



**PROJECT:**  
WELDING AND AUTO ADDITIONS  
TENNESSEE COLLEGE OF APPLIED TECHNOLOGY  
- HOHENWALD  
HOHENWALD, LEWIS COUNTY, TENNESSEE  
SBC No. 166/054-01-2023

HURST-ROSCHKE, INC.

## **ADDENDUM #1 (Date: 04/03/2025)**

### CONTENTS

#### **Project Manual:**

- 1) **Add** section 07 92 00 Joint Sealants.
- 2) **Remove** section 07 54 16 Ketone Ethylene Ester (KEE) Roofing.
- 3) **Add** section 07 53 04 ELASTOMERIC MEMBRANE ROOFING (EPDM) - FULLY ADHERED.
- 4) Section 00 11 16 – Invitation to Bid: **Delete** date Bids Received of “3/16/2025” and **replace** with “4/16/2025.”
- 5) Section 01 10 00 – Summary: **Delete** Article 1.6 in its entirety and **replace** with the following:

#### 1.6 WORK SEQUENCE

- A. Construct Work to accommodate Owner’s occupancy requirements during construction period, coordinate construction schedule and operations with Owner and Designer. Partial Substantial Completion shall be issued for the work in the Priority areas below consecutively to allow Owner occupancy of said areas. If the Contractor, Owner, and Designer agree in advance that work is necessary in multiple Priority areas, then such work shall be allowed. All work is to be completed within specified contract time in the priority order listed below:
  1. Priority 1: Completion and usability of Multipurpose Room as a temporary classroom space to be utilized when either Welding or Automotive Classroom is under construction. Duration of Priority 1 work: 85 days.
  2. Priority 2: Completion of Automotive Addition; with significant demolition and new construction, automotive program functions will need to be shutdown. Coordinate with Owner when automotive shop, automotive classroom, and any other area related to work will need to be vacated. Owner priority is to have minimal disruptions to operations of automotive program. Duration of Priority 2 work: 150 days.
  3. Priority 3: Completion of Welding Addition while maintaining usability of existing welding booths noted to remain in drawings. When Welding Addition is complete and new welding booths are usable, the existing welding booths in the existing shop space may begin work noted on plans. Owner priority is to have minimal to no disruptions of everyday operations for the welding program. Coordinate Welding Classroom work and schedule with Owner to ensure the

welding program has a classroom space available somewhere on campus.

Duration of Priority 3 work: 125 days.

6) Section 01 10 00 – Summary: **Delete** Article 1.7 in its entirety and **replace** with the following:

1.7 CONTRACTORS USE OF PREMISES

- A. The Owner will occupy the premises during construction for the conduct of normal operations. Cooperate with the Owner to minimize conflict, and to facilitate Owner's operations. Schedule the Work to accommodate Owner occupancy.
  - B. The hours of Contractor access to the site shall be between the hours of 7:30 AM – 4:00 PM local time, Monday through Friday, excluding holidays, unless prior arrangement has been made with the Owner one week in advance.
  - C. Coordinate any utility shut-offs with Owner (3) weeks in advance minimum.
  - D. The site shall not be unreasonably encumbered with materials or equipment. Contractor shall provide a staging plan for materials, equipment, parking, and contractor access to the work based upon Priority areas described above and in the drawings one week prior to the beginning of said work.
  - E. Structure shall not be loaded with weight that will endanger structure.
  - F. Contractor shall assume full responsibility for protection and safe keeping of products stored on premises.
  - G. Stored products which interfere with operations of Owner shall be relocated as necessary by Contractor.
  - H. Contractor shall obtain and pay for use of additional storage or work areas needed for construction operations.
- 7) **Delete** Section 00 41 13 – Bid Form; **replace** with attached Section 00 41 13 – Bid Form.
- 8) Section 10 51 13 – Metal Lockers, Article 2.1 Lockers, Paragraph A. Manufacturers: **Add:** Elite Storage Products, LLC, PO Box 383258, Germantown, TN 38183.
- 9) Section 22 10 05 – Plumbing Piping, **Add:** 2.4 Domestic Water Piping, Above Grade, B. Copper Tube Type L.
- 10) Section 22 10 05 – Plumbing Piping, **Add:**

**Drawings:**

- 11) Sheet AD102 – Demolition Keyed Notes, Tag D6 – **delete** description: “varies”, **insert:** “Contractor to store and reinstall equipment in new work floor plan.”
- 12) Sheets AD100 & AD102 – General Demolition Notes, **add** note #13 as follows: ““Contractor shall remove equipment and place in Contractor provided, on-site, weathertight, and secure storage. Contractor shall be responsible for disconnecting, moving, storing, preparing for reconnection, reinstalling, and reconnecting all equipment noted to be removed, stored, and reinstalled. Prior to removal of equipment Contractor, Owner, and Designer will hold an on-site meeting to verify and document the operability of equipment to be removed and stored.”
- 13) Sheet AD101 – **Add** General Demolition Note as found on Sheet AD100 with note #13 referenced in Addendum #1 item #6.
- 14) Sheet M-601: **Add** Note: “Approved alternate vendors are Carrier and AAON for Rooftop Units and Outside Aire Units.”

