PROJECT MANUAL

FOR

GENERAL ROOF REPLACEMENT

AT

HALL-ATWATER

AT

WESLEYAN UNIVERSITY

MIDDLETOWN, CT

WJE NO. 2014.1717

18 April, 2014
Addendum No. 1 - 04/28/14

Prepared by

WISS, JANNEY, ELSTNER ASSOCIATES, INC.
Two Trap Falls Road, Suite 502
Shelton, CT 06484

(203) 944-9424
Fax (203) 944-6997
<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cover Sheet</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Table of Contents</td>
<td>TOC-1</td>
</tr>
<tr>
<td><strong>DIVISION - CONTRACT REQUIREMENTS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>00020</td>
<td>Invitation to Bid</td>
<td>00020-1 thru 2</td>
</tr>
<tr>
<td>00100</td>
<td>Instruction to Bidders</td>
<td>00100-1 thru 3</td>
</tr>
<tr>
<td>00300</td>
<td>Bid Form</td>
<td>00300-1 thru 6</td>
</tr>
<tr>
<td>00400</td>
<td>Contract Form</td>
<td>00400-1</td>
</tr>
<tr>
<td>00800</td>
<td>Index of Drawings</td>
<td>00800-1</td>
</tr>
<tr>
<td><strong>DIVISION 1 - GENERAL CONDITIONS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01010</td>
<td>Summary of Work</td>
<td>01010-1 thru 3</td>
</tr>
<tr>
<td>01200</td>
<td>Project Meetings</td>
<td>01200-1 thru 2</td>
</tr>
<tr>
<td>01300</td>
<td>Submittals</td>
<td>01300-1 thru 5</td>
</tr>
<tr>
<td>01630</td>
<td>Substitutions and Product Options</td>
<td>01630-1 thru 2</td>
</tr>
<tr>
<td>01740</td>
<td>Warranties and Bonds</td>
<td>01740-1 thru 2</td>
</tr>
<tr>
<td><strong>DIVISION 2 - SITE WORK AND DEMOLITION</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>02050</td>
<td>Demolition, Cutting and Patching</td>
<td>02050-1 thru 4</td>
</tr>
<tr>
<td>02110</td>
<td>Site Restoration</td>
<td>02110-1 thru 3</td>
</tr>
<tr>
<td><strong>DIVISION 6 - WOOD AND PLASTICS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>06114</td>
<td>Wood Blocking, Curbing and Sheathing</td>
<td>06114-1 thru 2</td>
</tr>
<tr>
<td><strong>DIVISION 7 - THERMAL AND MOISTURE PROTECTION</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>07503</td>
<td>Modified Bitumen Roofing and Flashings</td>
<td>07503-1 thru 18</td>
</tr>
<tr>
<td>07520</td>
<td>Sheet Metal and Flashing</td>
<td>07520-1 thru 3</td>
</tr>
<tr>
<td>07900</td>
<td>Joint Sealants</td>
<td>07900-1 thru 3</td>
</tr>
<tr>
<td><strong>DIVISION 15 - MECHANICAL</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15415</td>
<td>Roof Drains and Miscellaneous Piping</td>
<td>15415-1 thru 2</td>
</tr>
</tbody>
</table>

END OF SECTION
SECTION 00020

INVITATION TO BID

Ms. Roseann Sillasen
Associate Director of Construction Services
Wesleyan University
170 Long Lane
Middletown, CT 06459

will receive bids for:

Roof Replacement
Hall-Atwater Center Roof
Wesleyan University
Middletown, Connecticut

until: 12:00 p.m. local time May 9, 2014. There will be a MANDATORY Pre-Bid walk on April 22, 2014 at 10:30 AM

Providing all labor, materials, equipment and other items necessary to:

1. Remove existing gravel, built-up roofing, insulation, flashings, drains bowls, and all appurtenances not scheduled to remain. Existing vapor barrier shall remain.

2. Install new drains, adhesively applied flat insulation and cover board, and torch applied modified bitumen roof assembly. All new flashings and transitions needed to provide a complete, functioning, and warrantable assembly must also be provided.

Project Schedule: Work will be allowed to start on May 27th and all work must be completed by August 15th. The entire project, including punchlist must be completed prior to August 15th.

Copies of the Bid Documents are available for review and may be obtained from the Architect/Engineer's office of Wiss, Janney, Elstner Associates, Inc., Two Trap Falls Road, Suite 502, Shelton, Connecticut 06484 (203) 944-9424.

All bidding documents pertinent Wesleyan University information and requirements is located at the Wesleyan University Major Project Maintenance website at:

http://www.wesleyan.edu/construction/majormaint/fy_15.html

Bidders must submit their bids in accordance with Instruction to Bidders.

The Owner will privately open and review the bids after the specified closing time. The Owner reserves the right to waive any irregularities and reject any or all bids.

END OF SECTION
SECTION 00100

INSTRUCTIONS TO BIDDERS

PART 1 - GENERAL

1.01 BID DOCUMENTS

   A. Bid Documents are available to Bidders for review and may be obtained from the Architect/Engineer's office:

       WISS, JANNEY, ELSTNER ASSOCIATES, INC.
       Two Trap Falls Road, Suite 502
       Shelton, Connecticut 06484

   B. Bid Documents will not be available for distribution to sub-bidders.

1.02 EXAMINATION OF DOCUMENTS, SITE AND LOCAL CONDITIONS

   A. The Bidders shall carefully examine and familiarize themselves with the Bid Documents. No extra compensation will be paid at a later date for lack of knowledge or neglect on the contractor's part.

   B. All project documents on the Wesleyan University Major Project Maintenance website. This site is located at:

       http://www.wesleyan.edu/construction/majormaint/fy_15.html

   C. The Bidders shall visit the site and fully acquaint themselves with conditions as they exist.

   D. Bidders shall immediately report to the Architect/Engineer any errors, inconsistencies or ambiguities discovered.

1.03 INTERPRETATIONS OR CORRECTION OF BID DOCUMENTS DURING BIDDING

   A. Bidders requiring clarification or interpretation of the Bidding Documents shall make a written request to the Architect/Engineer. No inquiry received within five (5) days of the date fixed for opening of the bids will be given consideration.

   B. Any interpretation, correction or change of the Bidding Documents, if such is issued, will be sent as promptly as is practicable to all persons to whom the Drawings and Specifications have been issued. All such addenda shall become part of the Contract Documents. Failure of the Architect/Engineer to send or any Bidder to receive any such interpretation, shall not relieve any Bidder from any obligation under his Bid as submitted.

   C. Interpretations, corrections or changes of the Bidding Documents made in a manner other than an addendum will not be binding, and Bidders shall not rely upon such interpretations, corrections or changes.
1.04 TIME OF COMPLETION

A. Time of completion of the project is of extreme importance to the Owner and will be considered in the award of a contract. Bidders shall complete work during the times outlined in *The Schedule* of the Invitation to Bid. The Bidder shall state on the Bid Form the number of calendar days he/she will require to substantially complete the project. Failure of the Contractor to substantially complete the project in the number of days indicated on his Bid Form, plus any adjustments authorized by the Owner in writing, will be considered a substantial violation of the Contract.

1.05 PREPARATION OF BIDS

A. Each Bid must be submitted on the form indicated in Section 00300. A completed qualification statement indicated in Section 00350 must also be submitted. The Bid Form may be obtained from the Architect/Engineer. Do not use the sample form bound in the Specifications.

B. The Bid Form and qualification statement shall be submitted in a sealed envelope addressed as indicated below. Also, the outside of the envelope shall bear the designations, "BID PROPOSAL, the name of the project, and the name of the Bidder and the Bidder's address. In the event the Bid is forwarded by mail or messenger, the sealed envelope containing the Bid shall be enclosed in another envelope addressed to the Bid recipient at the designated location for opening of the Bid.

C. Bids shall be sent electronically to:

Ms. Roseann Sillasen  
Associate Director - Construction Services  
At: rsillasen@wesleyan.edu  
And cc’d to: Wiss, Janney, Elstner Associates, Inc.  
Re: Capolino - rcapolino@wje.com  
Paul Cianci - pcianci@wje.com  

D. Bids must be received by the above-noted addressees prior to the specified closing time. Bids received after this time may not be reviewed.

1.06 CONSIDERATION OF BIDS

A. The Owner will privately open and review the Bids after the specified closing time.

B. The Owner reserves the right to waive any irregularities and reject any or all Bids.

C. The Bidder shall also submit a properly executed Bid Form. All proposed subcontractors shall also be included.

D. A Pre-Bid Conference will be held at the building. Bidders will be notified of a time and specific location. Your company representative must be present and should be familiar with the project and
any bid documents received and have any questions or comments ready for review at this time. Subcontractors with questions pertaining to interpretation or clarification of the bidding documents are invited to attend. The Owner and the Architect/Engineer will be represented. The Pre-Bid Conference is mandatory. Bidders not attending Pre-Bid Conference subject their bid to disqualification.

1.07 PERFORMANCE BOND AND MATERIAL PAYMENT BOND

A. Each Bidder shall qualify for a Performance Bond and Material Payment Bond each equaling 100 percent of the Bid. The costs associated in providing these bonds shall be indicated in the appropriate area of the Bid Form.

B. The Performance Bond must be in a standard form, such as AIA Document A312, from a satisfactory Surety made payable to the Owner.

C. The Payment Bond must be in a standard form, such as AIA Document A312, from a satisfactory Surety made payable to the Owner.

1.08 AWARD OF CONTRACT

A. A Contract shall be deemed as having been awarded when a formal notice of award has been duly served.

B. The Bidder to whom the Contact is awarded shall execute a Contract, AIA Document A101, "Standard Form of Agreement Between Owner and Contractor," 1997 Edition, within 10 days after the date of notice to award.

END OF SECTION
SECTION 00300

BID FORM

BID TO:  Hall-Atwater Center Roof
          Wesleyan University
c/o Roseann Sillasen
170 Long Lane
Middletown, CT 06459

BID FORM:  ________________________________________

(Bidder's Name)

________________________________________________

(Bidder's Address)

DATE:   __________________________________________

THE UNDERSIGNED

1. Acknowledges receipt of:

   A. Project Manual for:

      Roof Replacement at:
      Hall-Atwater Center Roof
      Wesleyan University
      52 Lawn Avenue
      Middletown, CT 06459

      Dated: 18 April, 2014

   B. Drawings:  Cover, A-01 through A-03

   C. Addenda:  No. 1  Dated: 4/28/14

      No.  _______  Dated: ______________________

      No.  _______  Dated: ______________________

2. Has visited and examined the site of Work and has examined the Bidding Documents for the Work.
   http://www.wesleyan.edu/construction/majormaint/fy_15.html
3. Agrees:

A. To hold the Bid Proposal open for not less than 90 days after the scheduled Bid Opening Date.

B. To execute an Agreement and provide proof of insurance coverage with the Owner for the entire Work in accordance with the Contract Documents within seven (7) days after notice of award.

