to coordinate such work.

4. Occupancy Requirements
   a. The owner will occupy the site and adjacent buildings during the entire construction period. Cooperate and coordinate with the owner during construction operations to minimize conflicts and facilitate owner usage. Perform the work so as not to interfere with the owner’s operations.

PART 2-PRODUCTS
1. Materials/supplies
   a. The drawings and specifications list a well-known industry supplier. If other materials or products are to be used by any bidder, please provide information as required.
   b. The Town of East Haven will accept other manufactures and suppliers if the products are found to be acceptable.

PART 3- EXECUTION- N/A
UNIT PRICES

PART 1- GENERAL

1.01 RELATED DOCUMENTS
   A. Drawings and general provisions of contract, including general and supplementary conditions and other Division-1 specification sections, apply to this section.

1.02 SUMMARY
   A. This section specifies administrative and procedural requirements for unit prices.
   B. A unit price is an amount proposed by bidders and stated on the bid form as a price per unit of measurement for materials or services that will be added to or deducted from the contract sum by change order in the event the estimated quantities of work required by the contract documents are increased or decreased.
   C. Unit prices include all necessary material, overhead, profit and applicable taxes.

PART 2- PRODUCTS

PART 3- EXECUTION

3.01 UNIT PRICE SCHEDULE
   A. Item No. 1- Removal of existing deteriorated perimeter wood nailers and replacement with new pressure treated wood nailers.
      Unit of measurement: Board foot of wood nailers.
   B. Item No. 2- Removal of existing metal roof deck and replacement with new primed steel roof deck (identical gage and configuration).
      Unit of measurement: Square foot of replaced deck.

END OF SECTION UNIT PRICES
APPLICATION FOR PAYMENT

PART 1- GENERAL

1.01 RELATED DOCUMENTS
   A. Drawings and general provisions of contract, including general supplementary
      conditions and other division-1 specification sections, apply to this section.

1.02 SUMMARY
   A. This section specifies administrative and procedural requirements governing the
      contractor's applications for payment.

1.03 SCHEDULE OF VALUES
   A. Coordinate preparation of the schedule of values with preparation of the contractor's
      construction schedule.
   B. Submit the schedule of values to the architect at the earliest feasible date scheduled for
      submittal of the initial application for payment.
   C. Format and Content: Use the Project Manual Section 01340 as a guide to establish the
      format for the tabular form with separate columns to indicate the following for each
      item listed:
      a. Generic Name
      b. Related Specification Sections
      c. Name of subcontractor or fabricator
      d. Dollar value
      e. Percentage of contract sum to the nearest one percent, adjusted to total 100
         percent.
      f. Provide a breakdown of the contract sum in sufficient detail to facilitate
         continued evaluation of applications for payment and progress reports. Break
         principal subcontract amounts down into several line items where required.
         Round amounts off to the nearest whole dollar; the total shall equal the contract
         sum.

1.04 APPLICATION FOR PAYMENT
   A. Transmittal: Submit 3 executed copies of each application for payment to the architect
      by means ensuring receipt within 24 hours; one copy shall be complete, including
      waivers of lien and similar attachments, when required.
   B. Lien Waivers: Submit final application for payment with or preceded by final waivers
      from every entity involved with performance of work covered by the application who
      could lawfully be entitled to a lien.
   C. Initial Application for Payment: Administrative actions and submittals that must precede
      or coincide with submittal of the first application for payment include the following:
      a. List of subcontractors and fabricators
      b. Schedule of values
      c. Contractor's construction schedule (preliminary if not final)
      d. Copies of building permits
      e. Certificates of insurance and insurance policies

01027-1
f. Performance and payment bonds

g. Data needed to acquire owner’s insurance

D. **Application for payment substantial completion:** Following issuance of the certificate of substantial completion, submit an application for payment.

E. Administrative actions and submittals that shall precede or coincide with this application include:
   a. Occupancy permits and similar approvals
   b. Warranties (guarantees) and maintenance agreements
   c. Maintenance instructions
   d. Meter readings
   e. Change-over information related to owner’s occupancy, use, operation, and maintenance.
   f. Final cleaning
   g. Advice on shifting insurance coverages
   h. List of incomplete work, recognized as exceptions to Architect’s Certificate of Substantial Completion

F. **Final Payment Application:** Administrative actions and submittals which must precede or coincide with submittal of the final payment application for payment include the following:
   a. Completion of project close-out requirements
   b. Completion of items specified for completion after substantial completion
   c. Assurance that unsettled claims will be settled
   d. Transmittal of required project construction records to owner
   e. Proof that fees and similar obligations have been paid
   f. Removal of surplus materials, rubbish and similar elements
   g. Change of door locks to Owner’s access

**PART 2- PRODUCTS**

**PART 3-EXECUTION**

**END OF APPLICATION FOR PAYMENT**

01027-3
PRE-CONSTRUCTION PROJECT MEETINGS

PART 1-GENERAL

1.01 RELATED DOCUMENTS
   A. Drawings and general provisions of the contract, including general and supplementary conditions and other Division-1 specification sections, apply to this section.

1.02 RELATED DOCUMENTS
   A. This section specifies administrative and procedural requirements for pre-construction project meeting.

1.03 PRE-CONSTRUCTION CONFERENCE
   A. A pre-construction conference and organizational meeting will be scheduled on March 12th, 2020 at the project site prior to commencement of construction activities.
   B. The architect will administer pre-construction conference and exchange of preliminary submittals.
   C. Attendees: The owner, the architect, the contractor and its superintendent, major subcontractors, manufactures, suppliers and other concerned parties shall each be represented at the conference by persons familiar with and authorized to conclude matter relating to the work.
   D. Agenda: Discuss items of significance that could affect progress including such topics as:
      a. Tentative construction schedule
      b. Critical work sequencing
      c. Designation of responsible personnel
      d. Procedures for processing field decisions and change orders
      e. Distribution of contract documents
      f. Submittal of shop drawings, product data and samples
      g. Use of the premises
      h. Office, work and storage areas
      i. Equipment deliveries and owner priorities
   E. Mobilization: The owner will administer an on-site mobilization meeting at project site for clarification of owner and contractor responsibilities in use of site and for review of administrative procedures.

END OF PRE-CONSTRUCTION MEETINGS

01200-1
SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

PART 1 - GENERAL

1.01 RELATED SECTIONS
   General Conditions
   Supplemental General Conditions
   Specific Project Requirements
   Other Sections of Division One

1.02 SYSTEM DESCRIPTION
   A. This section specifies administrative and procedural requirements for submittals required for performance of the work including:
      a. Contractor’s construction schedule
      b. Submittal schedule
      c. Shop drawings
      d. Product data
      e. Sample

1.03 QUALITY ASSURANCE
   A. Shop drawings, etc., or printed matter shall give all dimensions, sizes, etc., to enable the architect to determine suitability of the construction, installation, material or layout for the purposes intended. The drawings shall include outline, sectional views and detailed working dimensions, designations of materials, machine work, methods of attachment, finish, etc., required. The drawings to be submitted shall be coordinated by the contractor with any other drawings previously reviewed, with the design and function of any equipment or structure and the contract drawings.

PART 2 - PRODUCTS

2.01 MANUFACTURERS
   A. The contractor, shall submit manufacturer’s literature as a supplement to, the shop drawings, etc.
   B. Where contents of submittal literature from manufacturers includes data no pertinent to the submittal, clearly show which portion of the contents is being submitted for review.

2.02 SHOP DRAWINGS
   A. Scale and measurements: make shop drawings accurately to a scale sufficiently large to show all pertinent aspects of the item and its method of connection of the work.
   B. The minimum size for any submission shall be 8 1/2” X 11” and the maximum size shall be the size of the contract drawings.

2.03 SAMPLES
   A. Provide sample(s) identical to the precise article proposed to be provided. Identify as directed under “Identification of Submittals” below.

2.04 COLORS AND PATTERNS
   A. Unless the precise color and pattern is specifically called out in the contract documents and wherever a choice of color or pattern is unavailable in the specified products, submit accurate color and pattern charts to architect for selection.
PART 3- EXECUTION

3.01 SCHEDULE AND IDENTIFICATION OF SUBMITTALS

A. The contractor shall submit a schedule of submittals within ten (10) working days after signing the contract to the architect for his approval. The schedule shall include the following:
   a. Proposed dates for commencement and completion of each of the various items of work and tasks, by each trade and/or subcontractor, to be performed under this contract. Coordination of trades/subcontractors shall be shown. The format shall be a bar chart.
   b. Schedule of submission of shop drawings, submittals and including estimated time for material(s) product data, fabrication, and delivery to site.

B. Consecutively number all submittals when material is resubmitted for any reasons, transmit under a new letter of transmittal and with a new transmittal number. Resubmittals shall cite the original number for reference. All shop drawings, etc., and/or printed matter submitted shall be properly identified by project and specific application with reference to contract drawings number and specification items.

C. When the contractor proposes a revision to a previously submitted shop drawing, etc., six (6) copies shall be resubmitted for review. This resubmittal shall clearly indicate, in a revision block, the date, description and location of the revision. The letter of transmittal shall state the reasons for the revision.

D. The contractor shall furnish as many copies of the submittals as is necessary for the proper coordination of the work, and shall maintain a complete set of the reviewed submittals at the site of the work all times.

3.02 ARCHITECT’S ACTIONS

A. All required shop drawings layout drawings, working drawings, material and equipment descriptions, etc., shall be submitted to the architect in four (4) copies for review sufficiently in advance of requirements to afford ample time for checking, including time for correcting, resubmitting and rechecking if necessary. Two (2) weeks should be allowed for checking from the date of receipt by the architect.

B. After review, the submittals will be stamped “No Exceptions Taken,” “Make Corrections Noted,” “Amend and Resubmit,” or “Rejected-See Remarks.” Three (3) prints of “No Exceptions Taken” or “Make Corrections Noted” drawings will be returned to the contractor for his use and distribution to his suppliers and/or subcontractors. In the case of those stamped, “Amend and Resubmit” or “Rejected-See Remarks,” two (2) prints will be returned to the contractor who shall make all indicated corrections and resubmit six (6) prints.

C. In any submission which is noted as “No Exceptions Taken” or “Make Corrections Noted,” the review shall not extend to details or dimensions and shall not relieve the contractor from his responsibility for compliance with the contract drawings and specifications.

D. Upon the final acceptance of the project, the contractor shall, on request, furnish the owner with a complete set of shop drawing tracings or reproducible cloth reproduction of the shop drawing tracings.

01340-2
TEMPORARY FACILITIES AND CONTROLS

PART 1- GENERAL

1.01 RELATED DOCUMENTS
A. Drawings and general provisions of the contract, including general and supplementary conditions and other Division-1 specification sections, apply to this section.

1.02 SUMMARY
A. This section specifies requirements for temporary services and facilities, including utilities construction and support facilities, security and protection.
   a. Temporary construction and support facilities required may include but are not limited to:
      i. Temporary enclosures
      ii. Waste disposal services
   b. Security and protection facilities required include but are not limited to:
      i. Temporary fire protection
      ii. Barricades, warning signs, lights.

1.03 QUALITY ASSURANCE
A. Regulations: Comply with industry standards and applicable laws and regulations of authorities having jurisdiction, including, but not necessarily limited to:
   a. Building Code Requirements
   b. Health and Safety Regulations
   c. Police, fire department and rescue squad rules
   d. NFPA 241

PART 2- PRODUCTS

2.01 MATERIALS
A. **Tarpaulins:** Provide waterproof, fire-resistant, UL labeled tarpaulins with flame-spread rating or 15 or less. For temporary enclosures provide translucent nylon reinforced laminated polyethylene or polyvinyl chloride fire retardant tarpaulins.

B. **EQUIPMENT:**
   a. General: Provide new equipment.
   b. Electrical Outlets: Provide properly configured NEMA polarized outlet to prevent insertion on 110-120 volt plugs into higher voltage outlets. Provide receptacle outlets equipped with ground-fault circuit interrupters, reset button and pilot light, for connection of power tools and equipment.
   c. Electrical Power Cords: Provide grounded extension cords; use “hard-service” cords where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of electric cords, if single lengths will not reach areas where construction activities are in progress.
PART 3-EXECUTION

3.01 INSTALLATION
A. Use qualified personnel for installation of temporary facilities. Locate facilities where they will serve the project adequately and result in minimum interference with performance of the work. Relocate and modify facilities as required by the owner.

3.02 CLEANING DURING CONSTRUCTION
A. Control accumulation of waste materials and rubbish; periodically dispose of in on-site dumpster supplied and maintained by contractor.

3.03 CLEANING DURING CONSTRUCTION
A. Removal: remove temporary materials, equipment, services and construction prior to substantial completion inspection.
   a. Clean and repair damage caused by installation or use of temporary facilities. Restore existing facilities used during construction to original condition.
B. Collection and disposal of waste: collect waste from construction areas and elsewhere daily. Comply with requirements of NFPA 241 for removal of combustible waste material and debris. Enforce requirements strictly. Do not hold materials more than 7 days during normal weather or 3 days when the temperature is expected to rise above 80 deg F (27 deg C). Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose of material in a lawful manner.