**Attachments:**

Section 00 41 13 – Bid Form (4 Pages)

Section 07 92 00 – Joint Sealants (13 pages)

Section 07 53 04 Elastomeric Membrane Roofing (EPDM) – Fully Adhered (7 pages)

Total number of pages Addendum #1 – (27) pages



04/03/2025  
DATE

03/31/2027  
LICENSE EXPIRES

**00 41 13 – BID FORM**

**TO:** State of Tennessee      **FROM BIDDER:** \_\_\_\_\_

**FOR:**

Project Title: Welding and Auto Additions

Project SBC No.: 166/054-01-2023

A. The Bidder hereby acknowledges, attests, certifies, warrants, and assures that:

1. Bidder has received, read and understands the Bidding Documents and this bid is made in accordance therewith.
2. Bidder has visited the site and become familiar with the local conditions under which the Work is to be performed and has correlated all observations with the requirements of the Bidding Documents.
3. Documents identified as "Information Available to Bidders" are prepared solely for the Designer's use in design of this Work and have not been relied upon in the preparation of this bid. The use and interpretation of such information for any purpose is entirely the responsibility of the using party.
4. Bidder shall not utilize the services of a contractor or subcontractor disqualified from participating in State Building Commission projects.
5. Bidder shall not knowingly utilize the services of an illegal immigrant in the performance of this Contract and shall not knowingly utilize the services of any subcontractor or consultant who will utilize the services of an illegal immigrant in the performance of this Contract.
6. In compliance with the Iran Divestment Act the Bidder is not on the list created pursuant to Tennessee Code Annotated (TCA) § 12-12-106 and shall not utilize any subcontractor on that list.
7. Bid Security, in the amount of five percent (5%) of the total amount of bid, including Alternates, is attached hereto.
8. A Drug-Free Workplace Affidavit, in the form of Section 00 45 21, is attached hereto.
9. Failure to complete this Bid Form, provide required attachments, or comply otherwise with instructions to Bidders, may be cause for rejection of bid.
10. The person who signs this bid on behalf of the Bidder is legally empowered to bind the Bidder to a Contract.
11. The following statement is (mark the one that is applicable)  True       False:  
The Bidder and/or any of the Bidder's employees, agents, independent contractors and/or proposed Subcontractors have been convicted of, pled guilty to, or pled nolo contendere to any contract crime involving a public contract.
12. Bidder has received the following addenda:  
Addendum No. \_\_\_\_\_ dated \_\_\_\_\_.      Addendum No. \_\_\_\_\_ dated \_\_\_\_\_.  
Addendum No. \_\_\_\_\_ dated \_\_\_\_\_.      Addendum No. \_\_\_\_\_ dated \_\_\_\_\_.

**00 41 13 – BID FORM**

**PAGE 2 FROM BIDDER:** \_\_\_\_\_

B. The Bidder agrees to:

1. Honor this bid for 45 days following the date of the scheduled opening of bids.
2. Enter into and execute a contract, if presented on the basis of this bid, and to furnish certificates(s) of insurance, bond(s), and other documents related to the contract as required, including, if the initial Contract Sum as awarded exceeds \$100,000, the Contract Bond.
3. Accomplish the Work in accordance with the Contract Documents.
4. Furnish Three Year Roof Bond in the form of Section 00 61 43 in the amount of: An amount equal to roof bid.
5. Achieve Substantial Completion of the Work in accordance with the number of calendar days Contract Time set forth, allotted from and including the date stipulated in the Notice to Proceed; and, accept the conditions for Liquidated Damages in the amount set forth per calendar day.

Phase	Commencement	Contract Time	Liquidated Damages	
ALL		360 Days	\$250	Per Day
Priority 1	Notice to Proceed for Priority 1	85 Days	\$250	Per Day
Priority 2	Substantial Completion of Priority 1	150 Days	\$250	Per Day
Priority 3	Substantial Completion of Priority 2	125 Days	\$250	Per Day

C. **BASE BID:** The Bidder agrees to complete the Work of the Base Bid for this project for the lump sum of the following amount (In both words and figures. Figures prevail. Words clarify at Owner's discretion.):

\_\_\_\_\_ and \_\_\_\_\_/100ths Dollars  
 \$ \_\_\_\_\_

D. **ALTERNATES:** The Bidder agrees to include Work of the following Alternate(s), as specified in Section 01 23 00 Alternates, for the additional lump sum(s) of the following amount(s) (In both words and figures. Figures prevail. Words clarify at Owner's discretion.):