4. General Condition Costs

A. Costs on the project, mobilization, demobilization, scaffolding costs, fixed cost rentals, or fixed costs shall be considered General Condition Costs, and shall be included in all unit and lump sum prices.

5. Changes in the Work

A. To address changes in the work, either an addition or deletion, not indicated under unit costs by the Contract Documents and Specifications, and upon written instructions of the Owner, the following prices shall prevail in accordance with the General Conditions.

1. Labor - including all profit and overhead. All trades at their prevailing hourly rate plus __________________________ percent (___ %) for profit and overhead.

2. Material costs at cost plus _____ FIVE _______ percent (___5___%) for profit and overhead.

6. Taxes

A. The undersigned agrees that the Grand Total price includes all taxes applicable to the work of whatever character or description, which are levied by federal, state or municipal governments.

7. Rights Reserved

A. In submitting this Proposal, the undersigned understands that the Owner reserves the right to reject any or all proposals submitted, in whole or in part, to waive any information therein, and to accept any proposal, as the Owner may consider to be in his/her interests.

8. Base Bid

A. For all Work required to complete the project in its entirety, the contractor bids:

   GRAND TOTAL IN WORDS _________________________________ Dollars ($ ____________________)

   This bid includes all labor, materials, services and equipment necessary for completion of the Work specified.

B. The contractor estimates he/she substantially complete the project in _____ days from award of contract.
C. The contractor shall provide the following roof membrane manufacturer and system specified in Section 07503.

10. Alternate Pricing

The alternates described and depicted within the contract documents are to be priced by bidders. The pricing shall be all inclusive and include labor and material costs and costs associated with required access and any other cost associated with the completion of the scope of work.

ALTERNATE PRICE SCHEDULE

<table>
<thead>
<tr>
<th>ALTERNATE #</th>
<th>DESCRIPTION</th>
<th>PRICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Remove and replace vapor retarder</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Provide flashing details and lead strips on exterior roof perimeter as shown in drawings</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Remove and replace 18” of drain piping immediately below the three drains being replaced with new PVC piping utilizing no-hub connections</td>
<td></td>
</tr>
</tbody>
</table>

11. If the Owner exercises his/her right to require Payment and Performance Bonds and Certificates as stipulated in the Contract Documents, add the following amount to the Base Bid:

Dollars (_________)

12. Agrees to the following conditions:

A. Expedite all submittals and obtain any and all permits required to perform this Work.

B. Work at least five full working days per week, when weather permits.

C. Work hours to be as allowed by local ordinance.

D. Due to the operation of the facility with summer classes, the entire project including punchlist must be completed prior to August 15th.

13. Bidder's Subcontractors:

The Contractor submits for consideration the following subcontractors as appropriate, who are incorporated into the Bid Proposal and are intended to be used to complete this project

Work                                          Subcontractor
Roofing__________________________ ____________________________
Sheet Metal__________________________ ____________________________
Demo ____________________________ ____________________________
__________________________________ ____________________________
__________________________________ ____________________________
__________________________________ ____________________________
__________________________________ ____________________________
__________________________________ ____________________________

14. Signature of Bidder
A. Firm Name: __________________________
B. Address: __________________________
C. Signatory: __________________________
D. Title: __________________________
E. Date: __________________________
F. Witness: __________________________

15. Bidders Resume
A. Provide the following information for at least three projects completed within the last five (5) years which are similar in scope and size as this project. Use additional sheets as/if required:

1. Client: __________________________
   Structure: __________________________
   Year Completed __________________________
   Address: __________________________
   Contact and Phone: __________________________

2. Client: __________________________
   Structure: __________________________
Year Completed

Address:

Contract and Phone:

3. Client:

Structure:

Year Completed

Address:

Contact and Phone:

16. Contract

A. If Undersigned is notified of acceptance of this Bid within 90 calendar days after due date of this Bid, he agrees to execute a standard AIA Document A101 (2007 Edition) – Standard Form of Agreement Between Owner and Contractor for the above work for the stated compensation.

END OF SECTION
SECTION 00400

CONTRACT FORM

PART 1 - GENERAL

1.01 AGREEMENT


PART 2 - NOT USED

PART 3 - NOT USED

END OF SECTION
SECTION 00800

INDEX OF DRAWINGS

The following is the list of Drawings dated 18 June 2014, which are to be part of the Contract Documents.

Cover Sheet
A-01  Roof Plan
A-02  Details

END OF SECTION
SECTION 01010

SUMMARY OF WORK

PART 1 - GENERAL

1.01 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of this project consists of

1. Removal all existing roofing, flashings, three (3) of the four existing roof drains, blocking, and all other appurtenances to allow installation of all new work/materials noted in these plans and specifications
2. Removal of all roofing and flashing from below the small shed/room is required as part of this project
3. Clean, prime, and otherwise prepare all existing substrates and surfaces to allow installation of all new work/materials noted in these plans and specifications
4. Install new drains (3 new drains, leave one existing drain).
5. Install new insulation, 2-Ply SBS modified bitumen roof membrane assembly, and all necessary flashings, and miscellaneous materials as noted in these plans and specifications and as required by the material manufacturer to allow the specified warranty to be issued.

6. Alternates
   a. Alternate 1 - Remove and replace vapor retarder (only remove loose vapor retarder)
   b. Alternate 2 - Provide flashing details & lead strips on exterior roof perimeter as shown in drawings.
   c. Alternate 3 - Remove and replace 18” of drain piping immediately below the three drains being replaced with new PVC piping utilizing no-hub connections.

B. Contractor's Duties:

1. Except as specifically noted, provide and pay for:

a. Labor, materials and equipment
b. Tools, construction equipment and machinery
c. Heat and utilities required for construction
d. Other facilities and services necessary for proper execution and completion of the Work.

2. Secure and pay for, as necessary, for proper execution and completion of work, and as applicable at time of receipt of bids:

a. Government fees
b. Licenses.

3. Permits will be paid by the owner.
4. Give required notices.
5. Comply with local codes, ordinances, rules, regulations, orders and other legal requirements of public authorities which bear on performance of Work.
6. Promptly submit written notice to Architect/Engineer of observed variance of Contract Documents from legal requirements. It is not the Contractor's responsibility to make certain that drawings and specifications comply with codes and regulations.
   a. Propose appropriate modifications to Contract Documents for necessary changes.
   b. Assume responsibility for Work known to be contrary to such requirements, without notice.
7. Enforce strict discipline and good order among employees. Do not employ on Work:
   a. Unfit persons.
   b. Persons not skilled in assigned task.

1.02 CONTRACTS
A. This project will be constructed under a single contract under the direction of a single Contractor.
B. There shall be complete cooperation between Contractor and subcontractors to ensure satisfactory progress and performance of the Work.
C. The Owner reserves the right to award other contracts for additional work in connection with this project as required to install improvements, furnish, or equip the building.

1.03 WORK BY OTHERS
A. None anticipated.

1.04 WORK SCHEDULE AND SEQUENCE
A. The schedule of work hours at the jobsite shall be at the discretion of the Contractor to complete the Work within the time for substantial completion allowed in the Contract and within hours allowed by the Owner.
B. During the Work, the Contractor shall take all necessary precautions to avoid damaging the exterior paving, sidewalks, roofing, landscaping, walls and glass, as well as any personal property of the Owner. Any damage shall be promptly repaired by the Contractor at his/her own expense.
C. The Contractor shall restrict placement of equipment and storage of materials to those areas designated on the drawings, or as otherwise directed by the Owner.

1.05 OWNER-FURNISHED ITEMS
A. For construction purposes only, water and electricity may be taken from the existing building at locations designated by the Owner. All extensions or modifications required to provide water
and electricity are to be done by the Contractor by licensed contractors, at no expense to the Owner.

1.06 ABBREVIATIONS

A. Reference to a technical society, institution, association, or governmental authority is made in the Specifications in accordance with the following abbreviations:

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIA</td>
<td>American Institute of Architects</td>
</tr>
<tr>
<td>APA</td>
<td>Engineered Wood Association</td>
</tr>
<tr>
<td>ASLC</td>
<td>American Lumber Standard Committee</td>
</tr>
<tr>
<td>ASTM</td>
<td>ASTM International</td>
</tr>
<tr>
<td>AWPA</td>
<td>American Wood Preservers Association</td>
</tr>
<tr>
<td>BIA</td>
<td>Brick Industry Association</td>
</tr>
<tr>
<td>FM</td>
<td>Factory Mutual</td>
</tr>
<tr>
<td>FS</td>
<td>Federal Standard</td>
</tr>
<tr>
<td>NFPA</td>
<td>National Forest Products Association</td>
</tr>
<tr>
<td>NRCA</td>
<td>National Roofing Contractor’s Association</td>
</tr>
<tr>
<td>SFPA</td>
<td>Southern Forest Products Association</td>
</tr>
<tr>
<td>SMACNA</td>
<td>Sheet Metal and Air Conditioning Contractor's National Association</td>
</tr>
<tr>
<td>UL</td>
<td>Underwriters Laboratories</td>
</tr>
</tbody>
</table>

END OF SECTION
SECTION 01200

PROJECT MEETINGS

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDE

A. Prime Contractor (Contractor):
   1. Attend specified meetings
   2. Ensure attendance of subcontractors and suppliers when specified or directed.

1.02 PRECONSTRUCTION MEETING

A. The Contractor will schedule a preconstruction meeting within ten (10) business days after Notice of Award and a roofing kick-off meeting five (5) business days prior to application of roofing materials
   1. A mobilization plan shall be provided to the owner with engineered drawings for the crane and/or method of access to roof and movement of materials and equipment.

B. Attendance: Contractor, subcontractors, other contractors, manufacturer's representatives and Owners Representative.

C. Agenda:
   1. Designation of responsible personnel
   2. Emergency procedures, contact people and telephone numbers
   3. Relation and coordination of contractors
   4. Discuss list of contractors
   5. Tentative construction schedule
   6. Critical work sequencing
   7. Submittals, shop drawings, project data and sampling
   8. Use of Premises:
      a. Office and storage areas
      b. Owner's requirements
      c. Staging areas.
   9. Major equipment deliveries and priorities
   10. Processing of field decisions and Change Orders.
   11. Security procedures
   12. Housekeeping procedures
   13. Schedule of progress and coordination meetings, if necessary.

1.03 PROGRESS AND COORDINATION MEETINGS
A. Hold weekly meetings as progress of work dictates.

B. Location of Meetings: At the offices of the Owner's representative at the job site, or as otherwise designated.

C. Attendance: Contractor, subcontractor, other contractors, suppliers, manufacturer's representatives and other parties as required or requested by the building owner.