3.04 SECURITY AND PROTECTION FACILITIES INSTALLATION
B. Locate fire extinguishers where convenient and effective for their intended purpose.
C. Store combustible materials in containers in fire-safe locations.
D. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities, and access routes for fighting fires. Prohibit smoking in hazardous fire exposure areas.
E. Provide supervision of welding operations and similar sources of fire ignition.
F. Temporary Fire Protection: Unless protection needs are supplied by permanent facilities, install and maintain temporary fire protection facilities of the types needed to protect against reasonably predictable and controllable fire losses.
G. Barricades, Warning Signs and Lights: the contactor will comply with standards and code requirements for erection of structurally adequate barricades. Pave with appropriate colors, graphics and warning signs to inform personnel and the public of hazard being protected against. Where appropriate and needed provide lighting, including flashing red or amber lights.
H. Storage: Where materials and equipment must be stored, and are of value or attractive for theft, provide a secure lockup. Enforce discipline in connection with the installation and release of material to minimize the opportunity for theft and vandalism.

01500-2
I. Protect materials, both before and after their incorporation in the work, as required to prevent damage from moisture, rain, dirt, cold, sunlight, and other harmful influences.
J. Do not deliver materials to the job until they can be properly protected.
K. If possible, store materials vulnerable to exposure damage in enclosed areas where weather-protected.
L. Follow recommendations of manufacturers and contractors for protection and storage. Minimum protection shall be as follows:
   a. Material requiring thorough protection, shall be stored inside enclosed areas under cover. Provide separators to keep materials off the floor and to ensure ventilation.
M. Replace work which becomes unfit for use or unsightly during construction. Replace broken products. Restore all finishes damages, soiled or otherwise made unsightly during construction.
N. Environmental Protection: Provide protection, operate temporary facilities and conduct construction in way and by methods that comply with environmental regulations, and minimize the possibility that air, waterways and subsoil might be contaminated or polluted, or that other undesirable effects might result. Avoid use of tools and equipment which produce harmful noise. Restrict use of noise making tools and equipment to hours that will minimize complaints from persons or firms near the site.
O. Exit: emergency exits from the building shall be maintained throughout the period of construction. Safe passage shall also be maintained at exterior site areas adjacent to emergency exits.

3.05 PROTECTION OF INSTALLED WORK
A. Provide temporary protection for installed products. Control traffic in immediate area to minimize damage.
B. Prohibit traffic and storage on waterproofed and roofed surfaces, on lawn and landscaped areas.

3.06 RECORD DOCUMENTS
A. Refer to section 01700-Project Closeout regarding record copies of drawings, specifications, addenda, change orders and other modifications, and approved submittals. In addition, the following requirements apply to record copies:
   a. Do not use record documents for construction purposes
   b. Label each record document “PROJECT RECORD” in 2” high printed letters.
   c. Keep record documents current
   d. Do not permanently conceal any work until required information has been recorded.
B. Contract Drawings: Legibly mark to record actual construction:
   a. Field changes of dimension and detail
   b. Changes made by change order or field order
   c. Details not on original contract drawings

01500-3
C. **Specifications and Addenda:** Legibly mark-up each section to record:
   a. Manufacturer, trade name, catalog number and supplier of each product and item of equipment actually installed.
   b. Changes made by change order or field order
   c. Other matters not originally specified
D. **Shop Drawings:** Maintain as record documents: Legibly annotate to record changes made after review.
E. Submit record documents to architect at completion of project.

3.07 **MAINTENANCE AND PROTECTION OF OWNER’S PROPERTY**

A. Maintain suitable fire protection equipment. Train workmen in use of fire protection equipment, and assign responsibility for reporting fires and performing first aid firefighting.
B. Maintain electric service at all times.
C. Arrange and maintain temporary facilities so as not to encumber walks, drives, roads, and ways of access and egress. Maintain safe access and egress for owner to access and egress ways, in construction areas actually being used by the contractor, only. Provide security at all times consistent with the owner’s security program.

3.08 **OPERATION, TERMINATION AND REMOVAL**

A. **Maintenance:** Maintain facilities in good operating condition until removal. Protect from damage by freezing temperatures and similar elements.
B. **Termination and Removal:** Unless the architect requests that it be maintained longer, remove each temporary facility when the need has ended, or when replaced by authorized use of permanent facility, or no later than substantial completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with the temporary facility. Repair damaged work, clean exposed surfaces and replace construction that cannot be satisfactorily repaired.
C. Materials and facilities that constitute temporary facilities are property of the contractor.
D. At substantial completion, clean and renovate permanent facilities that have been used during the construction period.
E. Replace significantly worn parts and parts that have been subject to unusual operating conditions.
MATERIALS AND EQUIPMENT

PART 1- GENERAL

1.01 RELATED DOCUMENTS
   A. Drawings and general provisions of contract, including general and supplementary conditions and other Division 1 Specification Sections, apply to this section.

1.02 SUMMARY
   A. This section specifies administrative and procedural requirements governing the contractor's selection of products for use in the project.

1.03 QUALITY ASSURANCE
   A. Source limitations: To the fullest extent possible, provide products of the same kind, from a single source.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING
   A. Deliver, store and handle products in accordance with the manufacturer's recommendations, using means and methods that will prevent damage, deterioration and loss including theft;
   B. Deliver products to the site in the manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting and installing.
   C. Inspect products upon delivery to ensure compliance with the contract documents, and to ensure that products are undamaged and properly protected.
   D. Store products subject to damage by the elements about ground, under cover in a watertight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.

1.05 GENERAL STANDARDS
   A. These provisions, standards, and tolerances shall apply to all work under this contract. Where stricter standards and tolerances are specified, they shall take precedence over these standards and tolerances.
   B. Build and install parts of the work level, plumb, square and in correct position unless specifically shown or specified otherwise.
   C. No part shall be out of plumb, level, square, or correct position so much as to impair its function or that of the project, or so as to impair aesthetic effect.
   D. All fasteners used by all trades on the exterior of the building and where dampness and corrosion can reasonably be anticipated shall be corrosion resistant.
   E. Exposed fasteners used for exterior trim, whether set and putted or not, shall be stainless steel or aluminum.
   F. Fasteners for carpentry on the exterior or in potentially damp locations shall be stainless steel, aluminum, or hot dig galvanized steel.
   G. Fasteners for stainless steel shall be stainless steel.
   H. Fasteners for aluminum shall be stainless steel or aluminum.
   I. Fasteners for ferrous metals shall be galvanized or stainless steel.
   J. Fasteners for other materials on the exterior of the building, and where dampness and corrosion can reasonably be anticipated shall be one of the types specified above.

01600-1
K. Follow manufacturer’s instructions for assembling, installing, and adjusting products. Where manufacturers’ instructions conflict with contract documents, request instructions from architect.

L. All materials and equipment shall comply with the Occupational Safety and Health Act as amended.

1.06 REFERENCE STANDARDS

A. Reference to standard specification shall mean latest edition of such specifications published at date of project manual.

B. Reference to technical society or organization is made in the project manual according to the following abbreviations:

A.I.A. – American Institute of Architects
A.C.I. – American Concrete Institute
A.I.E.E. -American Institute of Electrical Engineers
A.I.S.C. – American Institute of Steel Construction
A.I.S.I. – American Iron and steel institute
A.N.S.I.- American National Standards institute- obsolete designations are A.S.A and U.S.A.S.I.
A.P.A. – American Plywood Association
A.S.M.E. – American Society Mechanical Engineers
A.S.T.M. -American Society of Testing Materials
A.W.I. – Architectural Woodwork Institute
F.S. – Federal Specifications
G.A. – Gypsum Association
N.A.A.M.M. = National Association of architectural metal manufacturers
N.B.S.- national bureau of standards
N.E.C.- national electrical code
S.I.G.M.A.- sealed insulating glass manufacturers association
S.S.P.S- steel structures painting council
T.A.S.- technical aid series
U.L. – underwriters laboratories, Inc.
N.F.P.A. – national fire protection association

1.07 PRODUCTS

A. Products include material, equipment, and systems.

B. Comply with specifications and referenced standards as minimum requirements.

C. Components required to be supplied in quantity within a specification section shall be the same, and shall be interchangeable.

1.08 LIST OF PRODUCTS

A. Within 15 days after date of Owner-Contractor Agreement, submit a complete list of major products proposed for use, with name of manufacturer, trade name and model number of each product.
1.09 TRANSPORTATION AND HANDLING
A. Transport products by methods to avoid product damage; delivery in undamaged condition in manufacturer’s unopened containers or packaging, dry.
B. Provide equipment and personnel to handle products by methods to prevent soiling or damage.
C. Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged.

PART 2- PRODUCTS

2.01 PRODUCT SELECTION
A. General product requirements: Provide products that comply with the contract documents, that are undamaged and, unless otherwise indicated, unused at the time of installation.
B. Provide products complete with all accessories, trim, finish, safety guards and other devices and details needed for a complete installation and for the intended use and effect.
C. Standard Products: Where available, provide standard products of types that have been produced and used successfully in similar situations on other projects.
D. Product selection procedures: Product selection is governed by the contract documents and governing regulations.
E. Proprietary specification requirements: Where only a single product or manufacturer is named, provide the product indicated. No substitutions will be permitted.
F. Semi proprietary specification requirements: Where two or more products or manufactures are named, provide one of the products indicated. No substitutions will be permitted.
G. Where products or manufacturers are specified by name, accompanied by the term “or equal,” or “or approved equal” comply with the contract document provisions concerning “substitutions” to obtain approval for use of unnamed products.
H. Non-proprietary specifications: When the specifications list products or manufacturers that are available and may be incorporated in the work, but do no restrict the contractor to use of these products only, the contractor may propose any available product that complies with the contract requirements.
I. Performance specifications requirements: Where specifications require compliance with performance requirements, provide products that comply with these requirements, and are recommended by the manufacturer for the application indicated. General overall performance of a product is implied where the product is specified for a specific application.
J. Manufacturer’s recommendations may be contained in published product literature, or by the manufacturer’s certification of performance.
K. Visual Matching: Where specifications require matching an established sample or existing material or finish, the owner’s decision will be final on whether a proposed product matches satisfactorily.

01600-3
L. Where no product available within the specified category matches satisfactorily and also complies with other specified requirements, comply with provisions of the contract documents concerning “substitutions” for selection of a matching product in another product category, or for noncompliance with specified requirements.

M. Visual Selection: Where specified product requirements include the phrase “...as selected from manufacturer’s standard colors, patterns, textures....” or a similar phrase, select a product and manufacturer that complies with other specified requirements. The owner will select the color, pattern and texture from the product line selected.

PART 3- EXECUTION

3.01 INSTALLATION OF PRODUCTS:

A. Comply with manufacturer’s instructions and recommendations for installation of products in the applications indicated. Anchor each product securely in place, accurately located and aligned with other work.
PROJECT CLOSEOUT

PART 1-GENERAL

1.01 RELATED DOCUMENTS
   A. Drawings and general provisions of contract, including general and supplementary conditions and other Division 1 Specification Sections, apply to this section.

1.02 SUMMARY
   A. This section specifies administrative and procedural requirements for project closeout, including but not limited to:
      a. Inspection procedures
      b. Project record document submittal
      c. Maintenance manual submittal.
      d. Submittal of warranties
      e. Final cleaning

1.03 SUBSTANTIAL COMPLETION
   A. Preliminary procedures: before requesting inspection for certification of substantial completion, complete the following. List exceptions in the request.
   B. In the application for payment that coincides with, or first follows, the date substantial completion is claimed, show 100 percent completion for the portion of the work claimed as substantially complete. Include supporting documentation for completion as indicated in these contract documents and statement showing an accounting of changes to contract sum.
   C. If 100 percent completion cannot be shown, include a list of incomplete items, the value of incomplete construction, and reasons the work is not complete.
   D. Advise owner of pending insurance change-over requirements.
   E. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications and similar documents.
   F. Obtain and submit releases enabling the owner unrestricted use of the work. Include occupancy permits and similar releases.
   G. Deliver tools, spare parts, extra stock, and similar items.
   H. Complete instruction of the owner’s operating and maintenance personnel. Discontinue and remove temporary facilities from the site, along with construction tools and similar elements.
   I. Complete final clean-up requirements, including touch-up painting. Touch-up and otherwise repair and restore marred exposed finishes.
   J. Inspection Procedures: On receipt of a request for inspection, the Architect will either proceed with inspection or advise the contractor of unfilled requirements. The Architect will prepare the Certificate of Substantial Completion following inspection, or advise the contractor that incomplete or uncorrected work must be completed or corrected before the certificate will be issued.
   K. Results of the completed inspection will form the basis of requirements of final acceptance.

01700-1
1.04 FINAL ACCEPTANCE:
A. **Preliminary Procedures**: Before requesting final inspection for certification of final acceptance and final payment, complete the following. List exceptions in the request.
B. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required. Submit an updated final statement, accounting for final additional changes to the contract sum.
C. Submit a certified copy of the Architect’s final inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, and the list has been endorsed and dated by the Architect.
D. Submit consent of surety to final payment.
E. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
F. **Reinspection Procedures**: The Architect will reinspect the work upon receipt of the notice that the work, including inspection list items from earlier inspections, has been completed, except items whose completion has been delayed because of circumstances acceptable to the owner.
G. Upon completion of reinspection, the Architect will prepare a certificate of final acceptance, or advise the contractor of work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance.