ALTERNATE No.1: Not Applicable  
 \_\_\_\_\_ and \_\_\_\_\_/100ths Dollars  
 \$ \_\_\_\_\_

ALTERNATE No. 2: Not Applicable  
 \_\_\_\_\_ and \_\_\_\_\_/100ths Dollars  
 \$ \_\_\_\_\_

ALTERNATE No. 3: Not Applicable  
 \_\_\_\_\_ and \_\_\_\_\_/100ths Dollars  
 \$ \_\_\_\_\_

ALTERNATE No. 4: Not Applicable

**00 41 13 – BID FORM**

\_\_\_\_\_ and \_\_\_\_\_/100ths Dollars  
\$ \_\_\_\_\_

**00 41 13 – BID FORM**

E. UNIT PRICES: The Bidder agrees to include work in the Base Bid and Alternates as specified for the Quantity Allowance of Unit Price Items and propose, subject to Owner acceptance, the following Unit Prices for inclusion in the Agreement as specified in Section 01 22 13 Unit Prices:

Not Applicable

Item No.	Unit Price per Unit	Unit	Name, Work Included

F. BID SUBMITTAL:

This bid is submitted by:

Authorized Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Printed Name, Title: \_\_\_\_\_

On behalf of:

Bidder Name: \_\_\_\_\_

Bidder's Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Bidder's Phone: \_\_\_\_\_

Bidder's Fax: \_\_\_\_\_

Bidder's Email: \_\_\_\_\_

END OF SECTION

## SECTION 07 92 00 - JOINT SEALANTS

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section Includes:
1. Silicone joint sealants.
  2. Urethane joint sealants.
  3. Latex joint sealants.
  4. Solvent-release-curing joint sealants.
  5. Acoustical joint sealants.
  6. Preformed seals.

#### 1.2 REFERENCES

- A. References, General: Versions of the [following] [cited] standards current as of the date of issue of the project apply to the Work of this Section.
- B. ASTM International (ASTM): [www.astm.org](http://www.astm.org):
1. ASTM C 510 - Standard Test Method for Staining and Color Change of Single- or Multicomponent Joint Sealants.
  2. ASTM C 661 - Standard Test Method for Indentation Hardness of Elastomeric Type Sealants by Means of a Durometer.
  3. ASTM C 719 - Standard Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cyclic Movement (Hockman Cycle).
  4. ASTM C 794 - Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants
  5. ASTM C 834 - Specification for Latex Sealants.
  6. ASTM C 920 - Specification for Elastomeric Joint Sealants.
  7. ASTM C 1087 - Test Method for Determining Compatibility of Liquid-Applied Sealants with Accessories Used in Structural Glazing Systems.
  8. ASTM C 1193 - Guide for Use of Joint Sealants.
  9. ASTM C 1247 - Standard Test Method for Durability of Sealants Exposed to Continuous Immersion in Liquids.
  10. ASTM C 1248 - Test Method for Staining of Porous Substrate by Joint Sealants.
  11. ASTM C 1311 - Specification for Solvent Release Sealants.
  12. ASTM C 1330 - Cylindrical Sealant Backing for Use with Cold Liquid Applied Sealants.
  13. ASTM D 412 - Test Methods for Vulcanized Rubber and Thermoplastic Elastomers— Tension.
  14. ASTM D 624 - Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers.
  15. ASTM D 2203 - Standard Test Method for Staining from Sealants.
  16. ASTM D 2240 - Test Method for Rubber Property - Durometer Hardness.
- C. California Department of Public Health: [www.cdph.ca.gov](http://www.cdph.ca.gov)



1. Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers.
- D. NSF International (NSF): [www.nsf.org](http://www.nsf.org):
1. Standard 51 - Food Equipment Materials.
- E. Sealant, Waterproofing, and Restoration Institute (SWRI): [www.swrionline.org](http://www.swrionline.org):
1. SWRI Validation Program.
- F. U. S. Environmental Protection Agency (EPA): [www.epa.gov](http://www.epa.gov):
1. 40 CFR 59, Subpart D - National Volatile Organic Compound Emission Standards for Architectural Coatings.
- G. U.S. Food and Drug Administration (FDA): [www.fda.gov](http://www.fda.gov):
1. 21 CFR 177.2600 - Title 21 Part 177 Indirect Food Additives: Polymers.
- H. US Green Building Council (USGBC): [www.usgbc.org](http://www.usgbc.org):
1. Leadership in Energy and Environmental Design (LEED) Green Building Rating System.

### 1.3 ADMINISTRATIVE REQUIREMENTS

- A. Coordination: Coordinate installation of joint sealants with cleaning of joint sealant substrates and other operations that may impact installation or finished joint sealant work.
- B. Preinstallation Conference: Conduct conference at Project Site.