D. Minimum Agenda:

1. Review work progress since last meeting; review schedule
2. Review applications for payment
3. Note field observations, problems and decision.
4. Identify problems which impede planned progress
5. Review status of submittals
6. Develop corrective measures and procedures, if necessary
7. Coordinate projected progress with other contractors.

END OF SECTION
SECTION 01300

SUBMITTALS

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work includes submission of submittals to the Architect/Engineer as required by the Specifications and specified therein.

1.02 DEFINITIONS

A. Shop Drawings: Shop drawings are original drawings prepared by Contractor, Subcontractor, Sub-subcontractor, supplier or distributor, which illustrate some portion of the Work; showing fabrication, layout, setting or erection details.

   1. Prepared by qualified detailer
   2. Identify details by reference to sheet and detail numbers shown on Contract Drawings.
   3. Minimum sheet size 8 1/2 in. by 11 in.

B. Project Data:

   1. Manufacturer's standard schematic drawings:
      a. Modify to delete information which is not applicable to project
      b. Supplement standard information to provide additional information to project.

   2. Manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations and other standard descriptive data.
      a. Clearly mark each copy to identify pertinent materials, products or models
      b. Show dimensions and clearances required
      c. Shop performance characteristics and capacities.

C. Samples: Physical samples to illustrate materials, equipment or workmanship, and to establish standards by which complete work is judged.

   1. Office Samples: Of sufficient size to clearly illustrate:
      a. Functional characteristics of product of materials, with integrally related parts and attachment devices
      b. Full range of color samples
      c. After review, samples may be used for construction of the project.

D. List of Manufacturers

   1. Tabulate list of each Specification Section
   2. For products specified under reference standards, include with listing of each product:
a. Name and address of manufacturer  
b. Trade name  
c. Model or catalog designation  
d. Manufacturer's data.  

1) Performance and tests data.

3. Reference standards

1.03 SUBMITTAL REQUIREMENTS

A. At time specified, submit all required submittals to Architect/Engineer with a copy of the transmittal letter to the Owner.

B. Submit the quantity of documents required for return plus two (2) copies; one copy will be retained by the Architect/Engineer, one copy will be forwarded to the Owner.

C. Accompany submittals with transmittal letter, in duplicate, containing:

1. Date  
2. Project title and number  
3. Contractor's name and address  
4. The number of each shop drawing, product data and sample submitted  
5. Notification of deviations from Contract  
6. Other pertinent data including lead time and impact on project schedule.

D. Submittals shall include:

1. Date and revision dates  
2. Project title and number  
3. Identification of product or material  
4. Field dimensions, clearly identified as such  
5. Specification Section and page number  
6. Applicable Standards, such as ASTM number or Federal Specification  
7. A blank space 3 in. x 3 in., for Architect/Engineer's stamp  
8. Identification of deviation(s) from the Contract Documents  
9. Contractor's stamp, initialed or signed, certifying to review of submittal, verification of field conditions and measurements, and compliance with Contract.  
10. A mobilization plan shall be provided to the owner with engineered drawings for the crane, and/or vertical lift devices, or staging.

E. The Architect/Engineer will check and review, with reasonable promptness, submittals only for conformance with the design concept of the project and compliance with the information given in the Contract Documents. The revised copies will be returned to the Contractor and any further distribution required will be the responsibility of the Contractor.

F. Samples shall be sufficient size to show general visual effect. When samples must show range of color, texture, finish, graining, or other properties, submit in sets of three showing the full
scope of this range. Each sample shall bear identifying labels stating project name, material, manufacturer, and location on project. Each sample or set of samples shall be accompanied by a transmittal.

G. Samples will be reviewed for conformance with only the design intent and specified approvals. Conformance to all requirements of the Contract Documents remains the responsibility of the Contractor.

H. Samples will be reviewed and the Contractor notified in writing if the sample conforms to the design concept and requirements of the Contract Documents.

I. Samples will be retained by the Architect/Engineer and will serve as the standard by which all material delivered to the job will be judged.

J. Certain samples may be incorporated into the Work when approved by the Architect/Engineer or may be retrieved by the Contractor at the completion of the Work where so stated in the Specifications.

1.04 RESUBMISSION REQUIREMENTS

A. Shop Drawings:

1. Revise initial drawings as required and resubmit as specified for initial submittal.
2. Indicate on drawings all changes which have been made other than those requested by Architect/Engineer.
3. In the event the submittal is returned stamped "Amend and Resubmit or Rejected," a revised submittal of the shop drawings shall be resubmitted to the Architect/Engineer for review as above.
4. Drawings received by the Architect/Engineer which do not bear the Contractor's stamp of approval or contain numerous errors indicating a superficial check on the part of the Contractor will be returned for resubmission and will not be reviewed by the Architect/Engineer. The Architect/Engineer's review of drawings or schedules shall not relieve the Contractor of the responsibility for deviations from the Contract Documents, unless he/she has in writing called the Architect/Engineer's attention to such deviations at the time of submission and secured his written approval, nor shall it relieve him/her of responsibility for errors of any kind.
5. Shop drawings bearing the stamp "No Exceptions Taken" or "Make Corrections Indicated" and bearing the Architect/Engineer's signature shall be kept at the jobsite, and the Architect/Engineer will order the removal of any not so noted.

B. Product Data and Samples: Submit new data and samples as required for initial submittal.

C. Make resubmittal so as not to delay work. No extension of contract will be allowed for delays due to improper submittals.

1.05 DISTRIBUTION OF SUBMITTALS AFTER REVIEW

A. The Architect/Engineer will distribute copies of submittals to the Owner.
B. The contractor shall distribute copies of submittals which carry the Architect/Engineer's stamp to:

1. Contractor's file
2. Jobsite file
3. Record documents file
4. Other Contractors
5. Subcontractors
6. Suppliers
7. Fabricators.

1.06 CONTRACTOR RESPONSIBILITIES

A. Review shop drawings, product data and samples prior to submission.

B. Verify:

1. Field dimensions
2. Field construction criteria
3. Catalog numbers and similar data.

C. Coordinate each submittal with requirements of:

1. The Work
2. The Contract Documents
3. The Work of other contractors.

D. Contractor's responsibility for errors and omissions in submittals is not relieved by Architect/Engineer's review of submittals.

E. Notify Architect/Engineer, in writing at time of submissions, of deviations in submittals from Contract requirements, and adverse impact on the project schedule.

F. Contractor's responsibility for deviations in submittals from Contract Documents requirements is not relieved by Architect/Engineer's review of submittals.

G. Do not begin any work which requires submittals without having Architect/Engineer's stamp and initials or signature indicating approval.

H. After Architect/Engineer's review, make response required by the Architect/Engineer's stamp and distribute copies.

1.07 ARCHITECT/ENGINEER'S DUTIES

A. Review submittals with reasonable promptness (approximately 14 calendar days).

B. Review for:

1. Design concept of Project
2. Information given in Contract Documents.

C. Review of separate item does not constitute review of an assembly in which item functions.

D. Affix stamp, date and initials or signature certifying to review of submittal, and with instructions for Contractor response.

E. Return submittals to Contractor for response and distribution.

F. The Architect/Engineer will distribute copies of submittals to the Owner.

END OF SECTION
SECTION 01630

SUBSTITUTIONS AND PRODUCT OPTIONS

PART 1 - GENERAL

1.01 REQUIREMENTS

A. All Bids shall be based upon providing all products exactly as specified.

B. Where, in the specifications, the materials, products or equipment of a certain manufacturer are indicated, it is done for the purpose of establishing a standard or required function, dimension, appearance and quality and is not intended to limit competition. Where "(or approved equal)" is stated, the Architect/Engineer shall be the approving party.

C. For products specified only by reference or performance standards, select any product which meets or exceeds standards, by any manufacturer, subject to the Architect/Engineer's approval.

1.02 SUBSTITUTIONS, BIDDER/CONTRACTOR OPTIONS

A. PRIOR TO BID OPENING: The Architect/Engineer will consider written requests to amend the Bidding Document to add products not specified provided such requests are received at least 7 calendar days prior to bid opening date. Requests received after that time will not be considered. When a request is approved, the Architect/Engineer will issue an appropriate addendum not less than five calendar days prior to bid opening date.

B. AFTER AWARD OF CONTRACT: No substitutions will be considered after Notice of Award except under one or more of the following conditions:

1. Unavailability of specified products, through no fault of Contractor
2. Subsequent information discloses inability of specified product to perform properly or to fit in designated space
3. Manufacturer/fabricator refusal to certify or guarantee performance of specified product as specified
4. When a substitution would be substantially to Owner's best interests.

1.03 SUBSTITUTION REQUIREMENTS

A. Submit the quantity of documents required for return plus three (3) copies. Include in request:

1. Complete data substantiating compliance of proposed substitution with Contract Documents
2. For products:

   a. Product identification, including manufacturer's name and address.
   b. Manufacturer's literature:

      1) Product description
      2) Performance and test data
3) Reference standards.

   c. Samples
   d. Name and address of similar projects on which product was used and date of installation.

2. For construction methods:
   a. Detailed description of proposed method
   b. Name and address of similar projects on which product was used and date of installation.

2. Itemized comparison of proposed substitution with product or method specified
3. Data relating to changes in construction schedule
4. Identify:
   a. Other contracts affected
   b. Changes or coordination required.

5. Accurate cost data on proposed substitution in comparison with product or method specified.

B. In making request for substitution, Bidder/Contractor represents:

1. He/she has personally investigated the proposed product or method and determined that it is equal or superior in all respects to that specified
2. He/she will provide the same guarantee for substitution as for product or method specified
3. He/she will coordinate installation of accepted substitutions into work, making all changes for work to be complete in all respects
4. Cost data is complete and includes all related costs under his/her contact, but excludes:

   a. Costs under separate contracts
   b. Architect/Engineer's redesign
   c. Administrative costs of Architect/Engineer.

5. Bidder/Contractor will assume full responsibility for all additional costs and expenses for Owner, Architect/Engineer, and other contractors.

C. Substitutions will not be considered when:

1. They are indicated or implied on shop drawings or product data submittals without formal request submitted in accordance with Paragraph 1.03.
2. Acceptance will require substantial revision of Contract Documents.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used
END OF SECTION
SECTION 01740
WARRANTIES AND BONDS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Preparation and submittal.

B. Time and schedule of submittals.

1.02 RELATED SECTIONS

A. Contract for Construction: Performance bond and labor and material payment bonds, warranty, and correction of work, if requested.