1.05 RECORD DOCUMENT SUBMITTALS
A. **GENERAL**: Do not use record documents for construction purposes; protect from deterioration and loss in a secure, fire-resistive location; provide access to record documents for the Architect’s reference during normal working hours.
B. **Record Drawings**: Maintain a clean, undamaged set of blue or black line white-prints of contract drawings and shop drawings. Mark the set to show the actual installation where the installation varies substantially from the work as originally shown. Mark whichever drawing is most capable of showing conditions fully and accurately; where shop drawings are used, record a cross-reference at the corresponding location on the contract drawings. Give particular attention to concealed elements that would be difficult to measure and record a la later date.
C. Mark record sets with red erasable pencil; use other colors to distinguish between variations in separate categories of the work.
D. Mark new information that is important to the owner, but was not shown on the contract drawings or shop drawings.
E. Note related change order numbers where applicable.
F. Organize record drawing sheets into sets, bind with durable paper cover sheets, and print suitable titles, dates and other identification on the cover of each set.
G. Upon completion of the work, provide the owner with a record set of the contract drawings, showing all changes marked on the record set of prints. Submit prints to the Architect for transmission to the owner.
H. Record specifications: Maintain one complete copy of the project manual, including addenda, and once copy of other written construction documents such as change orders and modifications issued in printed form during construction. Mark these documents to show substantial variations in actual work performed in comparison with the text of the specifications and modifications. Give particular attention to substitutions, selection of options and similar information on elements that are concealed or cannot otherwise be readily discerned later by direct observations.
I. Note related record drawing information and project data.
J. Upon Completion of the work, submit record specifications to the Architect for owner’s record.

PART 2- PRODUCTS (NOT APPLICABLE)

PART 3- EXECUTION

A. General: General cleaning during construction is required by the general conditions and included in section “Temporary Facilities.”
B. Cleaning: Clean each surface or unit to the condition expected in a normal, commercial building cleaning and maintenance program. Comply with manufacturer’s instructions.
C. Complete the following cleaning operations before requesting inspection for Certification of Substantial Completion.
D. Clean the site of rubbish, litter and other foreign substances. Sweep paved areas, in vicinity of work, broom clean, remove stains, spills and other foreign deposits. Rake grounds that are neither paved nor planted, to a smooth even-textured surface. This cleaning applies only to items and surfaces in areas involved in the performance of the work.
E. Removal of Protection: Remove temporary protection and facilities installed for protection of the work during construction.
F. Compliance: Comply with the regulations of authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials, Do not bury debris or excess materials on the owner’s property. Do not discharge volatile, harmful or dangerous materials into drainage systems. Remove waste materials from the site and dispose of in a lawful manner.
G. Where extra materials of value remaining after completion of associated work have become the owner’s property, arrange for disposition of these materials as directed.
Division Two
Sitework
DEMOLITION

PART 1- GENERAL

1.01 RELATED DOCUMENTS
   A. Drawings and general provision of contract, including general and supplementary conditions and Division-1 Specification sections, apply to work of this section.

1.02 DESCRIPTION OF WORK
   A. Demolition work: Demolition requires the selective removal and subsequent offsite disposal.
      a. Removal of entire roofing system; all flashings, insulation, and perimeter gravel stop.
      b. Disposal and abatement of hazardous roofing material

1.03 SUBMITTALS:
   A. Schedule: Submit schedule indicating proposed methods and sequence of operations for demolition work to owner’s representative for review prior to commencement of work. Include details for dust and noise control protection.
      a. Provide detailed sequence of demolition and removal work to permit owner’s scheduling of these operations.

1.04 JOB CONDITIONS:
   A. Occupancy: Owner will be occupying areas of the building immediately below roof areas of demolition during this contract.
   B. Condition of Structures: Owner assumes no responsibility for actual condition of items to be removed.
   C. Protections: Provide temporary barricades and other forms of protection as required to protect owner’s personnel and general public form injury due to demolition work.
      a. Provide protective measures as required to provide free and safe passage of owner’s personnel and general public to and from occupied portions of adjacent building and sites.
      b. Protect from damage existing finish work that is to remain in place and becomes exposed during demolition operations.
      c. Protect surrounding drives, walks and landscaping with suitable coverings when necessary.
      d. Provide temporary weather protection during interval between demolition and removal of existing construction on exterior surfaces, and installation of new construction to ensure that no water leakage or damage occurs to structure or interior areas of existing building.
      e. Remove protections at completion of work.
   D. Damages: Promptly repair damages caused to adjacent facilities by demolition work at no cost to owner.
   E. Traffic: Conduct demolition operations and debris removal in a manner to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities.
a. Do not close, block or otherwise obstruct streets, walks or other occupied or used facilities without written permission from authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.

F. Explosives: Use of explosives will not be permitted.

G. Utility Services: Maintain existing utilities, keep in service, and protect against damage during demolition operations. Do not interrupt existing utilities serving occupied or used facilities. Notify owner 48 hours in advance of any anticipated utility interruptions.

H. Environmental Controls: Use water sprinkling, temporary enclosers, and other suitable methods to limit dust and dirt rising and scattering in air to lowest practical level. Comply with governing regulations pertaining to environmental protection.
   a. Do not use water when it may create hazardous or objectionable conditions such as ice, flooding, and pollution.

1.05 HAZARDOUS MATERIAL ABATEMENT

A. Exterior:
   a. Abatement: remove and dispose of existing roofing system materials in accordance with applicable codes and regulations. Retain the service of a Certified Abatement Specialist to test existing roofing material, specify abatement procedures, monitor removal work and perform required inspections.

B. Certification: Upon completion of abatement work, provide certification to the owner that all work, including material disposal, has been completed in accordance with applicable codes and regulations.

PART 2- PRODUCTS (Not Applicable)

PART 3- EXECUTION

3.01 INSPECTION:

A. Prior to commencement of demolition work, inspect areas in which work will be performed. Photograph existing conditions to structure surfaces, equipment or to surrounding properties which could be misconstrued as damage resulting from demolition work; file with owner’s representative prior to starting work.

3.02 REPAIR:

A. Provide interior and exterior shoring, bracing, or support to prevent movement, settlement or collapse of structures to be demolished and adjacent facilities to remain.
   a. Cease operations and notify the owner’s representative immediately if safety of structure appears to be endangered. Take precautions to support structure until determination is made for continuing operations.

3.03 DEMOLITION:

A. Perform demolition work in a systematic manner. Use such methods as required to complete work indicated on drawings in accordance with demolition schedule and governing regulations.
a. Provide services for effective air and water pollution controls as required by local authorities having jurisdiction.

B. If unanticipated mechanical, electrical or structural elements which conflict with intended function or design are encountered, investigate and measure both nature and extent of the conflict. Submit report to owner’s representative in written, accurate detail. Pending receipt of directive from owner’s representative rearrange demolition schedule as necessary to continue overall job progress without delay.

3.04 DISPOSAL OF DEMOLISHED MATERIALS:
A. Remove debris, rubbish and other materials resulting from demolition operations from building site. Transport and legally dispose of materials off site.
   a. If unforeseen hazardous materials are encountered during demolition operations, comply with applicable regulations, laws, and ordinances concerning removal, handling and protection against exposure or environmental pollution.
   b. Burning of removed materials is not permitted on project site.

3.05 CLEAN-UP AND REPAIR:
A. Upon completion of demolition work, remove tools, equipment and demolished materials from site. Remove protections and leave interior areas broom clean.
B. Repair demolition performed in excess of that required. Return structures and surfaces to remain in condition existing prior to commencement of demolition work. Repair adjacent construction or surfaces soiled or damaged by demolition work.
Division Six
Wood and Plastic
ROUGH CARPENTRY

PART 1-GENERAL

1.01 RELATED DOCUMENTS:
   A. Drawings and general provisions of contract, including general and supplementary conditions and other Division 1 Specification Sections, apply to this section.

1.02 SUMMARY
   A. Types of work in this section include rough carpentry for:
      a. Wood nailers and blocking.

1.03 SUBMITTALS:
   A. Wood Treatment Data: Submit chemical treatment manufacturer’s instructions for handling, storing, installation and finishing of treated material.
      a. Preservative Treatment: For each type specified, include certification by treating plant stating type of preservative retained and conformance with applicable standards.

1.04 PRODUCT HANDLING:
   A. Delivery and Storage: Keep materials under cover and dry. Protect against exposure to weather and contact with damp or wet surfaces. Stack lumber; provide for air circulation within and around stacks and under temporary coverings including polyethylene and similar materials.

1.05 PROJECT CONDITIONS:
   A. Coordination: Fit carpentry work to other work; scribe and cope as required for accurate fit. Correlate location of nailers, blocking, and similar supports to allow attachment of other work.

PART 2- PRODUCTS

2.01 LUMBER, GENERAL:
   A. Lumber Standards: Manufacture lumber to comply with PS 20 “American Softwood Lumber Standard” and with applicable grading rules of inspection agencies certified by American Lumber Standards Committee’s (ALSC) Board of Review.
   B. Inspection Agencies: Inspection agencies and the abbreviations used to reference with lumber grades species include the following:
      a. NLGA- National Lumber Grades Authority (Canadian)
      b. SPIB- Southern Pine Inspection Bureau
      c. WCLIB- West Coast Lumber Inspection Bureau
      d. WWPA- Western Wood Products Association
   C. Grade Stamps: Factory-mark each piece of lumber with grade stamp of inspection agency evidencing compliance with grading rule requirements and identifying grading agency, grade, species, moisture content at time of surfacing, and mill.
   D. Nominal Sizes are indicated, except as shown by detail dimensions. Provide actual sizes as required by PS 20, for moisture content specified for each use.
      a. Provide dressed lumber, S4S.
b. Provide season lumber with 19 percent maximum moisture content at time of dressing and shipment for sizes 2" or less in nominal thickness.

2.02 MISCELLANEOUS LUMBER:
A. Provide wood for support or attachment of other work including rooftop equipment curbs and support bases, nailers, blocking, and similar members. Provide lumber of sizes indicated or required, worked into shapes shown, and as follows:
   a. Moisture content: 19 percent maximum for lumber items not specified to receive wood preservative treatment.
   b. Grade: Standard grade light framing size lumber of any species or board size lumber as required. No. 3 common or standard grade boards per WCCLB or WWPA rules No. 3 boards per SPIB rules.

2.03 MISCELLANEOUS MATERIALS:
A. Fasteners and Anchorages: Provide size, type, material and finish as indicated and as recommended by applicable standards, complying with applicable Federal Specifications for nails, staples, screws, bolts, nuts, washers and anchoring devices. Provide metal hangers and framing anchors of the size and type recommended by the manufacturer for each use including recommended nails. Where rough carpentry work is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners and anchorages with a hot-dip zinc coating (ASTM A 153).

2.04 WOOD TREATMENT BY PRESSURE PROCESS:
A. Preservative Treatment: All lumber shall be treated, and comply with applicable requirements of AWPA Standards C2 (Lumber) and AWPB Standards listed below. Mark each treated item with eth AWPB Quality Mark Requirements.
B. Pressure-treat above-ground items with water-borne preservatives to comply with AWPB LP-2. After treatment, kiln-dry lumber to a maximum moisture content of 19 percent. Treat all items and the following:
   a. Nailers, Curbs, equipment support bases, blocking, and similar members in connection with roofing and flashing.
C. Complete fabrication of treated items prior to treatment, where possible. If cut after treatment, coat cut surfaces with heavy brush coat of same chemical used for treatment and to comply with AWPA M4. Inspect each piece of lumber after drying and discard damaged or defective pieces.

PART 3- EXECUTION
3.01 INSTALLATION, GENERAL:
A. Discard units of material with defects which might impair quality of work, and units which are too small to use in fabricating work with minimum joints or optimum joint arrangement.
B. Set carpentry work to required levels and lines, with members plumb and true to line and cut and fitted.
C. Securely attach carpentry work to substrate by anchoring and fastening as required by recognized standards.

06100-2
D. Use common wire nails, except as otherwise indicated. Select fasteners of size that will not penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting of wood, predrill as required.

3.02 NAILERS AND BLOCKING

A. Provide wherever shown and where required for attachment of other work. Form to shapes as shown and cut as required for true line and level of work to be attached. Coordinate location with other work involved.

B. Attach to substrates as required to support applied loading. Countersink bolts and nuts flush with surfaces, unless otherwise indicated.
Division Seven
Thermal and Moisture Protection
DIVISION 7
THERMAL AND MOISTURE PROTECTION

SECTIONS:
7.1 DAMPROOFING
7.2 THERMAL INSULATION
7.3 ASPHALT SHINGLES
7.4 BUILT-UP ROOFING
7.5 MODIFIED BITUMEN ROOFING
7.6 FLASHING AND SHEET METAL
7.7 DRAINAGE PLANE
7.8 PREFORMED SIDING
7.9 ROOF ACCESSORIES
7.10 SEALANTS
7.11 AIR-SEALING
7.12 USE OF BLOWER DOOR – PROCEDURES AND TESTING

SECTION 7.1 DAMPROOFING

7.1 A Products:

1. Asphaltic emulsion based – equal to Sonneborn “Hydrocide 700 Mastic” or Karnack “955-Heavy Trowel.”

2. Interior Coating – “Thoroseal” by Standard Drywall Products Co.

3. Admixture – “Thoroguard” by Standard Drywall Products or approved equal anti-hydra admixture.

4. Grout – “Thoroplug” by Standard Drywall Products Co. or approved equal.


7.1 B Reference:


7.1 C Execution: (see Builder’s Guide, Figures 4.2, 4.8, 4.11 et al.)

1. New concrete footings – as a capillary break across top of footing, either apply one troweled-on coating of asphaltic emulsion damproofing according to manufacturer’s instructions or secure an impermeable membrane.