### 1.4 ACTION SUBMITTALS

- A. Product Data: For each type of joint sealant product specified, including:
  1. Preparation instructions and recommendations.
  2. Standard drawings illustrating manufacturer's recommended sealant joint profiles and dimensions applicable to Project.
- B. Samples for Color Selection: For each joint sealant type.
- C. Samples for Verification: For each exterior joint sealant product, for each color selected.
- D. Joint Sealant Schedule: Include application, location, drawing designation, manufacturer and product name, and selected color.

### 1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified applicator.
- B. Greenguard Certificates: For each sealant and accessory product specified to meet volatile organic emissions standards of the Greenguard Children and Schools Certification.

- C. Sealant, Waterproofing, and Restoration Institute (SWRI) Validation Certificate: For each sealant specified to be validated by SWRI's Sealant Validation Program.
- D. Warranty: Sample of unexecuted manufacturer and installer special warranties.

#### 1.6 QUALITY ASSURANCE

- A. Installer Qualifications: Company with minimum of three years experience specializing in work of this section, employing applicators trained for application of joint sealants required for this project, with record of successful completion of projects of similar scope, and approved by manufacturer.
- B. Single Source Responsibility: Provide exterior joint sealants by a single manufacturer responsible for testing of Project substrates to verify compatibility and adhesion of joint sealants.
- C. Preconstruction Manufacturer Laboratory Compatibility, Staining, and Adhesion Testing: Submit samples of each substrate or adjacent material that will be in contact with or affect joint sealants. Current manufacturer test data of products on matching substrates will be acceptable.
  - 1. Adhesion: Use ASTM C 719 and ASTM C 794 to determine requirements for joint preparation, including cleaning and priming.
  - 2. Compatibility: Use ASTM C 1087 to determine materials forming joints and adjacent materials do not adversely affect sealant materials and do not affect sealant color.
  - 3. Stain Testing: Use ASTM C 510, ASTM C 1248, or ASTM D 2203 to verify non-staining characteristics of proposed sealants on specified substrates.
  - 4. Pre-construction manufacturer laboratory testing is not required when sealant manufacturer can furnish data acceptable to Designer based on previous testing for materials matching those of the Work.
- D. Preconstruction Field-Adhesion Testing: Prior to installing joint sealants, field test adhesion to joint substrates using ASTM C 1193 Method A. Verify adhesion is adequate. Modify joint preparation recommendations for failed joints and re-test. Submit written test report.

#### 1.7 DELIVERY, STORAGE AND HANDLING

- A. Accept materials on site in manufacturer's unopened original packaging.
- B. Store primers and sealants in dry location with ambient temperature range of 60 to 80 deg. F (15 to 27deg. C).

#### 1.8 ENVIRONMENTAL REQUIREMENTS

- A. Do not install primers or sealants when atmospheric temperatures or joint surface temperatures are less than 40 deg. F (4 deg. C).

#### 1.9 SCHEDULING

- A. Schedule work so waterproofing, water repellents and preservative finishes are installed after sealants, unless sealant manufacturer approves otherwise in writing.

- B. Ensure sealants are cured before covering with other materials.

#### 1.10 WARRANTY

- A. Special Manufacturer's Warranty: Manufacturer's standard form in which joint sealant manufacturer agrees to furnish joint sealants to repair or replace those that demonstrate deterioration or adhesive or cohesive failure under normal use within warranty period specified.

- 1. Warranty Period for Silicone Sealants: [Five] years date of Substantial Completion.

- B. Special Installer's Warranty: Original statement on Installer's letterhead in which Installer agrees to repair or replace joint sealants that demonstrate deterioration or failure within warranty period specified.

- 1. Warranty Period: Two years from date of Substantial Completion.

### PART 2 - PRODUCTS

#### 2.1 MANUFACTURERS

- A. Basis-of-Design Products: Provide joint sealant products manufactured by Tremco, Inc., Commercial Sealants and Waterproofing Division, An RPM Company, Beachwood OH; [or comparable products of other manufacturer approved by Designer in accordance with Instructions to Bidders and Division 01 General Requirements].

- B. Sika

- C. WR Meadows

- D. HILTI

- E. Other manufacturers as approved during bidding as prescribed in general conditions, and Division 01 requirements.

#### 2.2 MATERIALS, GENERAL

- A. Compatibility: Provide joint sealants and accessory materials that are compatible with one another, and with adjacent materials, as demonstrated by sealant manufacturer using ASTM C 1087 testing and related experience.

- B. Joint Sealant Standard: Comply with ASTM C 920 and other specified requirements for each joint sealant.

- C. Stain Test Characteristics: Where sealants are required to be nonstaining, provide sealants tested per ASTM C 1248 as non-staining on porous joint substrates specified.