B. Individual Specification Sections: Warranties required for specific Products or Work.

1.03 FORM OF SUBMITTALS

A. Bind in commercial quality 8-1/2 x 11 in. three D side ring binders with durable plastic covers.

B. Cover: Identify each binder with typed or printed title WARRANTIES AND BONDS, with title of Project; name, address and telephone number of Contractor; and name of responsible company principal.

C. Table of Contents: Neatly typed, in the sequence of the Table of Contents of the Project Manual, with each item identified with the number and title of the specification section in which specified, and the name of Product or work item.

D. Separate each warranty or bond with index tab sheets keyed to the Table of Contents listing. Provide full information, using separate typed sheets as necessary. List Subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

1.04 PREPARATION OF SUBMITTALS

A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within ten days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Substantial completion is determined.

B. Verify that documents are in proper form, contain full information, and are notarized.

C. Co-execute submittals when required.

D. Retain warranties and bonds until time specified for submittal.
1.05 TIME OF SUBMITTALS

A. Make submittals within ten days after Date of Substantial Completion, prior to final Application for Payment.

B. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within ten days after acceptance, listing the date of acceptance as the beginning of the warranty period.

1.06 SCHEDULE OF SUBMITTALS

A. Performance and Payment Bond - Section 00100, Section 00300 and Section 00400 (if requested by the Owner).

A. Contractor’s Guarantee - Section 07503.

B. Manufacturer’s Guarantee - Section 07503.

C. Contractor’s Guarantee - Section 07520.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION
PART 1 - GENERAL

1.01 WORK INCLUDED

A. This work consists of providing the necessary labor, materials, equipment and supervision for the removal of concrete pavers, existing roof system, sealants and other building appurtenances.

B. Execute cutting, filling or patching of Work, required to:
   1. Complete work indicated in the drawings and Specifications
   2. Uncover work to provide for installation of ill-timed work
   3. Remove and replace defective work
   4. Remove and replace work not conforming to contract requirements
   5. Remove samples of installed work as specified for testing, if requested
   6. Install specified work in existing construction.

C. In addition to Contract requirements, upon written instructions of Architect/Engineer.
   1. Uncover work to provide for observation of covered work
   2. Remove samples of installed materials for testing, if requested
   3. Remove work to provide for alteration of existing work.

D. Do not endanger work by cutting or altering work or any part of it.

E. Do not cut or alter work of another Contractor without written consent of Architect/Engineer.

1.02 ENVIRONMENTAL REQUIREMENTS

A. The Contractor shall comply with all federal, state, and local regulations.

B. The Contractor shall design, provide, and maintain a containment system to collect all of the dust and debris generated during the course of the work. This containment system shall prevent any dust or other fine particles from entering the building interior, the surrounding air or coming in contact with pedestrians and vehicles.

1.03 SUBMITTALS

A. Prior to cutting which affects structural safety of Project, or work of another contractor, submit written notice to Architect/Engineer requesting consent to proceed with cutting, including:
   1. Project identification
   2. Description of affected work
   3. Necessity for cutting
   4. Effect on other work, on structural integrity of Project
5. Description of proposed work. Designate:
   a. Scope of cutting and patching
   b. Contractor and trades to execute the work
   c. Products proposed to be used
   d. Extent of refinishing.

B. Prior to cutting and patching done on instruction of Architect/Engineer, submit a cost estimate.

C. Should conditions of work, or schedule, indicate change of materials or methods, submit recommendation to Architect/Engineer including:
   1. Condition indicating change
   2. Recommendation for alternative materials or methods

1.04 PAYMENT FOR COSTS

A. Costs caused by ill-timed or defective work, or work not conforming to Contract Documents, including costs for additional services of Architect/Engineer, shall be paid by the General Contractor.

B. Work done on instructions of Architect/Engineer (by Change Order), other than defective or nonconforming work shall be paid by the Owner.

1.05 WORK SEQUENCE

A. Do not remove existing roofing or flashing when precipitation is imminent.

B. Do not remove more existing material than can be replaced with new material and made watertight by the end of the work day.

C. Coordinate demolition and removal operations with new installation specified in Section 07503 - Modified Bitumen Roofing and Flashings and Section 07520 - Sheet Metal and Flashing.

D. Conduct demolition and removal operations in a manner to minimize traffic over newly installed areas.

PART 2 - PRODUCTS

2.01 MATERIALS

A. For replacement of work removed, comply with specifications for type of work to be performed.

B. For replacement of work removed not covered under this Specification, match existing material to be replaced.
PART 3 - EXECUTION

3.01 INSPECTION

A. Inspect existing conditions of work including elements subject to movement or damage during:
   1. Cutting and patching
B. After uncovering work, inspect conditions affecting installation of new products.

3.02 PREPARATION

A. Prior to cutting:
   1. Provide shoring, bracing and support as required to maintain structural integrity of project
   2. Provide protection for other portions of the project
   3. Provide protection from elements.

3.03 PERFORMANCE

A. Execute fitting and adjustment of products to provide finished installation to comply with specified tolerances, finishes.
B. Execute cutting by methods which will prevent damage to other work, and will provide proper surfaces to receive installation of repairs and new work.
C. Restore work which has been cut or removed; install new products to provide completed work in accord with Contract requirements.
D. Refinish entire surfaces as necessary to provide an even finish.
   1. Continuous Surfaces: To nearest intersection(s)

3.04 SHORING AND TEMPORARY PROTECTION

A. The Contractor shall be solely responsible for shoring any portion of the structure, as required, during the course of the work.
B. The Contractor shall protect all appurtenances.

3.05 COORDINATION

A. Coordinate demolition and removal operations with new installation specified in Section 07503 - Modified Bitumen Roofing and Flashings and Section 07520 - Sheet Metal and Flashing.
B. Do not remove more flashing or sheet metal roofing than can be replaced with new material and made watertight by the end of the work day.
3.06 OPERATIONS
A. All demolition operations shall be performed during times approved by Owner.
B. Locate the dumpster(s) in an area approved by the Owner.
C. Stockpiling debris on the roof is not permitted.
D. At the end of the work day, all partially filled dumpsters shall be securely covered or removed from the jobsite.

3.07 DEMOLITION
A. Remove existing insulation, roof membrane, and all existing items necessary to allow proper and complete installation of the new work from all areas as indicated on drawings.
B. Clean the substrate of projections and substances detrimental to the work. Deck shall be cleared of water, snow and ice.
C. Remove debris and dirt, leaving the surface dust free.

3.08 CLEAN-UP
A. The Contractor shall be responsible for the safe removal of all demolished materials and for proper and legal disposal off site.
B. All areas of the site shall be left broom-clean at the end of each working day.

END OF SECTION
PART 1 - GENERAL

1.01 DESCRIPTION

A. Repair and/or replace areas of the site damaged during construction operations including, but not limited to canopies, landscaping, sidewalks, plaza, curbs, pavements, site furnishing, lighting fixtures, existing roofing, windows, etc., immediately after completion of all operations in that area. Repairs must, as a minimum standard, be equal to or exceed the condition which existed prior to the start of work under this Contract, in accordance with the requirements of General Conditions of the Contract and completely coordinated with the work of all other trades.

1.02 QUALITY ASSURANCE

A. Qualifications:

1. Contractor shall employ subcontractors and/or tradesmen with a minimum of two (2) years experience in performing the work required.

1.03 SUBMITTALS

A. The Contractor shall submit to the Owner and Architect/Engineer for approval three (3) copies of a statement detailing the restoration work required.

B. The statement shall as a minimum contain the following:

1. Description of work
2. Location and quantity of work
3. Materials and standard for workmanship
4. Schedule of operations.

C. Approval of this statement by the Owner and/or Architect/Engineer shall not constitute approval of methods or materials. No work shall proceed until the Owner and/or Architect/Engineer has approved the statement.

PART 2 - PRODUCTS

2.01 PAVING AND SURFACING

A. Replacement of all damaged paving, plaza, walks curbs and other surfacing on the site shall match the adjacent material to remain in color, shape, texture and durability.
2.02 LANDSCAPING

A. The Contractor shall guarantee the landscaping work against defects in materials and workmanship in accordance with the General Conditions, except that the guarantee period shall be one (1) planting season beyond the date of substantial completion.

1. This guarantee includes furnishing new plants as well as labor and materials for installation of replacements. All replacement plants shall be guaranteed and maintained for a period of one (1) year. Replacement stock must meet specifications and quality of original stock.
2. Contractor will not be held responsible for damages to or loss of plants caused by fire, flood, lightning storms, freezing rain, winds over 60 miles per hour, or vandalism.
3. Inspection of the planting will be made jointly by the Contractor and Architect/Engineer at the completion of planting. All plants not in a healthy, growing condition shall be removed and replaced with plants of like kind, size and quality as originally specified before the close of the next planting season.
4. At the end of the guarantee period, the Contractor shall remove all guying, staking, wrapping, saucers and mulch from the site.

B. Plant materials shall be replaced with the same species and size.

2.03 ROOFING

A. Replacement and/or repair of existing roofing shall be performed by a manufacturer approved applicator and shall include any such repair and/or replacements determined necessary to bring the roof to its original state. This may also include removal and replacement of wet or moist insulation. These repairs will be determined by the Architect/Engineer and the roof membrane manufacturer.

PART 3 - EXECUTION

3.01 PAVING AND SURFACING

A. Means and methods for the installation of replacement pavings, plaza, walks, curbs and other surfacing shall be in accordance with manufacturer's instructions, the project specifications and local construction standards for the type of work performed and shall be subject to the approval of the Owner and Architect/Engineer prior to the start of work.

3.02 LANDSCAPING

A. Plantings shall be set in appropriate pits, backfilled, mulched, guyed, staked or otherwise protected and installed in accordance with local construction standards for the type of plantings and subject to the approval of the Owner and Architect/Engineer prior to the start of Work.

3.03 ROOFING

A. Prior to commencing roof repairs, the contractor shall prepare a scope of work including details and specifications to the roof membrane manufacture and Architect/Engineer for review.
B. The contractor’s work shall comply with the roof membrane manufacturer’s instructions and installation details. If such information is not available, the contractor shall comply with NRCA and SMACNA instructions and installation details.

END OF SECTION
SECTION 07503
MODIFIED BITUMEN ROOFING AND FLASHINGS

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Furnish all labor, materials and equipment to install insulation board, coverboard, torch-applied, multi-layer SBS modified bitumen membrane, modified bitumen and sheet metal flashings.

B. Description of Systems: Roofing shall consist of two (2) plies of prefabricated non-woven polyester reinforced SBS modified bitumen membrane (top ply granule surfaced, bottom ply smooth surfaced) over a prepared substrate.

1.02 REFERENCES

A. Membrane: Membrane manufacturer and specific products referenced shall be the only approved products for use.

1.03 SUBMITTALS

A. Specimen copy of Manufacturer’s roofing and waterproofing system warranty proposed for the Work. Submit prior to commencement of the Work.