2. New foundation walls at exterior – Install one troweled-on coating of asphaltic emulsion damproofing according to manufacturer’s instructions. Apply only at temperatures above 40° F. in dry weather. Apply mastic from footing up parged foundation wall to point of grade or start of stucco. Backfill with care to prevent damage to damproofing, providing membrane protection course when necessary to prevent such damage. Where existing
foundation walls are exposed, parge and apply dampproofing as above. Dampproofing may be omitted where draining rigid glass fiber insulation is used.

3. Basement drainage (new construction) – install perforated perimeter drain on outer side of footing and below the level of floor slab. Surround the perforated drain with coarse gravel (no fines); protect the gravel with filter fabric. Pipe to drainage system. Above it, face the below-ground portion of the basement wall with draining rigid glass fiber insulation (or drainage membrane with filter fabric).

SECTION 7.2 THERMAL INSULATION

7.2 A General:

1. Section includes –
   a. Batt and cellulose thermal insulation in exterior wall, roof and floor cavities
   b. Rigid insulation in exterior walls
   c. Crawlspace vapor retarder.
   d. Exterior insulation and finish systems (EIFS)

2. Related sections –
   a. Steel Framing 5.1
   b. Rough Carpentry 6.1
   c. Air Sealing 7.10
   d. Ductwork and Pipe Insulation 15.2

3. Definition of thermal boundary – Uninterrupted thermal insulating barrier enclosing entire heated space of building. Basements and connected crawlspaces are usually unintentionally heated and defined within the thermal envelope. Other crawlspaces may be excluded from the thermal envelope only with explicit written authorization of PHDC/RDA.

4. Storage and handling – All insulation shall be delivered to the site in manufacturer’s original container, clearly marked and identified with brand, applicable standards, type and R-value. Protect materials from weather.

5. Quality assurance – Install all materials in accordance with manufacturer’s specs.
SECTION 7.2

THERMAL INSULATION

7.2 B Products:

   a. Approved low moisture wet-spray: R-Pro Wall System
   b. Loose fill cellulose: R-3.2 per inch.
   c. Dense-packed cellulose: Density not less than 3 and not more than 5 lb/cubic foot installed

2. Glass fiber – Preformed glass fiber batt, faced or unfaced as indicated, width conforming to construction application.
   R-11, 3-1/2 x 16 inch batt, kraft-faced
   R-13, 3-1/2 x 15 inch high-density batt, kraft-faced
   R-19, 6 x 15 inch batt, kraft-faced
   R-19, 6 x 16 inch batt, kraft-faced
   R-30, 10 x 16 inch batt, unfaced

3. Rigid insulation –
   a. Foil-faced polyisocyanurate (R-Max, Tough-R, Thermax)
   b. Foil-faced glass fiber board (Owens Corning et al.)
   c. Extruded polystyrene “XPS” (“blue board,” “pink board” – Owens Corning et al.)
   d. Rigid glass fiber draining insulation board (Insul-Drain by Owens Corning)

4. Exterior insulation and finish systems – complete system including expanded- or extruded-polystyrene board insulation, mechanical fasteners, reinforcing mesh, synthetic stucco, and aperture details, all provided or certified for use by the same EIFS manufacturer: Dryvit Sysstems, Parex, Senergy, Simplex, Sto Corp., US Gypsum.
   System shall be designed with a drainage plane behind the foam insulation: Dryvit MD System, Senergy CDSystem, US Gypsum InsulScreen or approved equivalent. EIFS dependent on a perfect face seal for moisture exclusion shall not be used.

5. Staples – galvanized or bronze flattened 1/2 inch shank wire staples.


7. Prefabricated batt hangers –

8. Vapor barrier – Polyethylene film 6 mil thick.

9. Vapor barrier tape: 3M #8086.

10. Adhesive – As recommended by insulation manufacturer. Shall not damage insulation or vapor barrier.
7.2 C Execution:

1. Insulate entire thermal boundary as specified.

2. Special requirement for exterior insulation and finish system – The system shall be installed by certified EIFS applicators trained by its manufacturer. Flashing, sealing and termination details shall be pre-approved by the architect and prime contractor. Joints shall be sealed with silicon or other low-modulus sealant.

3. Special requirement for steel framing – De-rating due to thermal short. Insulation installed between metal framing (that portion of insulation with thickness equal to framing member depth) shall be de-rated by 50%. Where insulation method is not prescribed below, provide additional insulation outside (on the cold side of) the framing to achieve required minimum total thermal resistance.

4. Special requirements for pipes and ductwork –
   a. General: Building insulation shall be installed such that all wet piping and ductwork remain within the building thermal envelope.
   b. Walls and chaseways: Install minimum R-13 of insulation uncompressed on cold side of heating pipes and ducts. Two-inch rigid glass fiber board, fit tight at studs and butt joints, may be substituted for R-13 glass fiber where mechanicals leave insufficient clearance for full thickness batts. Insulate remainder of cavity to either side of mechanicals.

5. Existing construction with intact interior finish –
   a. Roof cavity: Dense-packed cellulose in all portions that cannot be air-sealed. Insulate remainder with loose fill cellulose to R-30.
   b. Walls and floors: Dense-packed cellulose.

6. Walls –
   a. General:
      i) Insulation requirement – Achieve effective R-13 minimum with batts or cellulose unless stipulated otherwise.
      ii) Exterior frame walls – Insulate full depth of stud cavity.
      iii) Studded-out exterior masonry walls –
         a) Glass fiber batt: R-13 minimum if distance from masonry to interior stud face is less than 4-1/2 inch, R-19 if greater and whenever steel studs are used (see Metal stud walls below).
b) Cellulose: permitted only where masonry has new outer course of hard face brick or moisture-resistant stucco.

4) Fitting batts – Cut batts 1 inch longer than stud cavity. Staple top to underside of firestop or top plate and press-fit between studs with stapling tabs left folded. Install wrinkle free and flush with stud face to minimize convection within stud cavity. Cut batts 1/2-inch wider than non-standard width stud bays to provide snug fit. (For walls studded out with metal studs, see “Metal stud walls” below.)

5) Exterior corners fully insulated – Provide continuous insulation at outside corners and where partition walls abut outside walls. See Section 6.1 D 3 (c), Stud Framing.

6) Exterior walls between floors – When new ceilings, other than on the top-floor, are erected below the joists, insulate exterior walls to R-13 between the new ceiling and floor sheathing above. Install insulation without gaps.

b. Metal stud walls:

1) Comply with all other minimum insulation requirements.

2) Glass fiber batt – Width shall equal full center to center spacing of studs.

3) Wet-spray cellulose – Install to full depth of wall cavity without voids behind studs or inside stud channels. Flanges of studs and runners shall be scraped free of insulation prior to installation of drywall.

4) New frame walls – Insulate stud bays to full depth. Use R-11 batts with insulating exterior sheathing (polyisocyanurate or XPS), R-5 minimum.

5) Studded-out exterior masonry walls –

a) Glass fiber batt: Use R-19 batts the full width of the center-to-center stud spacing, slit to fit around the stud C-section so that approximately 40% of the batt thickness is in the space between the masonry and studs. The edges of adjacent batts shall meet in this space.

b) Cellulose: Install without voids to full depth of wall cavity.

c. Basement and crawl space:

1) Basement walls (new construction) – In owner-occupied single-family dwellings where the floor-to-ceiling height is 6 feet or more, insulate to R-10 minimum.

a) Interior: in unfinished spaces, install a foil-faced glass fiber board (FSK), approved for exposed use, over the full height of the exterior (non-party) wall. In finished space, use any approved non-hygroscopic insulating material.
b) Exterior: Where insulation is placed on the exterior of the basement wall without foundation drainage, use either 2-inch draining rigid glass fiber or 2-inch extruded polystyrene extending from the top of the footing to the top of the foundation wall. Where insulation is part of an exterior foundation drainage system, comply with manufacturer’s specifications. In either case, provide protective membrane above ground and appropriate termite barrier detail.

c) Integral: Where a concrete block wall is not insulated on either side, insulate all hollow cores in the block with expanded polystyrene foam inserts from a level 3 feet below grade to the top.

2) Basement walls (existing construction) – Insulate finished basement exterior walls with any approved non-hygroscopic insulating material.

3) Basement-under-porch partition – Construct partition, with hinged door, to separate excavated areas under porches or sidewalks from the main basement space. Insulate partition wall with R-13 foil-faced glass fiber board.

4) Crawlspace vapor barrier – Cover ground of all dirt crawlspaces with 6-mil polyethylene film and lap up wall one foot above grade.

5) Crawlspace perimeter – Insulate wall of crawlspace under heated living areas with foil-faced glass fiber board, R-10 minimum. Completely air seal exterior crawlspace perimeter prior to insulating. Embed board 1-foot into crawlspace soil. On walls perpendicular to joists, wedge top tight against joist. On walls parallel to joists, affix with adhesive approved for use with glass fiber.

6) Slab-on-grade (new construction only) – a floating-slab design should be used unless structural considerations dictate an anchored slab.

   a) Floating slab: Separate the edge of the floor slab from the perimeter wall with continuous 2-in. extruded polystyrene insulation, which then continues 2 ft. downward or 2 ft. inward horizontally. Insulation thickness at slab edge may be reduced to as little as 0.75 in. where necessary to avoid a gap between slab and wall-base trim.

   b) Anchored slab: When the slab cannot be thermally isolated from the perimeter wall, insulate outside surface of perimeter wall to R-10 minimum.

7. Floors –

   a. Insulation requirement: Use R-19 batt minimum or blow in cellulose to full depth of floor cavity.

   b. Overhangs: Insulate portion directly above exterior wall to full depth of floor cavity.

   c. Bay over existing porch: Install insulation against all exterior surfaces including retrofit air barrier, ends of joist bays and sides of outboard joists.
d. Support open batt: Where exterior sheathing or finish is not installed immediately below floor batt, support batt with approved wire or hangers spaced 10 inches on center. Attach wire to joist with staple or "J" nail.

8. Ceilings –

a. Insulation requirement: Achieve R-30 with glass fiber batt or loose fill cellulose. Batt should be unfaced if necessary to conform to ceiling finish where lower part of batt is compressed by width of stud.

b. Chimneys and vents: Maintain combustible materials at least 2 inches from hot surfaces, or as required by code.

c. Wood-framed ceilings:
   1) Glass fiber – Install batts, width equal to center-to-center joist spacing, compressed at the bottom to fit between joists, without gaps in space above joists.
   2) Cellulose – Blow loose fill to required depth.

d. Metal-framed ceilings: top flanges shall be covered with a continuous layer of loose-fill cellulose or glass fiber batts. That portion of insulation installed between metal framing members shall be derated by 50%.

   1) Glass fiber – batt insulation shall be applied in two perpendicular layers. The lower layer shall be kraft-faced, inserted between members and be the same width as C-C joist spacing, and have same thickness as members (exception: insulation shall be permitted to be 1/2 in. thinner than joist web). The upper layer shall be a minimum 23 in. wide R-19 unfaced glass fiber laid cross-wise over joists. Top layer shall laid flat without gaps between courses. All gaps between perimeter of framing and masonry walls, including party walls, shall be stuffed with glass fiber.

      exception: Suspended grid ceiling systems may be insulated with one layer of kraft-faced 23-inch wide glass fiber batts, R-30 minimum, installed without gaps.

   2) Cellulose – Blow loose fill to required depth to achieve R-30.

e. Low clearance: Where low rafters cause glass fiber batt to be compressed vertically, insulate between rafters as necessary to achieve R-30. Install batts in two layers or blow cellulose.
SECTION 7.3 ASPHALT SHINGLES

7.3 A General:

1. Colors -- provide a minimum of 3 colors for selection on all projects, and get owner's approval on color choice prior to start of work.

2. Product Delivery, Storage and Handling -- Deliver materials to jobsite packaged with manufacturer's labels intact and legible. Store materials on raised platforms and protect with coverings at outdoor locations. Do not stack bundles more than 3 ft. high.

7.3 B Products:

1. All roofing shingles shall be square tab butt strip shingles conforming to standards of ASTM D225-70 type I and Federal Specification SS-S-300B type II, UL 790, Class C, 5 tab, approx. 12 inches by 36 inches, minimum weight 235 lbs per square.