#### 2.3 SILICONE JOINT SEALANTS

- A. Single-Component, Nonsag, Non-Staining, Moisture-Curing Silicone Joint Sealant: ASTM C 920, Type S, Grade NS, Class 100/50, Use NT; SWRI validated.

1. Basis of Design Product: Tremco, Inc., Spectrem 1 [or comparable products of other manufacturer approved by Designer in accordance with Instructions to Bidders and Division 01 General Requirements].
  2. Volatile Organic Compound (VOC) Content: 1 g/L maximum.
  3. Volatile Organic Emissions (VOE): Not greater than Greenguard Children & Schools Certification emissions levels.
  4. Staining, ASTM C 1248: None on concrete, marble, granite, limestone, and brick.
  5. Color: As selected by Designer from manufacturer's standard line of not less than 12 colors.
- B. Single-Component, Nonsag, Non-Staining, Neutral-Curing Silicone Joint Sealant: ASTM C 920, Type S, Grade NS, Class 50, Use NT; SWRI validated.
1. Basis of Design Product: Tremco, Inc., Spectrem 2 [or comparable products of other manufacturer approved by Designer in accordance with Instructions to Bidders and Division 01 General Requirements].
  2. Volatile Organic Compound (VOC) Content: 50 g/L maximum.
  3. Volatile Organic Emissions (VOE): Not greater than Greenguard Children & Schools Certification emissions levels.
  4. Staining, ASTM C 1248: None on concrete, marble, granite, limestone, and brick.
  5. Color: As selected by Designer from manufacturer's standard line of not less than 10 colors.
- C. Single-Component, Nonsag, Non-Staining, Neutral-Curing Silicone Joint Sealant: ASTM C 920, Type S, Grade NS, Class 50, Use NT.
1. Basis of Design Product: Tremco, Inc., Spectrem 3 [or comparable products of other manufacturer approved by Designer in accordance with Instructions to Bidders and Division 01 General Requirements].
  2. Volatile Organic Compound (VOC) Content: 20 g/L maximum.
  3. Volatile Organic Emissions (VOE): Not greater than Greenguard Children & Schools Certification emissions levels.
  4. Staining, ASTM C 1248: None on concrete, marble, granite, limestone, and brick.
  5. Color: As selected by Designer from manufacturer's standard line of not less than 15 colors.
- D. Multi-Component, Nonsag, Non-Staining, Field-Tintable Neutral-Curing Silicone Joint Sealant: ASTM C 920, Type M, Grade NS, Class 50, Use NT.
1. Basis of Design Product: Tremco, Inc., Spectrem 4-TS [or comparable products of other manufacturer approved by Designer in accordance with Instructions to Bidders and Division 01 General Requirements].
  2. Volatile Organic Compound (VOC) Content: 20 g/L maximum.
  3. Volatile Organic Emissions (VOE): Not greater than Greenguard Children & Schools Certification emissions levels.
  4. Staining, ASTM C 1248: None on concrete, marble, granite, limestone, and brick.
  5. Color: [Match Designer's custom color] [As selected by Designer from manufacturer's standard line of not less than 70 colors].
- E. Mildew-Resistant, Single-Component, Acid-Curing Silicone Joint Sealant: ASTM C 920, Type S, Grade NS, Class 25, Use NT.

1. Basis of Design Product: Tremco, Inc., Tremsil 200 Sanitary [or comparable products of other manufacturer approved by Designer in accordance with Instructions to Bidders and Division 01 General Requirements].
2. Volatile Organic Compound (VOC) Content: 1 g/L maximum.
3. Volatile Organic Emissions (VOE): Not greater than Greenguard Children & Schools Certification emissions levels.
4. Color: [White] [and] [Clear].

#### 2.4 URETHANE JOINT SEALANTS

- A. Single-Component, Nonsag, Moisture-Cure, Polyurethane Joint Sealant: ASTM C 920, Type S, Grade NS, Class 50, Use NT; Greenguard certified.

1. Basis of Design Product: Tremco, Inc., Dymonic 100 [or comparable products of other manufacturer approved by Designer in accordance with Instructions to Bidders and Division 01 General Requirements].
2. Volatile Organic Compound (VOC) Content: 40 g/L maximum.
3. Volatile Organic Emissions (VOE): Not greater than Greenguard Children & Schools Certification emissions levels.
4. Tensile Strength ASTM D412: 350 to 450 psi
5. Percent Elongation ASTM D412: 800 to 900%
6. Modulus at 100% ASTM D412: 75 to 85 psi
7. Tear Strength ASTM D412: 65 to 75 psi
8. Smoke Development ASTM E84: 5
9. Color: As selected by Designer from manufacturer's standard line of not less than 20 colors.

- B. Single-Component, Nonsag, Moisture-Cure, Polyurethane Hybrid Joint Sealant: ASTM C 920, Type S, Grade NS, Class 35, Use NT; Greenguard certified.