1. Fully executed warranty, which shall be issued upon Manufacturer’s approval of the installation. In no event shall the effective date of the warranty predate the completion and acceptance by Owner of the roof membrane system and all associated work.

B. Product Data: Submit product data and general recommendations from roofing and waterproofing materials manufacturer, for types of roofing required. Submit manufacturers' instructions for use of all materials including sheet roofing, flashing material, and accessories. Provide for membrane materials, base flashings, and associated adhesives, cements, primers, sealants, water cut-off mastics, prefabricated accessories, cover strips, fasteners, anchor bars, and other related items.

C. For details not addressed by the project drawings, submit shop drawings for approval by the Owner prior to start of work. Shop drawings shall include: Outline of roof and roof size, location and type of penetrations, perimeter and penetration details, special details and list of materials.

D. A letter from the material manufacturer specifically referencing this project and stating their intention to provide the specified warranty.

D. The current published product and installation literature of the materials manufacturer shall be considered part of this specification. Any revisions to the published literature, prior to the date of installation of the product shall also be considered part of this specification.
E. Samples (minimum 6 inch by 6 inch) of each type of sheet roofing shall be submitted.

F. Prior to start of work, submit proposed detail for temporary watertight night cutoffs for review and approval, clearly indicating tie-in of new modified roofing to existing substrates at temporary daily terminations during the progress of the work.

1.04 QUALITY ASSURANCE

A. Contractor Requirements

1. Contractor shall be approved by the manufacturer of the roofing materials and authorized to install the specified warranty system.
2. Portions of these specifications may exceed the minimum requirements of the membrane material manufacturer. In no event shall less quality, less weight or a lesser number of plies or any other lesser requirements be acceptable than at least the minimum of such required by this Specification Section and those of the manufacturer.
3. Maintain one copy of project documents on site at all times during work activities.
4. Membrane Manufacturer: Soprema or Approved Alternate
5. Acceptable Applicator: Contractor shall be approved by the roofing materials manufacturer with a minimum of three (3) years experience installing the specified product. The Contractor shall submit written evidence, from the membrane manufacturer that they are an Approved Applicator and have been for three (3) years (minimum) and that they are eligible to install the specified system as necessary to qualify for the specified warranty. A copy of the guarantee proposal shall be submitted with the Bid.
6. Technical Assistance: The contractor shall arrange for all required manufacturer support required to maintain eligibility for specified manufacturer’s warranty.

B. Regulatory Requirements:

1. Materials and application shall be such that the finished assembly, insulation and roofing membrane shall meet the requirements for FM Class I.
2. Anchorage/attachment of roofing insulation and membrane system shall meet FM 1-75 wind uplift requirements.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver materials in original unopened containers.

B. Inspect materials delivered to the site for evidence of contact with moisture. Reject delivery of materials with stained or wet wrappers, or torn covers. Packaging labels must be readable, identify the material, and indicate conformance with the reference standard applicable to the material. Additionally, for roofing membrane sheet, adhesives/cements and sealant materials, labels shall indicate the date of manufacture and lot number.
C. Store all materials, including membrane, between 40 degrees F, and 80 degrees F. If exposed to lower temperature, restore to proper temperature before using. No roofing membrane or flashing membrane shall be installed unless the outdoor temperature is 40 degrees F and rising.

D. Store all materials in dry area and protect from moisture and physical damage. Damaged materials shall be removed from site and replaced at no additional cost to the Owner.

E. Materials shall be handled, transported and stored in a manner enabling undamaged material to be installed. Rolls or material displaying a flattened appearance shall be considered damaged and shall not be installed.

F. Materials requiring fire resistance classification shall be delivered to the job with labels from an appropriate independent laboratory attached and packaged as required by the labeling service.

G. Deliver materials in sufficient quantity to assure continuity of work. Handle rolled goods in a manner to prevent damage to edges or ends. Select and utilize handling equipment so as to avoid damage to materials handled, to applied roofing, or to other construction.

H. Store rolled goods on ends. Protect materials from damage by construction traffic or other work. Roll goods which have been damaged by dropping, flattening or other mishandling, or have ends with embedded, foreign material shall not be incorporated into the work. Any such installations shall be removed and replaced at no additional cost to the Owner.

I. Do not overload the roof beyond the design loads with products or equipment.

J. Protect the existing roofing from damage due to traffic and material loading.

K. Use all materials within the time limits prescribed by the manufacturers.

1.06 PROJECT/SITE CONDITIONS

A. Do not install roofing during inclement weather, below the minimum ambient or surface temperatures recommended by the membrane manufacturer, or when relative humidity or wind speed is not within the range acceptable to the membrane manufacturer.

B. Contractor shall not proceed with or install roofing during inclement weather, except for temporary work necessary during inclement weather to protect materials that are already installed. Remove all temporary work before installing permanent materials.

C. Surfaces on which the insulation or membrane is to be applied shall be clean, smooth, dry, and free of projections or contaminants that would prevent proper installation.

D. Waste products (petroleum, grease, oil and solvents - vegetable or mineral oil and animal fat - direct contact with steam venting) shall not be allowed to come in contact with the roof membrane system.

E. All membrane and substrate surfaces must be clean and dry.
F. Daily Seal: Care shall be exercised to ensure that moisture does not penetrate beneath any completed sections of the roofing by temporarily sealing the loose edge of the membrane at the end of each work day and prior to the arrival of inclement weather. The manufacturer's requirements shall be followed closely. Contractor shall inspect existing components for moisture intrusion along the tie-in after opening the daily seal on the next work day.

1.07 WARRANTY

A. Manufacturer's Warranty: The Contractor shall provide a twenty (20) year No Dollar Limit System Written Transferable Warranty from the date of acceptance of this work for the new low slope roof and waterproofing systems from the membrane manufacturer, or other approved entity as approved by the Owner, agreeing to replace/repair defective materials and workmanship at no additional cost to the Owner. Warranty shall include responsibility for removal and replacement of other work which conceals defective work or materials. Warranty shall cover Workmanship for the full twenty (20) years and all membrane materials also for the full twenty (20) years. Included in the 20 year warranty shall be the roofing membrane, flashing and insulation. Should the membrane manufacturer require materials not shown on the drawings or included in the specifications or flashing details that differ from those shown on the drawings to qualify for the specified warranty, the contractor shall comply with the requirements of the manufacturer at no additional cost to the owner.

B. Contractor Guaranty: Provide written (notarized) guaranty agreeing to replace/repair defective materials and workmanship at no additional cost to the Owner for a period of two (2) years after substantial completion. The guaranty includes responsibility for removal and replacement of other work which conceals roofing membranes. This guaranty shall include all work installed under this contract including membranes, flashings, drainage systems, metal work, insulation, fasteners and miscellaneous items.

PART 2 - PRODUCTS

2.01 GENERAL

A. If insulation is provided by other than the membrane manufacturer, Contractor shall submit a letter of acceptance from the membrane manufacturer for approval of insulation proposed for use and verification that insulation shall be included in the system warranty.

B. All materials to be used in the work, including temporary cut-offs and tie-ins, shall be certified by the manufacturer to be free of asbestos.

C. Any asbestos containing material inadvertently installed under this contract by the Contractor, or their subcontractors, shall be removed and replaced with asbestos-free products at no additional cost to the Owner.

D. Top ply of modified bitumen roofing membrane shall be coated with ceramic granules. Granule color shall be either white or black. Consult owner concerning preferred color prior to ordering.

E. Approved flashing system shall also be utilized for stripping over of sheet metal flanges except as may be otherwise noted on the drawings.
2.02 APPROVED ROOF MEMBRANE ASSEMBLY

A. For all low slope roof areas:

1. Manufacturer: Soprema

a. Vapor Retarder (Alternate): Soprema Flam 180SP
   i. Description: Flashing membrane shall have a non-woven polyester reinforcement and modified elastomeric asphalt. Bottom side shall have a thermofusible plastic film and top side is to have a high brushed sanded surface. This membrane is to be applied by torching only.
   ii. Components: Reinforcement shall be 3.68 lbs/sq. non-woven polyester. Elastomeric asphalt shall be a mix of selected bitumen and SBS thermoplastic polymer.
   iii. Physical Properties:
       1. Tensile Strength:
          a. Longitudinal - 119 lbs/in
          b. Transversal - 88 lbs/in
       2. Ultimate elongation:
          a. Longitudinal - 58%
          b. Transversal - 64%
       3. Static Puncture Strength - 67 lbs
       4. Low Temperature Flexibility - No Cracking @ 22 degrees F.
       5. SBS elongation - 1500%
       6. Load Strain Product
          a. Longitudinal - 6902
          b. Transversal - 5632
       7. Approximate Roll Weight - 79 lbs
       8. Approximate thickness - 120 mils

b. Base Ply: Soprema Flam 180SP
   i. Description: Flashing membrane shall have a non-woven polyester reinforcement and modified elastomeric asphalt. Bottom side shall have a thermofusible plastic film and top side is to have a high brushed sanded surface. This membrane is to be applied by torching only.
   ii. Components: Reinforcement shall be 3.68 lbs/sq. non-woven polyester. Elastomeric asphalt shall be a mix of selected bitumen and SBS thermoplastic polymer.
   iii. Physical Properties:
       1. Tensile Strength:
          a. Longitudinal - 119 lbs/in
          b. Transversal - 88 lbs/in
       2. Ultimate elongation:
          a. Longitudinal - 58%
          b. Transversal - 64%
       3. Static Puncture Strength - 67 lbs
       4. Low Temperature Flexibility - No Cracking @ 22 degrees F.
       5. SBS elongation - 1500%
6. Load Strain Product
   a. Longitudinal - 6902
   b. Transversal - 5632
7. Approximate Roll Weight - 79 lbs
8. Approximate thickness - 120 mils

c. Cap Ply: Soprema 250 FR GR
   i. Description: Waterproofing membrane shall have a non-woven polyester reinforcement and thermofusible elastomeric asphalt, with a fire retardant agent added. The top side shall be self-protected with colored granules. The underside shall be protected by a plastic film. This membrane is to be torch applied only.
      1. Color to be either White or Black
   ii. Components: Reinforcement shall be 5.12 lbs/sq non-woven polyester. Elastomeric asphalt shall be a mix of selected bitumen and SBS thermoplastic polymer.
   iii. Physical Properties:
      1. Tensile Strength:
         a. Longitudinal - 163 lbs/in
         b. Transversal - 122 lbs/in
      2. Ultimate Elongation
         a. Longitudinal - 60%
         b. Transversal - 69%
      3. Static Puncture Strength - 55 lbs
      4. Low Temperature Flexibility - No cracking @ 22 degrees F
      5. SBS Elongation - 1500%
      6. Load Strain Product:
         a. Longitudinal - 9780
         b. Transversal - 8418
    7. Approximate Roll Weight - 84 lbs
    8. Approximate Roll Thickness - 160 mils

2.03 BASE PLY

   A. Modified bitumen cements, adhesives, mastics, primers, ceramic granules, sealants, prefabricated accessories, fasteners, anchor bars, and other related items are to be furnished or recommended by the membrane material manufacturer unless otherwise indicated.