   Approved products: Bird & Son "Windseal"
   CertainTeed "Sealdon"
   GAF "Standard Self Sealing"


3. Hip and Ridge Shingles -- same manufacturer, type, weight and color as roofing shingles.


5. Nails -- galvanized 10 ga. annular thread, 3/8 inch head, 1 inch minimum lengths or; staples may be employed conforming to the following: zinc coated, 16 gauge, semi-flattened to an elliptical cross section, and long enough to penetrate 1/2 inch through decking. The staple crown must bear tightly against shingle but must not cut shingle surface, and the crown of the staple must be parallel to the tab edge.


7.3 C Execution:

1. Install asphalt shingle roofs only on roofs having a slope of 3-1/2 in 12 or greater.

2. Repair damage to neighboring roofs caused during demolition or new roofing work with materials of type and quality to match existing.

3. Assure that prerequisite metal flashings have been installed. Perform all work to standards and requirements established in Asphalt Roofing Manufacturers Association printed stan-
SECTION 7.4

BUILT-UP ROOFING

1. Submit manufacturers product data and installation instructions for approval.

2. Minimum temperature for application is 35° F. Do not install roofing on damp, wet, or frosty surfaces.

3. Guarantee - Contractor shall provide written 5 year guarantee against defective materials and workmanship on all roofing installations. Guarantee shall be in no way contingent upon manufacturers' warranties or reservations concerning qualifications or certification of the roofing contractor. The guarantee shall be provided by the General Contractor, and not by the roofing subcontractor nor the manufacturer of the roofing materials. The guarantee shall cover all roofing and flashing, and shall not be contingent upon maintenance or re-coating of the roof within the 5 year period.


5. Ensure roof deck is structurally sound to support the live and dead load requirements of the roofing system and sufficiently rigid to support construction traffic.

6. Decks shall be firm, clean, smooth, and dry.

7.4 B Products:

1. Provide a 10-year bondable built-up roofing system with asphalt bitumen and glass fiber felt from a national manufacturer of roofing products.

2. Asphalt bitumen - ASTM D312, Type III.

5. Aluminum coating – Type 3 cellulose fibered, ASTM A-2824.
6. Cant strips – Preformed fiberboard.
8. Nails – Large head non-ferrous or galvanized barbed roofing nails.
10. Vents – Passive "mushroom" vents, 12- or 16-inch dia. Do not use turbine vents.
11. White acrylic elastomeric roof coating – Liquid-applied acrylic white coating, must conform to all aspects ASTM D6083 (not just "performance"). Must be warranted by manufacturer for at least 10 years.

7.4 C Execution:

1. Install all roofing systems in strict accordance with manufacturer's printed instructions.
2. Remove any trash, debris, grease, oil, water, moisture, and contaminants which may affect bond of roofing to surface.
3. Inspect exposed roof decks and repair any rotted or deteriorated roof boards. Cracks greater than 1/4 inch and all knotholes shall be covered with sheet metal nailed securely to the deck.
4. When existing roofing is removed completely, or roof is installed on new sheathing, roofing shall consist of a base sheet, three plies of felt hot mopped, and hot mopped top coating.
5. When existing roof is not removed, roofing shall consist of three plies of felt hot mopped, and hot mopped top coating; base ply is not required.
6. Application of base ply – Apply base ply with 2 inch side and end laps. Mechanically fasten at 9 inches o.c. max. at side laps, and 18 inches o.c. max. staggered in two rows 12 inches from each edge. Roofing nails or other fastening system approved by the roofing manufacturer may be used on wood or plywood decks. To minimize wrinkles and buckles allow time for base ply to relax unrolled prior to attachment. Cold temperatures will increase time required for base ply to relax.
7. Application of plies – Embed three plies of glass fiber felt in shingle fashion, starting from the low point of the roof. Each ply should lap 24-2/3 inches into uniform solid moppings of hot asphalt, using 25-45 lb. per 100 sf per ply. Starter plies of 12-inch and 24-inch widths are necessary at beginning and end of job to maintain roofing thickness.
8. When applying roofing, keep the mopping within 6 ft. of the roll. Keep the mop full, and
flow asphalt in front of the roll. Do not scrub with mop.
9. Cant strips – Apply cant strips at intersections of roof deck with vertical surfaces. Secure
fiberboard cant strips with plastic cement or hot steep asphalt.
10. Flashing – Extend the built-up roofing plies a minimum of 2 inches above the cants and
adhere to the wall curb or parapet with hot asphalt. At all parapets, install 90 lb. mineral
surface roll roofing as cap flashing, mopped in solid with hot asphalt over cant strip onto
roof surface. At party walls extend cap flashing down onto both adjacent roofs.
11. Asphalt top coating – Coat entire roof surface with a uniform mopping of hot asphalt at a
rate of 15 to 20 lb. per 100 sf.
12. Clean-up – Thoroughly remove all debris, including old roofing and slag. Under no
circumstances leave slag or debris on adjacent properties. Clean all asphalt drips from
adjacent surfaces and sidewalk.
13. Aluminum coating – mix well and apply coating to clean, dry roof surface. Use 2 coats if
necessary for complete coverage.
14. White elastomeric acrylic coating – Inspect and repair all flashing, counterflashing and
drains. Remove or alleviate all “ponding” areas. Pressure wash roof surface with
surfactant cleaning agent, paying particular attention to “oily” areas. Apply in sunny
weather at ambient temperatures greater than 50° F. Apply two coats, each 8 to 10 mils
thick. First coat must dry before application of the second coat (2-10 hours depending on
temperature, humidity and amount of sunlight). No rain may occur during drying period.
All perimeter areas should be “backrolled” using 3/4" nap, exterior rough surface rolling
pad. (Do not “sludge” coat.) All other surface areas should be sprayed or rolled with
coating. All surfaces on roof should be covered, including all vertical surfaces, flashing
and members. Drains should not be covered.
15. Vents – Comply with building code requirement for ventilation of each roof (net free vent
area = roof area/300).

SECTION 7.5 MODIFIED BITUMEN ROOFING

7.5 A General:
1. Submittals – Submit product data for sheet membrane, flashings, and sealants with
temperature range for application of membrane. Submit fastener certification and pull-out
test results. Submit manufacturers installation instructions.
2. Quality Assurance –
a. Membrane manufacturer: A company specializing in modified bitumen mem-
branes with more than 5 years of experience.
b. Applicator: A company specializing in modified bitumen roofing installation, with more than 5 years of experience.

c. Underwriter’s Laboratories, Inc. (UL): Class C fire Hazard Classification.

3. Environmental Requirements – Deliver products to site and store materials in a weather-protected environment clear of ground and dry.

4. Warranty –
   a. Provide a 10 year manufacturer’s warranty on roof.
   b. Furnish a 5-year contractor’s warranty.

7.5 B Products:

1. Provide a compatible assembly of products that are recommended by manufacturers to be fully compatible with substrates, flashings, and related materials.

   Acceptable manufacturers: ARC Rhofflex (Firestone)
   GAF Tarmac
   Garland

3. Base Sheets – Install heavy duty glass fiber base sheets manufactured by or approved by the same manufacturer as the cap sheet.

4. Vents – Passive “mushroom” vents, 12- or 16-inch dia. Do not use turbine vents.

5. Accessories –
   a. Accessories shall be made by or approved by the roofing manufacturer.
   b. Cant strips shall be rigid fiberboard.
   c. Fasteners shall be screw or peel rivet type with plastic plates.
   d. Where termination bars are required, they shall be aluminum 1/8 inch thick x 1 inch wide.
   e. Stacks or pipes penetrating the roof shall be flashed with aluminum collars with rubber gaskets.

7.5 C Execution:

1. Inspection –
   a. Verify the roof openings and penetrating elements through the roof are solidly set and all nailing and cant strips are in place. Verify that the deck is solid and secured.
b. Do not apply roofing to damp, frozen, or dirty surfaces, or to surfaces unacceptable to the manufacturer, installer, architect, or PHDC/RDA. Beginning installation means acceptance of the substrate by the contractor.

2. Fire Safety

a. The contractor shall meet all the fire safety requirements of OSHA, the City, and the manufacturer of the roofing materials.

b. During application, the contractor shall require that a designated person on each crew be assigned to conduct a fire watch. This individual shall be trained in the use of fire extinguishing equipment and shall have a phone for calling the fire department in the event of a fire. He/she shall watch for smoldering materials or fires on all areas of the roof, try to extinguish them when the fire is within the limits of the fire extinguishing equipment available, and sound the alarm.

c. After application, a fire watch shall be continued on a daily basis after torch welding applications are completed. The job foreman or other designated person shall carefully walk the entire area of application at the end of the work day, checking for smoldering material. A fire watch shall be maintained during breaks in the work day and for two hours after the last torch is shut off for the day.

3. Surface Preparation

a. Fully prepare the surface for each component of the roofing system. Remove all existing roofing and flashing materials unless otherwise directed. Remove all materials from the roof by means of an approved chute to a truck or dumpster. Provide legal disposal. Patch all holes and gaps in the roof sheathing. Maintain the watertight integrity of the roof at all times.

b. Install non-combustible, fire-resistant cant strips.

c. Install roof drains.

4. Application of base sheets

a. Install a coated glass fiber base sheet over the roof deck according to manufacturer’s instructions.

b. Mechanically fasten base sheet to roof deck at the rate of 1 fastener per 2 sq. ft.

5. Application of membrane

a. Install modified bitumen membrane according to the roofing manufacturer’s printed instructions.
b. Lay out the modified bitumen cap sheet roll in straight course to be followed, starting at the low end of the roof to insure that laps are toward surface of the coiled part of the roll and progressively unroll it, pressing down with the foot to insure bonding. After the major portion of the roll has been bonded, re-roll the first 6 feet and bond it in a similar fashion. Repeat this operation on subsequent rolls with overlaps of 4 inches on the sides and 8 inches on the ends. Give each lap a finishing touch by passing a trowel against the seam to insure a smooth, tight seal. If any gaps are found, they shall be reheated and re-sealed.

6. Base Flashing –

   a. Install 2 plies of modified membrane cap sheet at all intersecting vertical walls, parapets, curbs, etc. Torch apply both plies. Terminate all base flashings at counterflashings or a metal termination bar.

   b. Prime and strip all metal flanges with one ply of modified bitumen cap sheet, torch applied.

7. Vents – Comply with building code requirement for ventilation of each roof (net free vent area = roof area/300).

8. Protection of roofing – Upon completion of roofing, including associated work, take appropriate measures for surveillance and protection of roofing during remainder of construction period.

SECTION 7.6 FLASHING AND SHEET METAL

7.6 A Quality Assurance:

The work of this section shall conform to standards and guidelines for work of this type contained in the “Architectural Sheet Metal Manual” by the Sheet Metal and Air Conditioning Contractors’ National Association, Inc., and “Copper and Common Sense” by Revere Copper and Brass Inc.

7.6 B Products:

1. Metal Flashing – All metal flashings shall be galvanized ASTM A526 commercial quality min. 28 ga. or aluminum ASTM B209, alloy 3003, temper H14, finish AS-C22A41, .020 inch min. thickness. Metal Flashings exposed to view such as at roof edges, gravel stops and eave flashing shall be prefinished aluminum. Concealed flashings may be galvanized or aluminum. Forming of exposed flashings shall be neatly done to consistent, tight fitting and self-lapping configuration. All flashings at roof edge, vents, curbs and other roof protrusions shall be preformed to appropriate shapes; vent and similar flashings shall...
be cap and counter flashed. Flashings shall be asphalt coated if in contact with dissimilar metal. Fastener shall be of an alloy appropriate for use with the flashing material.

2. Through-wall flashing – Through-wall flashing shall be copper fabric laminate 3 oz. copper with asphalt impregnated cotton fabric both sides, or shall be 30 mil PVC modified flexible plastic sheets similar to Sandex "Copper-Fabric Flashing" or Nervastral "Nervastral 300".

3. Window and Door flashing – Integral with unit or .032 inch aluminum.

4. Gutters and Downspouts –
   a. Gutter: 5 inch style K (o-g.) aluminum .027 inch thick, prefinished color similar to Alcoa with all necessary brackets, outlet boxes, end caps, gutter guards, joining sections, mitered section, hangers, and straps as necessary for a completely finished job.
   b. Downspouts: 3 inch x 4 inch corrugated aluminum, .027 inch thick, prefinished color similar to Alcoa with all necessary elbows and fasteners, OR 2 inch x 3 inch corrugated PVC with metal-to-vinyl adapter below gutter outlet, Rain Master 2200 or equal.

Provide removable leaf strainer at neck of downspout.

7.6C Execution:

1. Install flashing where required to provide weatherproof enclosure in accordance with conventional and specified standards and in accordance with manufacturer’s printed instructions.

2. Provide expansion joints in long lengths of exposed metal flashing. Seal all seams, corners, boxes and turnings at all joints in flashing material.

3. At roof penetrations, install preformed type of cap and counter flashing in accordance with manufacturer’s recommendation.

4. Provide new eave boxes where required of size to suit drainage requirements, with apron and cap flashing to suit downspout size. All seams in eave box fabrication shall be soldered.

5. Downspouts shall be mechanically fastened to walls at no smaller interval than 8 ft. vertically and no less than one fastener per piece. Cement downspouts at boot fitting.