1. Basis of Design Product: Tremco, Inc., Dymonic FC [or comparable products of other manufacturer approved by Designer in accordance with Instructions to Bidders and Division 01 General Requirements].
2. Extrusion Rate ASTM C1183: 93.1 mL/min
3. Weight Loss ASTM C1246: Pass
4. Tack Free Time ASTM C679: 3 to 4 hr
5. Volatile Organic Compound (VOC) Content: 10 g/L maximum.
6. Volatile Organic Emissions (VOE): Not greater than Greenguard Children & Schools Certification emissions levels.
7. Color: As selected by Designer from manufacturer's standard line of not less than 15 colors.

- C. Single-Component, Nonsag, Polyurethane Joint Sealant: ASTM C920, Type S, Grade NS, Class 25, Use NT.

1. Basis of Design Product: Tremco, Inc., Vulkem 116 [or comparable products of other manufacturer approved by Designer in accordance with Instructions to Bidders and Division 01 General Requirements].
2. Volatile Organic Compound (VOC) Content: 60 g/L maximum.
3. Color: As selected by Designer from manufacturer's standard line of not less than 15 colors.

- D. Immersible, Single-Component, Pourable, Traffic Grade Polyurethane Joint Sealant: ASTM C 920, Type S, Grade P, Class 50, Use T and I.
1. Basis of Design Product: Tremco, Inc., Vulkem 45 SSL [or comparable products of other manufacturer approved by Designer in accordance with Instructions to Bidders and Division 01 General Requirements].
  2. Volatile Organic Compound (VOC) Content: 110 g/L maximum.
  3. Volatile Organic Emissions (VOE): Not greater than Greenguard Children & Schools Certification emissions levels.
  4. Color: As selected by Designer from manufacturer's standard line of not less than 5 colors.
- E. Immersible, Multi-Component, Pourable, Traffic-Grade Polyurethane Joint Sealant: ASTM C 920, Type M, Grade P, Class 35, Use T, O, and I.
1. Basis of Design Product: Tremco, Inc., Vulkem 445SSL [or comparable products of other manufacturer approved by Designer in accordance with Instructions to Bidders and Division 01 General Requirements].
  2. Tensile Strength, ASTM D 412: 250 psi (1.7 MPa), at 100 percent elongation.
  3. Tear Strength, ASTM D 412: 35 pli (6.1 kN/m).
  4. Adhesion to Concrete, After Water, ASTM C 794: 28 pli (4.4 kN/m)
  5. Hardness, ASTM C 661: 40 durometer Shore A, minimum.
  6. Accelerated Weathering, ASTM C 793: Pass.
  7. Volatile Organic Compound (VOC) Content: 106 g/L maximum.
  8. Color: As selected by Designer from manufacturer's standard line of 70 colors
- F. Multi-Component, Non-sag, Polyurethane Joint Sealant: ASTM C 920, Type M, Grade NS, Class 50, Use I.
1. Basis of Design Product: Tremco, Inc., Dymeric 240 FC [or comparable products of other manufacturer approved by Designer in accordance with Instructions to Bidders and Division 01 General Requirements].
  2. Volatile Organic Compound (VOC) Content: 0 g/L maximum.
  3. Volatile Organic Emissions (VOE): Not greater than Greenguard Children & Schools Certification emissions levels.
  4. Color: [Match Designer's custom color] [As selected by Designer from manufacturer's standard line of not less than 70 colors].

## 2.5 LATEX JOINT SEALANTS

- A. Latex Joint Sealant: Siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.
1. Basis of Design Product: Tremco, Inc., Tremflex 834 [or comparable products of other manufacturer approved by Designer in accordance with Instructions to Bidders and Division 01 General Requirements].
  2. Volatile Organic Compound (VOC) Content: 35 g/L maximum.
  3. Volatile Organic Emissions (VOE): Not greater than Greenguard Children & Schools Certification emissions levels.
  4. Color: White, paintable.

## 2.6 SOLVENT-RELEASE-CURING JOINT SEALANTS

### A. Butyl-Rubber-Based Joint Sealant: ASTM C 1311.

1. Basis of Design Product: Tremco, Inc., Tremco Butyl Sealant [or comparable products of other manufacturer approved by Designer in accordance with Instructions to Bidders and Division 01 General Requirements].
2. Volatile Organic Compound (VOC) Content: 250 g/L maximum.
3. Color: As selected by Designer from manufacturer's standard colors.

## 2.7 ACOUSTICAL SEALANTS

### A. Acoustical/Curtainwall Sealant: Single-component, non-hardening, non-sag, paintable synthetic rubber-tested to reduce airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing of similar assemblies according to ASTM E 90.

1. Basis of Design Product: Tremco, Inc., Tremco Acoustical/Curtainwall Sealant [or comparable products of other manufacturer approved by Designer in accordance with Instructions to Bidders and Division 01 General Requirements].
2. Volatile Organic Compound (VOC) Content: 160 g/L maximum.
3. Color: White, paintable.