2.04 CAP PLY

   A. Modified bitumen cements, adhesives, mastics, primers, ceramic granules, sealants, prefabricated accessories, fasteners, anchor bars, and other related items are to be furnished or recommended by the membrane material manufacturer unless otherwise indicated.

2.05 RELATED MODIFIED BITUMEN MATERIALS
A. Modified bitumen cements, adhesives, mastics, primers, ceramic granules, sealants, prefabricated accessories, fasteners, anchor bars, and other related items are to be furnished or recommended by the membrane material manufacturer unless otherwise indicated.

2.06 INSULATION, PROTECTION BOARD, EDGE STRIPS

A. Insulation for roof areas:

1. Flat Polyisocyanurate Foam Insulation: Type II, Class 1, Grade 3 flat Polyisocyanurate Board: 2 layers of 2 inches thick each (4 inches total) 25psi compressive strength insulation boards adhered with Soprema High Velocity adhesive (HV2 or HV3) as recommended by Soprema.

2. Cover Board: 5/8-in. thick Dens-Deck Prime roof board manufactured by G. P. Gypsum Corporation, Atlanta, Georgia. Adhere board to insulation with Soprema High Velocity adhesive (HV2 or HV3) as recommended by Soprema.

2.07 SHEET METAL

A. Aluminum: Minimum 0.040 inch thick. Color to be Kynar, standard color, as selected by the Architect/Engineer

2.08 SEALANTS

A. For masonry to masonry and masonry to metal - Soneborn NP-1 (or approved equal). Color to be selected by Architect/Engineer from standard color chart.

B. For metal to metal - Dow Corning 795 (or approved equal). Color to be selected by Architect/Engineer from standard color chart.

2.09 FASTENERS AND ACCESSORIES

A. Termination bar - Tru-Fast TB-100 aluminum termination bar (0.1 inch thick by 1 inch wide with pre drilled holes 8 inches on center), 800-443-9602.


PART 3 - EXECUTION

3.01 INSPECTION

A. The installer shall examine the areas and conditions under which the roofing is to be installed, and notify the Owner, in writing, of conditions detrimental to the proper and timely completion of this phase of the work. Contractor shall not begin work until the substrates have been
prepared as specified and as necessary, and are ready and acceptable to have materials installed. By beginning work, the Contractor acknowledges that the substrates are satisfactory.

B. Prior to the start of work, the substrate shall be relatively smooth and free of debris, sharp edges and other surface irregularities, as determined by Architect/Engineer that will be detrimental to or prevent the proper installation of the system.

C. All codes having jurisdiction shall be observed strictly in the construction of the project, including all applicable state, city, and county building, zoning, electrical, mechanical, plumbing and fire codes. Contractor shall verify all code requirements before commencement of construction and bring any noted discrepancies between code requirements and the construction documents to the attention of the Architect/Engineer in writing.

D. Details and sections on the drawings are shown at specific locations and are intended to show general requirements throughout. Details noted “typical” imply all conditions treated similarly. Modifications shall be made by Contractor to accommodate minor variations.

E. All areas, dimensions, and conditions shown and indicated are approximate. Contractor shall verify existing conditions prior to the start of work. Additional compensation shall not be granted for conditions encountered after the start of work that are different from those listed.

F. All drawings and conditions shall be fully coordinated by Contractor to verify all dimensions, conditions, slopes, drains, outlets, recesses, reglets, bolt settings, sleeves, etc.

G. Contractor shall bring errors and omissions noted by the Contractor which may occur in Contract Documents to the attention of the Architect/Engineer in writing and written instructions shall be obtained before proceeding with the affected work.

H. Verify that all drains, sleeves, curbs or other roof penetrations are rigidly secured.

I. The Contractor shall verify all dimensions and job conditions at the job site sufficiently in advance of work to be performed to assure the orderly progress of the work.

3.02 PREPARATION OF SUBSTRATE

A. Protect adjacent surfaces not designated to receive roofing.

B. The Contractor shall provide and install all curbing, expansion joints, and wood nailers at all edges, projections and openings, as indicated on the Drawings, and where metal flanges or flashing are to be installed.

C. Before installation of roofing or insulation materials, all deck surfaces shall be dry, sound, clean (broom swept), smooth, primed, and free of debris, loose material or defects which would have an adverse affect on the roofing or insulation or their performance, and provide substrate acceptable to the roof membrane manufacturer.

D. Adjust accessory items to proper height to be compatible with finished height of new insulation and roofing system.
E. Apply primer over all concrete, masonry, and sheet metal substrates to receive new membrane materials in accordance with the recommendations of the membrane manufacturer.

3.03 INSTALLATION

A. General:

1. Comply with manufacturer's instructions for handling and installation of roofing materials except where more stringent requirements are indicated in the specifications and drawings. Any changes to these specifications, based on recommendations by the material manufacturer, shall be approved in writing by the Architect/Engineer prior to the start of work.

2. Schedule installation to minimize period of exposure of substrates.

3. The Contractor shall not phase in the installation of the base ply and top ply roof membranes.

4. Contractor shall not use the existing or new roofs as work or storage platforms, without adequate protection.

5. Daily Seal: Provide temporary watertight cut-offs and tie-ins prior to arrival of inclement weather and at the end of each work day, as necessary to prevent moisture intrusion below the new and existing membrane and into the new roof and/or building. Remove all temporary work at the beginning of the next work day and verify that water has not breached the permanent work.

6. Should conditions be uncovered or created which would be detrimental to the proper conduct of specified work, immediately notify the Owner Representative of these conditions for resolution.

7. Extend roofing membranes and flashings as shown to provide complete membrane over area(s) indicated to be roofed. Seal to all equipment projections through membrane and seal all membrane and flashing seams. Ensure complete bonding to vertical surfaces and, where shown or recommended by material manufacturer, to horizontal surfaces.

a. Contractor shall perform all testing and other examination of deck surface as recommended by the roofing materials manufacturer and as recommended by manufacturer of the roof deck materials. Responsibility for determination of moisture content of deck being suitable for application of roofing materials shall be the sole responsibility of the Contractor. The proposed roof membrane manufacturer shall inspect the concrete deck condition and water content and state in writing it is acceptable to install new roof membrane materials.

b. Contractor shall follow manufacturer's recommendations for unrolling the membrane to allow to “relax” and flatten at application temperatures to assure that the top and bottom plies have stabilized and are ready for incorporation into the roof.

c. Except as otherwise required by unusual circumstances or as otherwise may be indicated in these specifications, begin installation of the roof membrane system at the low point of the roof and proceed upslope. Install membrane plies shingle style, perpendicular to the slope.

3.04 VAPOR RETARDER/BARRIER

A. Existing is to remain, protect from damage.
B. If new vapor retarder is to be installed, install as described below:

1. Starting at the low point of the roof, install approved vapor retarder membrane perpendicular (at right angle) to the slope.
2. Fully bond the vapor retarder to the prepared substrate, applying each sheet directly behind the heat applicator.
3. Provide 3 inch minimum side and end laps and stagger end laps a minimum of 3 feet.
4. At end laps, cut “dog ear” angles from underlying sheet at the finish edge and the overlapping selvage edges. Using a clean trowel, apply top pressure to top seal t-laps immediately following sheet application.
5. Do not apply heat directly to deck or substrate.

3.05 ROOF INSULATION AND COVER BOARD

A. Polyisocyanurate Board: 4 in. thick (minimum), Type II, Class 1, Grade 3, 20psi compressive strength insulation boards adhered to the concrete deck or vapor retarder with High Velocity adhesive as recommended by Soprema. Provide two layers of two inch thick insulation boards.

B. Tapered sumps shall be installed at drains.

3.06 ROOFING MEMBRANE

A. General:

1. Install the roofing membrane in accordance with the latest printed application requirements of the roofing membrane manufacturer except where the requirements of these project specifications are more stringent as determined by the Architect/Engineer. In such instances, the more-stringent requirement shall apply.
2. Traffic: Keep foot traffic and equipment movement to the absolute minimum during application of the roof membrane while the bitumen is hot and fluid. In addition, minimize traffic over new roofing prior to application of the final top ply.
3. At locations where drawings indicate that membrane or flashings shall be turned down the outside face of walls, the portion turned down the walls shall be installed “dry” (without asphalt, mastic, or adhesive).

B. Roofing Construction Safety Precautions

1. Torch Safety Precautions

   a. General: All torch-applied membranes shall be installed in accordance with recommendations provided in Factory Mutual Property Loss Prevention Data Sheet 1-33, "Safeguarding Torch Applied Roof Installations" and shall comply with all Federal, State, and Local Fire Prevention Codes.

   b. Installation Safeguards

      1) Torches used to secure membranes should be used in accordance with manufacturer's recommendations. The flame from a hand-held torch should be constantly moved from side to side. To prevent smoldering or ignition of membranes, they should not be overheated.
2) Caution should be used when working around openings, penetrations or flashings. Wood nailers, cant strips and metal flashing should not come in direct contact with the flame of the torch. Small torches should be used to heat the underside of the membrane away from these areas before securement. The torch should not be used in areas where the flame impingement cannot be fully viewed. Open flames should not be left unattended. Roof openings/vents should be covered with a stable noncombustible cover to prevent ignition of building components or contents.

   a) Extreme caution should be used near penetrations such as exhaust vents to prevent ignition of accumulated flammable discharges. Such accumulations should be cleaned/removed before roofing work begins.
   b) Air conditioning units and ventilating fans should be shut down before torch work is done in surrounding areas.
   c) Expansion joints should be filled with mineral wool or ceramic fiber with a steel cover plate below.

3) A torch stand should be used to direct the flame upward when momentarily not in use. The cylinder valve should be closed to burn off propane in the line before shutting off the torch head. The gas supply should be shut off whenever a propane odor is detected.

4) Installations should be coordinated with concerned parties, and close supervision should be provided.

5) Torches should not be used near gas lines, electrical wires or flammable liquids during roof construction.

6) The torch flame should not be applied to a combustible substrate when installing the membrane. All combustible substrates and materials in the vicinity of heat welded membranes shall be covered with a glass fiber base sheet before the torch applied membrane is installed. Torch flames should not come in contact with exposed plastic roofing cement or other combustible materials.