6. Repair flashing and sheet metal work at neighboring structures when damaged either in demolition or in the performance of the new work with materials matching the quality and type of the existing damaged elements.
SECTION 7.7 DRAINAGE PLANE

7. Repair of sheet metal work at cornices and bays of existing structure: Repair shall match quality, material, type, workmanship and configuration of the existing sheet metal.

SECTION 7.7 DRAINAGE PLANE

7.7 A When required:

For all frame construction, a continuous drainage layer is required behind the exterior cladding. See Joseph Lstiburek, Builder's Guide - Moderate Climates, © 1998 Building Science Corp., IEBA and Shelter Source, Appendix I: Rain and Drainage Planes

7.7 B Products:

1. Flexible systems -
   a) 15-lb or heavier asphalt-impregnated sheathing paper
   b) vapor-permeable synthetic membrane: Tyvek (DuPont), Tyvar (Reemay), Amo-wrap (Tenneco), Barricade (Simplex), Pinkwrap (Owens Corning)

2. Rigid systems -
   Foil-faced polyisocyanurate foam insulations or a foil facing integral with sheathing, and approved tape

3. Sealing tapes -
   a) For use on synthetic membrane – as approved by membrane manufacturer
   b) For use on foil – 3M 8086 or Contractor Sheathing Tape; DuPont Contractor Tape; Benjamin Obdyke Inc. Gap Wrap or approved equal

4. Adhesive membrane strip – MiraDri 860/861 self-adhering membranes or approved equal

7.7 C Compatibility: Housewrap-type synthetic membranes are prohibited –

1. Unless there is an air gap between the membrane and the exterior cladding (e.g. with face brick, siding). They may be used behind stucco or wood siding only if an intermediate air space is provided by furring strips or channels.

2. Over oriented strand board (OSB).
7.7 D Execution:

1. Location: Fasten drainage layer to exterior surface of sheathing.

2. Installation of flexible drainage layers:
   a) Install according to manufacturer’s instructions.
   b) Lap horizontal joints shingle fashion to drain water to exterior. *Synthetic membrane only*: tape joints to exclude air.
   c) Lower termination: To drain water to the exterior, provide aluminum flashing at bottom of drainage layer where it terminates above a projection (such as a roof or a step in the plane of the wall). Lap material over flashing to drain water to exterior.
   d) Openings: Wrap drainage material around all penetrations and openings for full depth of framing. Provide head flashing above all penetrations and openings. Lap material and flashing to drain water to exterior.

3. Installation of rigid drainage layers:
   a) Install according to manufacturer’s instructions.
   b) Joints: Tape all joints with approved foil tape.
   c) Lower termination: To drain water to the exterior, provide aluminum flashing at bottom of drainage layer where it terminates above a projection. Tape flashing to exterior surface with approved adhesive membrane strip.
   d) Openings: Cover sill framing with adhesive membrane strip and lap over rigid drainage material. Provide head flashing above all penetrations and openings. Tape flashing to exterior surface with approved adhesive membrane strip.

SECTION 7.8 PREFORMED SIDING

7.8 A General:

1. Standards –
   a. Aluminum siding shall meet FHA Minimum Property Standards 4900.1 and 4910 and AAMA Specifications 1402.3.
   b. Vinyl siding shall comply with the regulations set forth in ASTM standard specification for Rigid Polyvinyl Chloride (PVC) Siding #D369 Class 2.
SECTION 7.9 ROOF ACCESSORIES

7.9 A Products:

1. Skylights -
   a. New: double-glazed, as called for in construction documents.
   b. Existing single-glazed: add permanent glazing panel at ceiling level. If skylight is operable, then the interior glazing panel shall also be operable and shall form a tight seal when closed.

2. Roof hatches shall be metal covered wood box type construction on raised curb with hook at interior. Design and construction shall match conventional industry standards.

7.9 B Execution:

1. Mount all skylights and roof hatches on flashed wooden curb. Height of curb shall be 8 inches minimum.
2. Repair of existing skylights and roof hatches: Repair shall match quality material and workmanship of the existing installation.

3. All work on skylights and hatches shall conform to latest building code requirements.

SECTION 7.10 SEALANTS

7.10 A Products:

1. For interior use –
   a. Foam sealant at air barrier penetrations: Non-expanding one-part polyurethane foam.
   b. Caulk for air-sealing, interior trim (surfaces to be painted): White pigmented siliconized acrylic rated by the manufacturer to last 25 years or more. Shall meet ASTM standard C834-76.
   c. Caulk for air-sealing, interior trim (already-painted or wallpapered surfaces): Clear siliconized acrylic rated by the manufacturer to last 25 years or more.

2. For exterior use –
   a. Colors: where sealant is visible on exterior, provide matching color at storm door, windows and siding. Provide gray or "mortar" color at brick and masonry openings and elsewhere.
   b. Sealant at doors and windows: One part Urethane Sealant II-S-00230C Type 2 class A, ASTM C920-79 Type S Grade NS Class 25.
      Approved products:  Chem Caulk – 900
                           Pecora Dynatrol – 1
                           PRC – 6000
                           Tremco Dymonic
                           Sonneborn NP-1
   c. Sealant at aluminum siding: OSI Rubber, Butyl Rubber Caulk TT-S-001657 Type-1.
      Approved Products:  Chem Caulk – 300
                           Pecora BC – 158
                           PRC – 2000
                           Tremco – Butyl
SECTION 7.11 AIR-SEALING

b. Zone: An air space, within which air movement is permissible or desirable, but which is intentionally separated from other spaces. (See 7.11.C.3 for examples.)

c. Outer air seal: Exterior air barrier, including shell and air sealing measures, intended to prevent infiltration of outside air into framing cavities and spaces within the thermal boundary.

d. Inner air seal: Interior air barrier, including interior building finish and air sealing measures, intended to prevent transfer of air between building interior and framing cavities.

e. Intermediate air seal: Measures performed to subfloor, framing voids, shaftways, chaseways, and penetrations to isolate, or impede air flow between, zones as required.

f. Top floor ceiling air barrier: Continuous air barrier, terminating at exterior sheathing or masonry, intended to prevent the transfer of air between roof cavity and all zones below, including building interior and framing cavities.

g. Thermal boundary: See section 7.2.

h. Unconditioned space: Space enclosed by building shell but outside thermal boundary.

i. Conditioned space: All space within thermal boundary.

j. Sealing measures: Sealant, rigid or spray-applied blocking, or a combination of blocking and sealant as appropriate.

7.11 B Products:

1. Rigid blocking –
   a. Lumber, plywood
   b. Radiator reflector board: foil-faced foam
   c. Foam insulating board: polyisocyanurate, extruded polystyrene
   d. FSK-faced rigid glass fiber

2. Spray-applied blocking –
   a. Expanding foam
   b. Damp-spray cellulose

3. Sealants: As listed in section 7.9

4. Gaskets: Silicone, EPDM, or neoprene bulb
5. Fire-resistive materials –
   a. Sealant: RTV silicone firestop caulk
   b. Sheet metal: .032 inch pre-finished aluminum
   c. Concrete board: nominal 1/2-inch thick Durock, Ethaboard, Utilibrite

7.11 C Execution:

1. Firestops – Provisions of this section do not supersede firestopping or smoke barrier requirements of this or any other applicable code.

2. Blower door test – Sealing measures shall be judged adequate when structure passes all portions of blower door test. Note that there are minimum and maximum allowable airflow values.

3. Zones requiring separation by air sealing (note that firestop requirements may apply to air-sealing materials): –
   a. Finished interior, basement, and ductwork.
   b. Framing voids and chase ways.
   c. Attic or roof cavity and the outdoors to which it is vented.
   d. Framing cavities in projecting construction (bays).
   e. Any part of basement or crawlspace specifically defined as outside the thermal boundary.

4. Outer air seal –
   a. Basement and crawlspace:
      1) Exterior walls – seal unintentional wall openings of basements and crawlspace within thermal boundary.
      2) Space outside thermal boundary – Seal all openings between conditioned and unconditioned spaces (see Definitions, part A).
      3) Basement-under-porch partition: weatherstrip partition door.

   b. Roof cavities and attics:
      1) Unconditioned – For cavities outside thermal boundary, do not seal to outside unless otherwise required.
      2) Conditioned – For cavities enclosed within thermal boundary (i.e. unvented with roof deck and exterior walls insulated), seal to outside.
c. Exterior walls (not covered in a. or b. above):
   1) Masonry and sheathing – Seal all cracks, gaps and unintentional openings.
   2) Fenestration – Frames and sills shall be sealed to rough openings.
   3) Bay over porch – Seal underside of bay framing to separate bay from porch roof space.

5. Intermediate air seal (framing) –
   a. Top floor ceilings: Seal cavities of perimeter stud walls and partitions at ceiling level. Note: Failure to provide firestop or top plate at ceiling level may increase cost of air sealing.
   b. Dropped ceiling between apartments: Seal cavities of perimeter stud walls and partitions at ceiling level.
   c. Bays and projections:
      1) Cantilevered joists – Block and seal joist bays where projecting through exterior wall.
      2) Roof cavity – Seal opening into bay roof at exterior wall.
   d. Bathtub at exterior wall: Seal exterior wall cavity from space under tub.
   e. Subflooring: Above basement and crawlspace, seal subfloor to exterior sheathing or masonry.
   f. Chaseways: Seal all openings into attics, roof cavities, basements and crawlspaces.
   g. Framing penetrations:
      1) Piping subject to movement – All seals around soil stack, stack vent, and domestic water piping shall employ resilient materials. Rigid foam shall not be used.
      2) Hot pipes and ducts – Seals around all hot water, hydronic, or steam piping, and uninsulated warm-air ducts shall employ resilient materials rated for the service temperature.
   h. Chimneys and vents: Use approved noncombustible materials within 2 inches of chimney, B-vent, or flue carrying combustion products, or follow appliance manufacturer’s directions.
   i. Electrical devices: Seal cable knockouts from back of box unless box is provided with device and cover designed to prevent infiltration.
Abandoned flues, conduits and chases: Remove or seal to prevent air movement between zones.

6. Inner air seal –

a. Sealing drywall to framing:

1) Top-floor ceiling – Seal interior finish to wall framing at ceiling level to prevent air transfer between vented roof cavity and wall cavities below.

   a) Ceiling method: Caulk edges of ceiling finish to all top plates, runners, and firestops prior to installing wall finish. For ceilings finished prior to framing walls, caulk to exterior masonry.

   b) Wall method: Install approved drywall gasket, caulk, or panel adhesive to top plates, runners, and firestops before installing interior finish.

b. Openings for mechanicals: In top-floor ceilings and all exterior walls, caulk penetrations of interior finish for electrical devices, pipes, register boots, etc.

c. Prioritizing inner air sealing measures: Where necessary to comply with whole house infiltration (blower door) test limits, caulk trim to interior finish in the following order of priority:

   1) All bathrooms

   2) Exterior walls on top floor.

SECTION 7.12 USE OF BLOWER DOOR – PROCEDURES AND TESTING

7.12 A General:

1. Section includes –

   a. Whole-house infiltration test.
   b. Top-floor ceiling air barrier test.
   c. Duct system exterior leakage test.

2. Applicability – Rehab and new construction, gross floor area 3500 square feet or less between firewalls.

3. Certification – Operator performing tests shall be certified by PHDC/RDA.

4. Test results shall be submitted to PHDC/RDA.

5. Related sections –
SECTION 7.12  USE OF BLOWER DOOR—PROCEDURES AND TESTING

a. Air sealing 7.10
b. Space heating – general 15.5
c. Ductwork 15.7

6. Definitions –
   a. Pascal: Unit of pressure. One inch water column = 249 Pascals (Pa).
   b. cfmₜₜ: Cubic feet per minute at a pressure difference of 50 Pa.

7.12 B Instrumentation:
   1. Blower door kit – Variable speed fan rated 4000 cfm at 50 Pa min., expanding frame, calibrated flow sensor.
   2. Micromanometer – Digital pressure gauge accurate to 0.5 Pa.
   3. Pressure pan – Shallow box, one face open and gasketed, with pressure tap for testing registers.

7.12 C Execution:
   1. Whole-house infiltration (blower door) test –
      a. Multi-family with separate outside entryways: Where no one entryway gives access to all units, treat each portion of the building served by its own entryway as a separate building.
      b. Procedure:
         1) Set up – Erect blower door in common entry, place exterior windows and doors in winter position, open basement and apartment doors to common area, fill traps with water or seal, close basement vents. (See “Measuring Air Tightness with a Blower Door” and “7.2 Air Sealing” in the OHCD/ PHDC/ RDA Resource/Efficient Rehabilitation Implementation Guide, and separate guideline “Testing Roof cavity Pressure to Verify Integrity of Top-Ceiling Air Barrier.”)
         2) Measurement – Depressurize building to 50 Pa, read cfmₜₜ air flow. If fan cannot reach 50 Pa, calculate cfmₜₜ = cfmₜ × (50/pressure)⁰.⁶⁵, or use “can’t reach 50” table.
      c. Allowable limits:
         1) Row house or other connected building – flow shall not exceed 2400 cfm, or 3 cfm per square foot of finished space, whichever is larger. Notify Inspector if flow is less than 1800 cfm, 1 cfm per square foot, or 900 cfm per unit, whichever is larger.
2) Single house or free-standing building – flow shall not exceed 2000 cfm, or 2.5 cfm per square foot, whichever is larger. Notify Inspector if flow is less than 1400 cfm, 0.75 cfm per square foot, or 700 cfm per unit, whichever is larger.

d. Correcting failure: If maximum flow limit is exceeded, continue air sealing according to requirements of Section 7.10.