## 2.8 PRE-FORMED SEALS

### A. Preformed Silicone Joint Seals [PS#1]: Manufacturer's standard seal consisting of precured low-modulus silicone extrusion, in sizes to fit applications indicated on Drawings, combined with a neutral-curing liquid silicone sealant for bonding seals to substrates.

1. Basis of Design Product: Tremco, Inc.; Spectrem SimpleSeal [or comparable products of other manufacturer approved by Designer in accordance with Instructions to Bidders and Division 01 General Requirements].

### B. Preformed Foam Joint Seals [PS#2]: Manufacturer's standard preformed, pre-compressed, open-cell foam seal manufactured from urethane foam with minimum density of 10 lb/cu. ft. (160 kg/cu. m), impregnated with water-repellent agent. Provide factory-produced pre-compressed sizes selected to fit joint widths; coated on one side with a pressure-sensitive adhesive.

1. Basis of Design Product: Tremco, illmod 600 [or comparable products of other manufacturer approved by Designer in accordance with Instructions to Bidders and Division 01 General Requirements].
2. Thermal conductivity ASTM C 518: .28-0.30 BTU-in/hr-°F-ft<sup>2</sup>
3. Thermal resistance ASTM C 518: 3.3-3.6 hr-°F-ft<sup>2</sup>/BTU
4. Frame spread ASTM E84: 0
5. Smoke development ASTM E84: 5
6. Volatile Organic Compound (VOC) Content: 0 g/L maximum.
7. Volatile Organic Emissions (VOE): Not greater than Greenguard Children & Schools Certification emissions levels.
8. Color: Black or Grey.

## 2.9 JOINT SEALANT ACCESSORIES

- A. Cylindrical Sealant Backing: ASTM C 1330, Type B non-absorbent, bi-cellular material with surface skin, or Type O open-cell polyurethane, as recommended by sealant manufacturer for application.
- B. Bond Breaker Tape: Polymer tape compatible with joint sealant and adjacent materials and recommended by sealant manufacturer.
- C. Joint Substrate Primers: Substrate primer recommended by sealant manufacturer for application.
- D. Cleaners: Chemical cleaners acceptable to joint sealant manufacturer.
- E. Masking tape: Non-staining, non-absorbent tape product compatible with joint sealants and adjacent joint surfaces.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

- A. Examine joint profiles and surfaces to determine if work is ready to receive joint sealants. Verify joint dimensions are adequate for development of sealant movement capability. Verify joint surfaces are clean, dry, and adequately cured. Proceed with joint sealant work once conditions meet sealant manufacturer's written recommendations.

### 3.2 PREPARATION

- A. Joint Surface Cleaning: Clean joints prior to installing joint sealants using materials and methods recommended by sealant manufacturer. Comply with ASTM C 1193.
  - 1. Remove curing compounds, laitance, form-release agents, dust, and other contaminants.
  - 2. Clean nonporous and porous surfaces utilizing chemical cleaners acceptable to sealant manufacturer.
  - 3. Protect elements surrounding the Work of this section from damage or disfiguration. Apply masking tape to adjacent surfaces when required to prevent damage to finishes from sealant installation.

### 3.3 SEALANT APPLICATION

- A. Sealant and Primer Installation Standard: Comply with ASTM C 1193 and manufacturer's written instructions.
- B. Joint Backing: Select joint backing materials recommended by sealant manufacturer as compatible with sealant and adjacent materials. Install backing material at depth required to produce profile of joint sealant allowing optimal sealant movement.
  - 1. Install joint backing to maintain the following joint ratios:
    - a. Joints up to 1/2 inch (13 mm) wide: 1:1 width to depth ratio.
    - b. Joints greater than 1/2 inch (13 mm) wide: 2:1 width to depth ratio; maximum 1/2 inch (13 mm) joint depth.



2. Install bond breaker tape over substrates when sealant backings are not used.
- C. Masking: Mask adjacent surfaces to prevent staining or damage by contact with sealant or primer.
- D. Joint Priming: Prime joint substrates when recommended by sealant manufacturer or when indicated by preconstruction testing or experience. Apply recommended primer using sealant manufacturer's recommended application techniques.
- E. Liquid Sealant Application: Install sealants using methods recommended by sealant manufacturer, in depths recommended for application. Apply in continuous operation from bottom to top of joint vertically and horizontally in a single direction. Apply using adequate pressure to fill and seal joint width.
1. Tool sealants immediately with appropriately shaped tool to force sealants against joint backing and joint substrates, eliminating voids and ensuring full contact.
  2. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
  3. Tool exposed joint surface concave using tooling agents approved by sealant manufacturer for application.
- F. Cleaning: Remove excess sealant using materials and methods approved by sealant manufacturer that will not damage joint substrate materials.
1. Remove masking tape immediately after tooling joint without disturbing seal.
  2. Remove excess sealant from surfaces while still uncured.
- G. Installation of Acoustical Sealant: At sound-rated assemblies and elsewhere as indicated, seal construction at perimeters, behind control joints, and at openings and penetrations on both sides of assemblies with a continuous bead of acoustical sealant. Comply with ASTM C 919 and with manufacturer's written recommendations.
- H. Installation of Preformed Seals: Install seals immediately after removing protective wrapping. Do not stretch or misshape material. Place seals to provide continuity at ends, turns, and intersections. Apply heat to sealant when recommended by sealant manufacturer's written instructions.