7) The operator of the torch shall remain on the premises to perform a fire watch for a minimum of one (1) hour after the torch is utilized. All roof areas worked on should be checked for "hot spots" and signs of smoldering. The inside of the building should also be inspected for signs of fire or smoke. All "hot spots" or fires shall be extinguished and reported to the Architect/Engineer.

c. Equipment Safeguards

   1) Proper equipment should be used to heat roofing membranes. Torches should be equipped with a pilot adjustment, flame height adjustment, 25 to 50 feet of approved or listed hose, pressure gauge and regulator. A spark ignitor should be used.

      a) Safety caps should be tied to all propane cylinders and installed on the valve whenever cylinders are not in use. Carts used to transport propane cylinders should be stable. Tall, narrow, standing cylinders should be
chained against walls or in proper carts.

2) The propane cylinder should be adequately sized for the torch used. If frost buildup occurs on the propane cylinders and the rate of vapor withdrawal is no longer adequate for operating conditions, the cylinder should not be placed on its side or heated with the torch flame. The hose should be disconnected and a larger cylinder used. Liquid propane cylinders may be of either the vapor withdrawal or liquid withdrawal type.

   a) Liquid withdrawal cylinders are preferred due to frost buildup associated with vapor withdrawal cylinders. However, when vapor withdrawal cylinders are used, or if temperatures are below 20 degrees F, 40 or 100 lb. Cylinders should be used with larger torches (such as those used on the field of the roof).

3) Equipment should be thoroughly inspected and repaired as needed. Propane cylinders should be inspected for dents. If dents larger than 1" in diameter are found, the cylinder should be replaced. Torch and cylinder connectors should be visually inspected and checked for leaks with a soap and water solution. An open flame should not be used to test for leaks.

   a) Leaky equipment should not be used. Regulator adjustments and pressure gauges should be checked to assure they are operable. The vent on the regulator should be checked to ensure it is not blocked. If an unstable flame occurs (one which roars loudly and tends to blow itself out), the equipment should be repaired or replaced immediately.

4) A fire watch of all equipment utilized for the torching application should be conducted for at least one (1) hour after torch work has been completed.

d. Fire Extinguishing Equipment

1) The Contractor shall provide, on the roof, at least one (1) portable fire extinguisher with a minimum 4-A rating, two (2) portable fire extinguishers with a minimum 2-A rating each, or a water hose connected to a water supply at the building where the torching is being done. In addition, there should be at least one 10-lb. multipurpose dry chemical portable extinguisher within 20 feet horizontal travel distance of torch-applied roofing equipment.

e. Fuel Handling Safeguards

1) Fuel containers, burners and related appurtenances of roofing equipment in which liquefied petroleum gas is used for heating should comply with Factory Mutual Data Sheet 7-50; "Compressed Gases in Cylinders" and NFPA 58; "Standard for the Storage and Handling of Liquefied Petroleum Gases".

   a) All fuel containers should be located at least 10 feet from the burner flame or at least 2 feet away when properly insulated from heat or flame.
b) Storage of LPG cylinders or containers on rooftops is prohibited. All LPG cylinders or containers shall be removed from the rooftop and placed in a secure area, protected against tampering, at the end of each work shift.

c) Propane cylinders shall not be hoisted by their valves. Straps placed around the cylinders should be utilized.

C. Safety Considerations

1. The Contractor shall follow all established safety procedures as defined by OSHA or other governing agencies.
2. It is the Contractor's responsibility to insure safety at the project work area at all times.

3.07 CANT AND TAPERED EDGE STRIPS

A. Install cants and tapered edge strips as called for in manufacturer recommendations. Cants shall be set into asphalt plastic cement. Tapered edge strips shall be mechanically attached to the concrete deck.

3.08 APPLICATION OF MODIFIED BITUMEN ROOFING MEMBRANE – HEAT WELDING

A. Base Ply

1. Starting at the low point of the roof, install approved bottom ply membrane perpendicular (at right angle) to the slope.
2. Fully bond the bottom plies to the prepared substrate, applying each sheet directly behind the heat applicator.
3. Provide 3 inch minimum side and end laps and stagger end laps a minimum of 3 feet.
4. At end laps, cut “dog ear” angles from underlying sheet at the finish edge and the overlapping selvage edges. Using a clean trowel, apply top pressure to top seal t-laps immediately following sheet application.
5. Do not apply heat directly to deck or substrate.

B. Top Ply

1. Fully bond top ply parallel to the base ply, applying sheet directly behind the heat applicator.
2. Provide 3 inch minimum side and end laps and stagger end laps a minimum of 3 feet.
3. At end laps, cut “dog ear” angles from underlying sheet at the finish edge and the overlapping selvage edges. Using a clean trowel, apply top pressure to top seal t-laps immediately following sheet application.
4. Stagger side lap seams between top ply 12 to 18 inches from the side lap seams of the bottom ply.

3.09 ROOFING FLASHINGS

A. Walls and Curbs:
1. Neatly flash vertical walls and curbs in strict compliance with the roofing membrane manufacturer's specifications and as noted in the project details and these specifications. The wall and curb flashings shall extend a minimum of 8-inches above the roof surface and 4-inches out onto the field of the roof past the base of any cants and tapered edge strips if they are used.

2. Begin all wall and curb flashing installations at the low point of the wall or curb and proceed up slope to avoid back water seams which buck water.

3. Extend flashing to the top of all curbs and to within one inch of reglets where existing reglet secured counterflashing are indicated as remaining or new for incorporation into new roof system. Unless otherwise indicated or not possible due to existing conditions encountered, flashing height shall be 8 inches (minimum) above the finished roofing surface.

4. Secure upper edges of all wall and curb base flashings at 6 to 8-inches (max) on center and within 2-inches of the end of each section of base flashing. Extruded termination bar with bent edges shall be installed at the top of all base flashings to mechanically attach the new and underlying existing base flashings in place. Refer to project details and approved manufacturer’s requirements. In no instance, even if approved by membrane manufacturer, shall base flashing attachment exceed 8-inches on-center.

B. Equipment Penetrations

1. Flash all penetrations (pipes, conduits, etc.) passing through the membrane as detailed. Where not detailed, install in strict accordance with the manufacturer's details and recommendations.

2. Where recommended by roof membrane manufacturer, apply approved sealant along base of equipment penetration to seal equipment to edge of flashing membrane.

3.10 QUALITY CONTROL

A. The roof membrane and flashing systems after installation shall be free of the following defects:

1. Factory splices in the top ply shall be cut out before the roll is applied. As an alternate, the splice may be covered with a full width section of top ply membrane which extends a minimum of 6-inches beyond both sides of the splice.

2. Contractor shall ensure that the top ply is continuously welded and fully bonded to the bottom ply without air pockets, wrinkles, fishmouths or tears.

3. Contractor shall evaluate all lap seams in the top and bottom plies to identify any deficient conditions which require repair to ensure continuous bonding of the laps.

4. Contractor shall keep foot traffic and equipment movement over newly installed roof membrane top and bottom plies to the absolute minimum during application of the roof membrane while the bitumen is hot and fluid.

5. All vertical end terminations in wall base flashings shall be covered with metal flashing or counterflashsing and secured in accordance with the project documents.

6. All roof drains shall be cleaned out and free of roofing debris and tested for watertightness and free flowing operation prior to acceptance of roof.

7. Owner shall reject any work not found to be in conformance with good roofing practice or these specifications.
8. Roof cement, unless specifically required by the roof membrane manufacturer, shall not be incorporated into the roof membrane or flashing. Use of roof cement will not be permitted at the following conditions:
   a. Sealing of laps in membrane or flashing.
   b. Surface or stripping flashing at equipment penetrations or drains.
   c. Repairs of the membrane or flashing.
9. All roof cement found on the exposed roof shall be removed and area repaired at no additional cost to the Owner.
10. Loose granules shall be embedded in asphalt bleed out at side and end laps which exceeds one quarter (1/4) inch in width and at asphalt spillage, drippage, marring, etc. on finished membrane surfaces.

3.11 SHEET METAL - GENERAL

A. The Contractor shall examine the areas and conditions under which the flashing and sheet metal is to be installed, and notify the Owner in writing of conditions detrimental to the proper and timely completion of this phase of the work. Do not proceed with this phase until the unsatisfactory conditions have been corrected. Commencement of work shall be construed as acceptance of the conditions.

B. Workmanship shall conform to the best trade standards. If required, soldering shall be performed slowly with heavy well heated soldering coppers of blunt design, properly tinned before use. Tin edges of each item to be soldered, 1-1/2 inches on both sides, with rosin as flux.

C. Extend counterflashings 4 inches (minimum) over base flashings or as noted on drawings if more stringent requirements noted.

D. Installation of items not shown in detail or not covered by specifications shall meet the applicable requirements of the latest edition of the Architectural Sheet Metal Manual of the Sheet Metal and Air Conditioning Contractors National Association, Inc. and/or the requirements of the material or equipment manufacturer.

E. Apply modified plastic cement compound, approved for use by roof membrane manufacturer, between embedded metal flashings and bituminous membrane flashings.

F. Fit flashings tight in place. Make corners square, surfaces true and straight in planes, and lines accurate to profiles.

G. Surfaces of new metal flashing which will come into contact with dissimilar metal shall receive a heavy protective coating per the metal producer's or supplier's recommendations to provide protection against galvanic corrosion.

3.12 SHEET METAL INSTALLATION

A. General:

1. Installation shall comply with the drawings.
2. Where not specifically indicated on the drawings, installation shall comply with the recommendations of the SMACNA Manual or with the manufacturer's requirements for premanufactured flashings.

3. The flashing and sheet metal work shall be permanently watertight and shall not deteriorate in excess of published limitations of the manufacturer.

B. Thermal expansion shall be provided for in all exposed sheet metal work exceeding 15 feet in running length, except where otherwise indicated:

1. On flashing and trim, expansion capability shall be provided every 10 feet maximum and located 18 inches from corners and intersections.

C. Fasteners and expansion provisions shall be concealed wherever possible.

D. Provide continuous weathertight sheet metal closures and/or end dams at all end terminations, end joints and corners in wall and curb sheet metal counterflashings.

E. The following shall apply to all termination bar installations:

1. In addition to fastener pattern noted on drawings, secure bar within 2 inches of each end of the bars.
2. Provide 1/8 to 1/4 inch gap between adjacent sections of the bar.
3. Use only continuous straight sections of bar – do not wrap around corners.

3.13 SHEET METAL CLEANING AND PROTECTION

A. Clean exposed metal surfaces, removing substances which might cause corrosion of metal or deterioration of finishes.

B. Protection: Contractor shall protect flashings and sheet metal work during construction, to ensure that work will be without damage or deterioration, other than natural weathering, at time of substantial completion.

C. Neutralize corrosive soldered joint flux materials immediately upon completion of the work at each soldered joint or seam.