2. Top-floor ceiling air barrier test – Conduct test on all roof cavities outside thermal boundary.

   a. Procedure: Depressurize building to 50 Pa. Measure pressures between roof cavity, building interior, and outside. Sum of pressures from interior to roof cavity, and from roof cavity to outside shall be within 1 pascal of pressure from inside to outside.

   b. Allowable limit: Cavity pressure with respect to outside shall be less than 10% of house pressure (5 Pa with building at 50 Pa).

   c. Correcting failure: If cavity pressure limit is exceeded, identify and caulk openings in interior finish responsible for passage of air from building interior to attic or roof cavity.

3. Duct system exterior leakage test –

   a. Procedure: Depressurize house to 50 Pa with basement and furnace room doors open. Place pressure pan over each register individually and measure pressure with micromanometer.

   b. Allowable limit: Register pressure shall not exceed 1.5 Pa.

   c. Correcting failure: If register pressure limit is exceeded, repair duct leakage. Restore any damaged interior finish to original condition.
Division
Sixteen
Electrical
PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included: Provide complete electrical and telephone service where shown on the Drawings, as specified herein, and as needed for a complete and proper installation including, but not necessarily limited to:
1. Main switchboard, metering facilities, main switch, and distribution board or boards as needed;
2. Feeder system, in conduit to branch circuits panels;
3. Branch circuit panels for power and lighting;
4. Branch circuit wiring, in conduit, for lighting, receptacles, junction boxes, and motors;
5. Telephone conduit and terminal boards;
6. Hangers, anchors, sleeves, chases, supports for fixtures, and other electrical materials and equipment in association therewith;
7. Lighting fixtures and lamps;
8. Wiring system, in conduit, for equipment and controls provided under other Sections of these Specifications including, but not necessarily limited to, Plumbing and Fire Sprinkler Sections;
9. Motor starters and controls for motors provided under the Contract, but for which motor starters and controls are not otherwise provided;
10. Other items and services required to complete the systems.

B. Related work:
1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
2. Section 16721: Fire alarm and detection systems.

1.2 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

B. Without additional cost to the Owner, provide such other labor and materials as are required to complete the work of this Section in accordance with the requirements of govern-
mental agencies having jurisdiction, regardless of whether such materials and associated labor are called for elsewhere in these Contract Documents.

1.3 SUBMITTALS

A. Comply with pertinent provisions of Section 01340.

B. Product data: Within 35 calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
1. Materials list of items proposed to be provided under this Section;
2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements;
3. Manufacturer's recommended installation procedures which, when approved by the Architect, will become the basis for accepting or rejecting actual installation procedures used on the Work.

C. Samples:
1. When so requested by the Architect, promptly provide Samples of items scheduled to be exposed in the final structure.
2. When specifically so requested by the Contractor and approved by the Architect, approved Samples will be returned to the Contractor for installation on the Work.

D. Manual: Upon completion of this portion of the Work, and as a condition of its acceptance, deliver to the Architect two copies of an operation and maintenance manual compiled in accordance with the provisions of Section 01730 of these Specifications. Include within each manual:
1. Copy of the approved Record Documents for this portion of the Work;
2. Copies of all circuit directories;
3. Copies of all warranties and guaranties.

1.4 PRODUCT HANDLING

A. Comply with pertinent provisions of Section 01640.

1.5 WARRANTY

A. In addition to standard one year warranty on all labor and materials, provide a two year warranty on ballasts for all fluorescent lighting fixtures.

PART 2 - PRODUCTS

2.1 GENERAL

A. Provide only materials that are new, of the type and quality specified. Where Underwriters' Laboratories, Inc. have
established standards for such materials, provide only materials bearing the UL label.

B. Temporary Power:
1. In addition to providing temporary power as described in Section 01500 of these Specifications, provide and pay the costs for installing permanent electrical meter or meters as required.
2. When permanent metering is in place and connected, the owner will pay the costs for electrical power charged against the meter or meters.

2.2 ENTRANCES AND SWITCHBOARD

A. Main switchboard:
1. Provide factory assembled, dead front, braced as shown on the Drawings, with equipment busing connection, current-limiting fuses, circuit breakers, and similar components as shown on the Drawings or required for proper completion.
2. At fused switches, provide etched plastic nameplates secured by two cadmium plated screws.

B. Distribution switchboard:
1. Provide factory assembled, dead front, braced as shown on the Drawings, with equipment busing connection, current-limiting fuses, circuit breakers, and similar components as shown on the Drawings or required for proper completion.
2. At fused switches, provide etched plastic nameplates secured by two cadmium plated screws.
3. Provide same construction and manufacture as the main switchboard, but equip with eye bolts to facilitate hoisting and placement of sections.

C. Switches:
1. Provide quick-make, quick-break, fused type, rated 240 V ac for 120/208 V systems, and rated 600 V for 277/480 V systems.
2. Provide one of the following:
   a. General Electric: "QMR" up to 1200 amps.
   b. Westinghouse: "FDP" up to 1200 amps.
   c. ITE: "Vacu-Break" up to 1200 amps.
   d. Square D: "QMB" up to 600 amps; "AV" for 800-1200 amps.
   e. Zinsco: "QSF" up to 600 amps; "PK" for 800-1200 amps.
3. For switches rated 1600 amps and higher, provide bolted pressure type such as Pringle "QA."

D. Provide current-limiting fuses:
1. For above 600 amps, provide Class L "Hi-Cap" manufactured by Bussman, or equal manufactured by Chase-Shawmut.
2. For below 600 amps, as shown for short circuit duty, provide Class K-1 "Limitron," or Class K-5 "Low Peak," or Class K-9 "Fusetron" manufactured by Bussman, or equal manufactured by Chase-Shawmut.

E. At all sections, provide a micarta nameplate with white lettering on a red background, reading WARNING, REPLACE ONLY WITH CURRENT-LIMITING FUSES AS ORIGINALLY INSTALLED.

F. Provide 100% spare fuses for each feeder, housed in a suitable cabinet near the main distribution board.

G. Provide copper busing full height.

H. Motor control center:
   1. Equip with means for locking each circuit separately.
   2. Provide completely Class A, factory wired, including breakers, contactors, starters, relays, transformers, and other required items, totally enclosed, freestanding type, with structures joined to form one assembly but with structure designed so that units may readily be removed and other structures added as required in the future.
   3. Provide lifting angles or eye-bolts to facilitate hoisting and placing.
   4. Provide each structure with two horizontal wiring spaces, one at the top and one at the bottom, which will line up with adjacent units to form convenient wiring raceways the entire length of the control center.
   5. Provide permanent identification of each item of equipment by means of plastic laminate nameplates, black face with white core letters, showing service and location of each motor.
   6. Individually tag all conduits and conductors.
   7. Provide copper busing.

2.3 GROUNDING SYSTEM

A. Ground all equipment, including switchboards, transformers, conduit systems, motors, and other apparatus, by conduit or conductor to cold water main or to independent grounding electrode as shown on the Drawings, using ground clamps manufactured by Burndy or T&B, and approved by the Architect.

B. Use ground rods if water mains or piping are not metallic, or if isolation couplings have been used.
   1. Locate ground rods in planters or similar areas which will receive water regularly, and drive to a depth of at least 8'-0".
   2. Make meg ground tests to measure ground resistance, and provide not more than 5 ohms resistance, adding ground rods as required to achieve that level.
3. Make ground rods accessible for inspection.
4. Provide "Ufer" ground if so required by governmental agencies having jurisdiction.

2.4 DISTRIBUTION SYSTEM

A. Identification:
1. Identify all panelboards, cabinets, safety switches, and other apparatus used for operation and control of circuits, appliances, and equipment.
2. Provide plastic laminate nameplates, black face with white core letters, showing proper and complete identification.

B. Branch circuit panels:
1. Provide branch circuit panels for lighting and single-phase loads, using copper busing with "Quicklag" circuit breakers and main lugs only.
2. Provide one of the following:
   a. General Electric: "NLABB"
   b. Westinghouse: "NQB"
   c. ITE: "NLAB" with box-type breaker
   d. Square D: "NQOB"
   e. Zinsco: "NQB"

3. Motor control center for air conditioning equipment:
   a. Study Drawings and Specifications for air conditioning system, and coordinate as necessary to determine motor control center requirements;
   b. Provide floor standing, dead rear and front ventilation, with louver at top and bottom of each section, Class B-1 wired, complete with starters, relays, breakers, time switches, and other items as needed for a complete and operable installation.
4. Provide units of same manufacture as the main switchboard.

C. Wiring devices:
1. Provide duplex receptacles of 3-pole grounding type with the third pole U-shaped and grounded to the conduit system, and one of the following:
   a. Bryant, Hubbell, Arrow-Hart: No. 5242
   b. General Electric: No. 4050 or 4050
   c. Sierra: No. 1402
   d. Hubbell (208 V-1b-ac-20 a): No. 7310 BU
   e. Hubbell (240 V-3a-20 a, gw): No. 7410 BU
2. For flush-mounted receptacles, provide super stainless steel type 302 cover plates.
3. Provide tumbler switches of commercial-industrial type, 20 amp, 120/277 V ac, and one of the following:
<table>
<thead>
<tr>
<th>Single Pole</th>
<th>Two Pole</th>
<th>Three Pole</th>
<th>Four Pole</th>
</tr>
</thead>
</table>
   a. Bryant    | 4901    | 4902       | 4903     | 4904     |
   b. Hubbell   | 1221    | 1222       | 1223     | 1224     |

ELECTRICAL
16400-5
4. For flush-mounted switches, provide super stainless steel 3200 series cover plates and, where grouped, set in gangs with one cover plate.

D. Underfloor raceways:
1. Provide Walker single duct or triple duct underfloor distribution system where shown on the Drawings.
   a. Provide welded rectangular tubing, factory-processed to prevent rusting, delivered in 10'-0" lengths, with outlets uniformly spaced at the centers shown.
   b. Provide marker escutcheons for outlets adjacent to junction boxes and at last outlet at ends of duct runs.
2. Provide floor junction boxes where shown, adjustable to elevation of ducts, and with tops at surface of the finished floor.
   a. Provide partitions separating the respective runs.
   b. Provide junction box cover pans to receive the indicated finishes.
3. Provide fittings needed to facilitate connections to the equipment and other items shown.

E. Abovefloor raceways:
1. Provide rigid galvanized or sherardized steel conduit, or electrical metallic tubing, with compression or tap-on type fittings, for all conduit concealed in the walls, above the ceilings, or exposed in work areas.
   a. Indenter fittings are not acceptable.
   b. Where conduit is installed underground or in the floor slab, provide rigid galvanized steel conduit.
2. Where electrical metallic tubing is used, comply with pertinent requirements of the National Electrical Code.
3. PVC conduit may not be used without specific written approval of the Architect.
4. Provide flush floor boxes, cast iron, watertight, equal to Russell & Stoll No. 2511, with combination 1/2" and 1-1/8" plug.
5. For floor boxes with convenience outlets, provide Lew No. 632SB-DFB, unless otherwise shown on the Drawings.
6. Outlets, junction boxes, and switch boxes:
   a. Provide standard one-piece units, galvanized or sherardized, of shape and size best suited to that particular location, of sufficient size to contain enclosed wires without crowding.
   b. Provide deep boxes with 1" and larger conduit.
   c. For lighting outlets, provide standard 4" octagon or square units, with 3/8" malleable iron fixture studs and box hangers where required.
   d. For switches and receptacles, provide standard gang switch boxes with stainless steel covers; except for exposed work provide pressed steel boxes with

ELECTRICAL
15400-6
galvanized or cadmium plated steel covers.
(1) Provide boxes 4" square by 1-1/2" deep, except for boxes at ends of run where containing a single device.
(2) These may be No. 180 handy boxes if permitted by the governing code.
   e. For telephone outlets, provide 4" square boxes with single device cover and one-hole bakelite telephone outlet.
7. For pull boxes, provide galvanized code-gage sheet steel units with screwed-on covers, of size and shape required to accommodate wires without crowding, and to suit the location.
8. Provide sleeves and chases where conduits pass through floors and walls.

F. Conductors:
1. For line voltages, provide 600 V insulated copper wire and cable, NEC standard, of types specified below for difference applications, with UL label, and color coded as required by governmental agencies having jurisdiction.
2. With conductors No. 4 and larger, provide insulating bushings or insulating sleeves.
3. For wire and cable No. 1 and larger, provide RHW or THW.
   a. Wires smaller than No. 1 may be TW.
   b. Identify feeder neutrals with white tape or white paint.
4. Where branch circuit wiring is installed in wiring channels of continuous row-mounted fixtures, provide UL type RHH or other approved 90 degree C wires, rated at 600 V.
5. For wire No. 8 and smaller, provide solid wire; for wire larger than No. 8, provide stranded wire.
6. For wire in conduits subjected to direct sunlight, provide THWN or RHWN.
7. Use only copper wires and cables.