3.15 CLEANING AND PROTECTION

A. Daily clean up, and removal from the site, of all wrapping, empty containers, loose particles and other debris resulting from these operations is required. Remove any loose pieces from the drain areas and protect the drains from blockage by debris. Remove drain protection at the end of each work day and prior to arrival of inclement weather to ensure that all drain lines are open.

B. Schedule sequence of work so that traffic over new membrane is minimized. Institute required procedures for protection of completed membrane during installation of work over membrane and throughout remainder of construction period. Contractor shall not allow excessive or concentrated traffic over unprotected membrane.
END OF SECTION
PART 1 - GENERAL

1.01 DESCRIPTION OF WORK
A. Furnish all material, labor, tools, and equipment necessary to perform the Work, as shown on the Drawings and specified herein.

B. Related work specified elsewhere:
   1. Section 06114 - Wood Blocking, Curbing and Sheathing
   2. Section 07503 - Modified Bitumen Roofing and Flashings
   3. Section 07900- Joint Sealants

C. Work included but not limited to:
   1. Thru-Wall flashings
   2. Metal Wall Panels

1.02 QUALITY ASSURANCE
A. Contractor's Qualifications: Have installations of the specified materials in the local area for a minimum period of five (5) years.

B. Reference Standards: Except as modified by the Drawings and Specifications, the following documents, or applicable portions thereof, govern the work:

1.03 WORK SEQUENCE
A. Conduct all work under temperature and climate conditions as recommended by standard practice. Do not install new sheet metal and flashings when rain or inclement weather is imminent.

B. Upon removal of existing sheet metal and flashings, make all openings watertight until final installation is complete.

C. Installation of new sheet metal and flashings shall be coordinated with new membrane installation defined in Specification Section 07503 – Modified Bitumen Roofing and Flashings.
1.04 SUBMITTALS

A. Required prior to the commencement of work:

1. Detailed shop drawings or full-sized mockups, 12 in. wide minimum, of all new sheet metal. Shop drawings shall include details of all erection and connection methods, expansion joint location and detail, and accessories for all new items required under this Specification.
2. 12” x 12” samples of all materials specified in this section shall be provided for approval.
3. Approval of shop drawings will be for details, and arrangements of the various parts. Verification of job dimensions shall be the sole responsibility of the Contractor.

B. Required after the completion of work:

1. Contractor's guarantee per paragraph 1.05.

1.05 GUARANTEE

A. Contractor's Guarantee:

1. By the sheet metal contractor.
2. Time Period: Two (2) years after the date of completion and acceptance by the Owner.
3. Terms: All materials, labor, tools and equipment necessary for repair, restoration, or replacement of all new work damaged as a result of:
   a. Defects, imperfections, or faults in:
      1) Materials
      2) Workmanship
   b. The Contractor's correcting defects, imperfections, or faults in materials and/or workmanship.
4. Corrections of defects, imperfections, and faults shall not relieve the Contractor from his/her responsibility for additional corrective work during the remaining time period.

PART 2 - PRODUCTS

2.01 MATERIALS

A. See section 07503 Sheet metal section.

PART 3 - EXECUTION

3.01 PREPARATION OF SUBSTRATE

A. Examine the surface condition of the substrate on which sheet metal is to be installed. Do not proceed with new installation until unsatisfactory conditions have been corrected in a manner approved by the Architect/Engineer.
B. Clean the substrate of obstructions and substances detrimental to the work.

C. Proceeding with the work shall signify the Contractor's acceptance of the substrate being covered by the new sheet metal installation.

3.02 SHEET METAL FABRICATION AND INSTALLATION

A. Remove existing expansion joint cover and sheet metal counterflashing as required to perform work.

B. Field document the required configuration and measurements of all new flashings prior to fabrication.

C. Shop fabricate new sheet metal shapes in 20 ft long sections, or as long as practical to adequately provide for expansion and contraction. Provide expansion joints as shown on the drawings. Finish water and weathertight throughout. Lines, rises and angles shall be sharp and true. Plain surfaces shall be free of waves or buckles.

D. Install new sheet metal fabrications and accessories as shown on the Drawings.

3.03 CLEANUP

A. Remove trash, debris, and equipment from the job site.

B. Repair damage and remove stains caused by the work.

END OF SECTION
SECTION 07900

JOINT SEALANTS

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Furnish all labor, materials, tools, equipment and perform all work necessary for and incidental to the sealing of joints (including back-up fillers) as shown on the drawings and specified herein. Work should be completely coordinated with the work of all other trades.

1.02 QUALITY ASSURANCE

A. Qualifications:

1. The contractor must have a minimum of five (5) years experience in installation of similar sealants and projects of similar size. The applicator shall be approved by the manufacturer of the sealant.

1.03 REFERENCE STANDARDS

A. American Society for Testing and Materials


1.04 SUBMITTALS

A. Submit manufacturer’s literature, materials description and installation (including surface preparation) for each compound and filler.

B. Submit samples of each compound filler, backer rods and bond breaker tapes.

1.05 ENVIRONMENTAL REQUIREMENTS

A. No sealants shall be applied when the ambient temperature is below or expected to fall below 40° F for a 24-hour period after installation. Sealants shall not be applied above 90° F.

1.06 PRODUCT DELIVERY, HANDLING AND STORAGE

A. All materials shall be delivered to the job site in manufacturer’s sealed packaging and stored in an enclosed shelter providing protection from damage and exposure to the elements. Damaged or deteriorated materials shall be removed from the premises.

PART 2 - PRODUCTS
2.01 All materials used in combination (i.e., sealants with backer rods or sealants with primers) shall be in conformance with sealant manufacturer’s printed instructions. Sealant manufacturer must be consulted prior to application.

2.02 MATERIALS

A. Metal/Metal and Metal/Glass Joint Sealant: Silicone, Grade NS, Type S, Class 50 (±50% movement), conforming to ASTM C920. Dow 795 manufactured by Dow Corning Corp., Midland, MI. Color selected by A/E.

B. Masonry-to-Masonry/Metal Window Frame-to-Masonry Joint Sealant. Premium-grade, high-performance, moisture-cured, 1-component, polyurethane-based, non-sag elastomeric sealant meeting Federal Specification TT-S-00230C, Type II, Class A and ASTM C-920, Type S, Grade NS, Class 25; Sikaflex-1a, Sonneborn NP-1 or approved equal. Color shall be selected by the Architect/Engineer in the field.

C. Preformed Silicone Sealant: Dow Corning 123 with Dow Corning 791 silicone bedding sealant manufactured by Dow Corning Corp., Midland, MI. Color as selected by the owner.

D. Metal/Metal Butyl Sealant: Non-drying butyl conforming to AAMA 809.2. Pecora BR-96 manufactured by Pecora, Harleysville, PA (or approved equal).

E. Joint Filler approved by sealant manufacturer. Closed-cell Expanded Polyethylene (Rod); Ethafoam (Dow Chemical Co.); Expanded-O-Foam (Williams Products, Inc.); Sonofoam Backer-Rod (Sonneborn-Contech).

F. Joint Cleaner and Primer. Type recommended by the manufacturer of the sealing or caulking compound for the specific joint surface and conditions.

G. Bond breaker approved by sealant manufacturer. Polyethylene tape.

PART 3 - EXECUTION

3.01 PREPARATION

A. All surfaces to receive the joint sealants shall be examined by the contractor. Any surfaces which are found to be unsuitable for installation of the joint sealants shall be brought to the attention of the Architect/Engineer for resolution. Application or installation of the material constitutes acceptance of the surface of the substrate.

B. Remove all existing sealants and gaskets from the areas to be resealed. Care shall be used in the removal of sealants so as not to damage existing construction intended to remain.

C. All surfaces to receive sealants shall be clean, dry, free of any loose materials, dirt, dust, laitance, rust, oil, frost and other contaminants.

D. Metal surfaces, i.e., aluminum window frames, which will be in contact with new joint sealants shall be cleaned in accordance with sealant manufacturer’s requirements.
E. Use a primer on masonry and stone surfaces to receive joint sealants in accordance with the recommendations of the sealant manufacturer.

F. Test applications shall be made at the beginning of the joint sealant work in all types of prepared joints by the contractor to determine if preparation steps have been adequate for optimum sealant adhesion. These test applications shall be approved by the Architect/Engineer prior to the start of work.

3.02 APPLICATION

A. Install all materials in accordance with the manufacturer’s printed instructions as well as the following.

B. Install bond breakers and backer rods where shown on the drawings and in locations and of the type recommended by the sealant manufacturer to prevent bond of sealant to surfaces where such bond might impair the performance of the sealant.

C. Application of joint sealant materials shall be made by cartridge-type caulking guns.

D. Run the sealant beads sufficiently slow to be certain that the entire cavity is filled from the bottom up. Air pockets, voids or separations are not acceptable.

E. Cap beads at skylights shall have minimum bond surface of 1/4 in.

F. Tool sealant surfaces to the shapes shown, or if none is shown, to flush or slightly concave surface.

G. Wet tooling shall not be used unless permitted by the manufacturer. If allowed, only water shall be used.

3.03 SURFACE PROTECTION

A. All surfaces adjacent to sealants shall be protected unless otherwise approved by the Architect/Engineer. Use pressure sensitive tape to prevent staining of adjacent surfaces or spillage and migration of sealant out of the joints.

3.04 CLEANUP

A. As work progresses, remove excess compound and clean adjoining surfaces as may be required to eliminate any indication of soiling or migration. Remove all masking and other protection and clean up any remaining defacement caused by the work.

B. At the conclusion of sealing and caulking work, clean up all debris, refuse and surplus material and remove same from the premises.

END OF SECTION
SECTION 15415
ROOF DRAINS

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK
   A. Extent of drainage work is indicated on the Drawings and by the requirements of this section and specifically includes installation of new drains.

1.02 CODES AND STANDARDS
   A. Comply with applicable portions of the Building Code of the State of Connecticut and with the latest standards and rules of the City of Middletown, CT.

1.03 RELATED WORK SPECIFIED ELSEWHERE
   A. Section 02050 - Demolition, Cutting and Patching
   B. Section 02110 - Site Restoration
   C. Section 07503 - Modified Bitumen Roofing and Flashings.
   D. Section 07900 - Joint Sealants

1.04 SUBMITTALS
   A. Submit product data for the following:
      1. Roof drains
      2. Miscellaneous piping
      3. Pipe hangers.

1.05 COORDINATION
   A. Coordinate any work requiring access to interior spaces with the Building Management.

PART 2 - PRODUCTS

2.01 ROOF DRAINS
PART 3 - EXECUTION

3.01 DRAINS

A. Provide smooth finish and support new drain.

B. Install specified flashings.

C. Install roof drains per manufacturer's recommendations.

END OF SECTION