2.5 LIGHTING FIXTURES

A. Provide fixtures of the types shown on the Drawings, and with the following accessories as applicable.
1. Recessed fixtures:
   a. Provide units having an attached pull box, and with UL label.
   b. Provide local label in addition if so required by governmental agencies having jurisdiction.
2. Fluorescent fixtures:
   a. Provide ballasts thermally protected against overheating by built-in thermal protectors sensitive to ballast winding temperature and current.
   b. Provide protector preventing winding temperature from exceeding 120 degrees C, allowing winding temperatures to reach 105 degrees C under normal oper-
ating conditions at 40 degrees C ambient and, after opening, not reclosing above 80 degrees C.

B. Where fixture substitutes are proposed, submit a Sample fixture with the materials list required to be submitted under Article 1.3 above.

2.6 TELEPHONE AND INTERCOM

A. Provide conduits, service entrance equipment, outlets, terminal boards, and other items shown on the Drawings or required for a complete, approved, and operating telephone and intercom service, except for such items and equipment as are furnished by the serving telephone company.

B. Provide access pull boxes so that no conduit run is longer than 100 feet, or contains more than two 90 degrees elbows.

C. Provide pull wires in all telephone and intercom units.

D. Provide the intercom system shown on the Drawings.

2.7 MOTOR STARTERS

A. General: Provide Westinghouse units, or equal as approved in advance by the Architect, of the sizes and types needed for the operations shown on the Drawings, specified herein, and otherwise required for the facility, and with the following attributes:
   1. Comply with pertinent requirements of NEMA and NEC.
   2. Include required accessory items.
   3. Horsepower rated, with interchangeable thermal overloads and with double-break contacts capable of interrupting 10 times the rated motor current.
   4. Normally reset without entering the starter enclosure.
   5. Equipped with overloads in each ungrounded leg.

B. Manual starters:
   1. For both single-phase and three-phase starters, provide units that open all ungrounded conductors simultaneously.
   2. For single-phase starters, provide units of tumbler switch type that clearly indicate ON, OFF, and TRIPPED positions.
   3. For three-phase starters, provide pushbutton operated units with START, STOP-RESET button on the enclosure cover.

C. Magnetic starters:
   1. Provide units with operating coils designed to operate on line voltage or any other auxiliary voltage shown on the Drawings.
   2. For starters with line voltage operating coils, provide built-in under-voltage release.
3. Provide units with the accessories and auxiliary contacts needed for automatic or remote operation as shown on the Drawings.

D. Combination starters:
1. Provide units complying with requirements for magnetic starters and, in addition, with a circuit breaker in the same enclosure.
2. Provide circuit protection comply with NEC requirements for the motor being operated.

2.8 SAFETY SWITCHES

A. Provide safety switches of heavy duty type, horsepower rated, quick-make and quick-break design, externally operated with provision for padlocking, fusible or non-fusible as shown on the Drawings.

B. Provide enclosures clearly marked for maximum voltage, current, and horsepower rating, and:
   1. Indoor: NEMA type l
   2. Outdoor: NEMA type 3R, rain tight.

C. For switches having dual ratings (higher rating when used with dual-element fuses), provide ratings indicated on a metal plate riveted or otherwise permanently fastened to the enclosure.

2.9 TRANSFORMERS

A. Provide Westinghouse Type DS-3 and ST-3, or equal transformers manufactured by General Electric or Jeffries, with the following attributes.
   1. Dry type, with the ratings shown on the Drawings.
   2. For lighting transformers, provide four 2-1/2% FCBN taps.
   3. For power transformers, provide two 5% FCBN taps.
   4. Adjust all taps to nominal 120 V, 240 V, or 480 V as close as practicable and as required for the Work.
   5. Do not provide taps on isolating transformers.

B. Provide Group II insulation with temperature rise not exceeding 80 degrees C, or Group II with temperature rise not exceeding 150 degrees C, under full load, in an ambient temperature of 40 degrees C.

C. Build transformers in accordance with current standards of AIEE, ASA, and NEMA, and provide UL listing and label.

D. For units of 5 kV class, provide a BIL of 25 kV on the primary and 10 kV on the secondary.

E. For units of 600 V and less, provide BIL of 10 kV.

ELECTRICAL
16400-9
F. Locate terminal compartment in the bottom of the transformer to assure termination of cable leads in ambient temperature levels and to provide for side or bottom entrance of the cables.

G. Separate transformer core and coils from case by suitable vibration isolators. Install the transformer case on suitable vibration isolators, and connect on primary and secondary sides with minimum of 18" of flexible conduit.

H. Provide a minimum of 10% overload capacity at rated voltage.

I. Provide the following tests at the factory.
   1. Applied voltage test to other winding and ground:
      
      | 600 V class | 5 kV class |
      |---------------|-------------|
      | H.V. - 4 kV   | 12 kV       |
      | L.V. - 4 kV   | 4 kV        |
      
   2. Induced voltage test: Two times normal voltage.
   3. Ratio, polarity, and sound level tests.
   4. Perform sound level tests in test room, with an ambient sound level not exceeding 23 db's, and achieve sound level not exceeding:
      a. 0 to 150 kVA: 45 db's.
      b. 167 to 300 kVA: 50 db's.
      c. 500 kVA and more: 53 db's.
   5. Prior to proposing any new design, secure the Architect's approval of a certified rating test report of similar standard ratings, with proper explanatory drawings, showing the above tests have been performed with satisfactory results on the first rating of the new design, including ratio, resistance, copper loss, iron loss, sound level, applied voltage, induced voltage, temperature rise, impulse test, and short circuit tests.
   6. When so required by the Architect, provide performance data stating whether figures shown are average, typical, or guaranteed, and corrected to the corresponding NEMA reference temperatures.

2.11 OTHER MATERIALS

A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental
3.2 PREPARATION

A. Coordinate:
1. Coordinate as necessary with other trades to assure proper
   and adequate provision in the work of those trades for in-
   terface with the work of this Section.
2. Coordinate the installation of electrical items with
   the schedule for work of other trades to prevent un-
   necessary delays in the total Work.
3. Where lighting fixtures and other electrical items are
   shown in conflict with locations of structural members
   and mechanical or other equipment, provide required
   supports and wiring to clear the encroachment.

B. Data indicated on the Drawings and in these Specifications
   are as exact as could be secured, but their absolute accu-
   racy is not warranted. The exact locations, distances,
   levels, and other conditions will be governed by actual
   construction and the Drawings and Specifications should
   be used only for guidance in such regard.

C. Where outlets are not specifically located on the Drawings,
   locate as determined in the field by the Architect. Where
   outlets are installed without such specific direction, re-
   locate as directed by the Architect and at no additional
   cost to the Owner.

D. Verify all measurements at the building. No extra compen-
   sation will be allowed because of differences between work
   shown on the Drawings and actual measurements at the site
   of construction.

E. Branch circuit wiring and arrangement of home runs have
   been designed for maximum economy consistent with adequate
   sizing for voltage drops and other considerations. Install
   the wiring with circuits arranged exactly as shown on the
   Drawings, except as otherwise approved in advance by the
   Architect.

F. The Electrical Drawings are diagrammatic, but are required
   to be followed as closely as actual construction and work
   of other trades will permit. Where deviations are required
   to conform with actual construction and the work of other
   trades, make such deviations without additional cost to the
   Owner.

3.3 TRENCHING AND BACKFILLING

A. Perform trenching and backfilling associated with the work
   of this Section in strict accordance with the provisions of
   Section 02220 of these Specifications.
3.4 INSTALLATION OF RACEWAYS AND FITTINGS

A. Where conduit is installed concealed in walls or above the ceiling, or exposed in work areas, provide rigid galvanized conduit or electrical metallic tubing with compression type fittings.
   1. Paint or wrap elbows.
   2. Seal joints to prevent entrance of water.
   3. Provide ground wire of proper size.
   4. Use nylon (rather than steel) fish tape.

B. Use flexible conduit only for short motor connections, or where subject to vibration.

C. Provide necessary sleeves and chases where conduits pass through floors and walls, and provide other necessary openings and spaces, arranging for in proper time to prevent unnecessary cutting in connection with the Work. Perform cutting and patching in accordance with the provisions for the original Work.

D. Where conduit is exposed, run parallel to or at right angle with lines of the building.
   1. Make bends with standard conduit elbows or conduit bent to not less than the same radius.
   2. Make bends free from dents and flattening.

E. Securely and rigidly support conduits throughout the Work.

F. Where conduits pierce the roof, provide 24 gage galvanized iron roof jacks and flashing collar brazed onto the conduits and covering the top of the roof jacks.

3.5 INSTALLATION OF LIGHTING FIXTURES

A. Install lighting fixtures complete and ready for service in accordance with the Lighting Fixture Schedule shown on the Drawings.

B. Wire fixtures with fixture wiring of at least 50 degrees C rating. Where fixtures are mounted in continuous rows, provide conductors in wiring channels of the same size as the circuit wires supplying the row of fixtures.

C. Use only bonderized, galvanized, or sherardized steel for fixture installation for protection against rust and corrosion, and install fluorescent fixtures straight and true with reference to walls.

D. Install all lighting fixtures, including those mounted in continuous rows, so that the weight of the fixture is supported, either directly or indirectly, by a sound and safe structural member of the building, using adequate number and type of fastenings to assure safe installation.

ELECTRICAL
16400-12
1. Screwed fastenings, and toggle bolts through ceiling material or wall paneling, are not acceptable.
2. Do not support from sub-purlins of panelized roof systems.

3.6 INSTALLATION OF POWER EQUIPMENT

A. Provide power and control wiring for motor starters and safety switches as shown on the Drawings.

B. Connections to miscellaneous building equipment:
   1. Wire to, and connect to, all items of building equipment not specifically described but to which electrical power is required.
   2. Coordinate as necessary with other trades and suppliers to verify types, numbers, and locations of equipment.

3.7 INSTALLATION OF CONDUCTORS

A. Unless otherwise shown on the Drawings, use No. 12 type TW conductors for all branch circuits, protected by 20 amp circuit breakers. Where so indicated on the Drawings, use larger wires to limit voltage drops.

B. The number of wires in a conduit run is indicated on the Drawings by cross lines on the conduit runs.
   1. Where wire size is not shown, install No. 12 conductors.
   2. Where conduit size is not shown, install 1/2" conduit.
   3. Provide code-sized conduit for number and size wires shown or required, unless a larger size conduit is shown on the Drawings.

C. Use identified (white) neutrals and color-coded phase wires for all branch circuit wiring.
   1. Make splices electrically and mechanically secure with pressure-type connectors, or by soldering.
      a. For wires size 6 AWG and smaller, provide "Scotchlock" connectors.
      b. For wire size 4 AWG and larger, provide Burndy "Versitaps" and heavy-duty connectors, or T&B "LockTite" connectors.
   2. Insulate splices with a minimum of two half-lapped layers of Scotch Branch No. 33 vinyl-plastic electrical tape where insulation is required.

D. Tape all joints with rubber tape 1-1/2 times the thickness of the conductor insulation, then cover with the friction tape or the vinyl-plastic electrical tape specified above.

E. The Drawings indicate the general direction of home runs. Continue all such home runs to the panel as though the routes where shown completely.
3.8 INSTALLATION OF PANELS

A. Unless otherwise shown on the Drawings, install panels with the top of the trim 6'-3" above the finished floor.

B. Mount a typewritten directory behind glass or plastic on the inside of each panel door and, on the directory, show the circuit number and complete description of all outlets on each circuit.

C. Provide three 1" conduits only, stubbed out of the top of each flush-mounted panel and terminated in accessible ceiling space, with each conduit tagged with panel description.

3.9 TESTING AND INSPECTION

A. Provide personnel and equipment, make required tests, and secure required approvals from the Architect and governmental agencies having jurisdiction.

B. Make written notice to the Architect adequately in advance of each of the following stages of construction:
   1. In the underground condition prior to placing concrete floor slab, when all associated electrical work is in place;
   2. When all rough-in is complete, but not covered;
   3. At completion of the work of this Section.

C. When material and/or workmanship is found to not comply with the specified requirements, within three days after receipt of notice of such non-compliance remove the non-complying items from the job site and replace them with items complying with the specified requirements, all at no additional cost to the Owner.

D. In the Architect's presence:
   1. Test all parts of the electrical system and prove that all such items provided under this Section function electrically in the required manner.
   2. Immediately submit to the Architect a report of maximum and minimum voltages, and a copy of the recording voltmeter chart.
   3. Also measure voltages between phases and between phase wires and neutrals, and report these voltages to the Architect.

3.10 PROJECT COMPLETION

A. Upon completion of the work of this Section, thoroughly clean all exposed portions of the electrical installation, removing all traces of soil, labels, grease, oil, and other foreign material, and using only the type cleaner recommended by the manufacturer of the item being cleaned.
B. Thoroughly indoctrinate the Owner's operation and maintenance personnel in the contents of the operations and maintenance manual required to be submitted under Article 1.3 of this Section of these Specifications.

C. On the first day the facility is in operation, for at least eight hours at a time directed by the Architect, provide a qualified foreman and crew to perform such electrical work as may be required by the Architect.

END OF SECTION