### 3.4 FIELD QUALITY CONTROL

- A. Field-Adhesion Testing: Perform adhesion tests in accordance with manufacturer's instructions and with ASTM C 1193, Method A.
1. Perform [5] tests for the first [1000 feet (300 m)] of joint length for each kind of sealant and joint substrate, and one test for each [1000 feet (300 m)] of joint length thereafter or 1 test per each floor per building elevation, minimum.
  2. For sealant applied between dissimilar materials, test both sides of joint.
- B. Remove sealants failing adhesion test, clean substrates, reapply sealants, and re-test. Test adjacent sealants to failed sealants.
- C. Submit report of field adhesion testing to Designer indicating tests, locations, dates, results, and remedial actions taken.

### 3.5 EXTERIOR JOINT-SEALANT SCHEDULE

- A. Exterior concealed transition joints in air barrier.
  - 1. Joint Sealant: Single-component neutral-curing low-modulus silicone sealant.
  - 2. Joint Sealant: Single-component non-sag urethane sealant.
  - 3. Compatibility: Compatible with air barrier components specified in 07 27 26 Fluid Applied Membrane Air Barriers, Vapor Retarding.
- B. Exterior movement joints in concrete unit masonry.
  - 1. Joint Sealant: Single-component neutral-curing non-staining silicone sealant.
  - 2. Joint Sealant: Multi-component neutral-curing non-staining field tintable silicone sealant.
  - 3. Joint Sealant: Single-component non-sag urethane sealant.
  - 4. Joint-Sealant Color: As selected by Designer from manufacturer's full range.
- C. Exterior movement joints in brick masonry.
  - 1. Joint Sealant: Single-component neutral-curing non-staining silicone sealant.
  - 2. Joint Sealant: Multi-component neutral-curing non-staining field tintable silicone sealant.
  - 3. Joint Sealant: Single-component non-sag urethane sealant.
  - 4. Joint-Sealant Color, Vertical Joints: As selected by Designer from manufacturer's standard colors.
  - 5. Joint-Sealant Color, Horizontal Joints: As selected by Designer from manufacturer's full range.
- D. Exterior exposed joints in metal panel cladding systems.
  - 1. Joint Sealant: Single-component neutral-curing non-staining silicone sealant.
  - 2. Joint Sealant: Multi-component neutral-curing non-staining field tintable silicone sealant.
  - 3. Joint-Sealant Color: As selected by Designer from manufacturer's full range.
- E. Exterior joints between different materials listed above.
  - 1. Joint Sealant: Single-component neutral-curing non-staining silicone sealant.
  - 2. Joint Sealant: Multi-component neutral-curing non-staining field tintable silicone sealant.
  - 3. Joint Sealant: Single-component non-sag urethane sealant.
  - 4. Joint-Sealant Color: As selected by Designer from manufacturer's full range.
- F. Exterior perimeter joints at frames of doors, windows, storefront frames, curtain wall frames, and louvers.
  - 1. Joint Sealant: Single-component neutral-curing non-staining silicone sealant.
  - 2. Joint Sealant: Multi-component neutral-curing non-staining field tintable silicone sealant.
  - 3. Joint Sealant: Single-component non-sag urethane sealant.
  - 4. Joint-Sealant Color: As selected by Designer from manufacturer's standard colors.

- G. Exterior joints within aluminum storefront framing, curtain walls, and window systems:
  - 1. Joint Sealant: Single-component neutral-curing non-staining silicone sealant.
  - 2. Joint-Sealant Color: As selected by Designer from manufacturer's full range.
- H. Exterior joints within structural glazing, aluminum storefront framing, curtain walls, and window systems: Refer to Division 08 Section ["Glazing Sealants"] ["Structural-Sealant-Glazed Curtain Walls"].
- I. All other exterior non-traffic joints.
  - 1. Joint Sealant: Single-component neutral-curing non-staining silicone sealant.
  - 2. Joint Sealant: Multi-component neutral-curing non-staining field tintable silicone sealant.
  - 3. Joint Sealant: Single-component non-sag urethane sealant.
  - 4. Joint-Sealant Color: As selected by Designer from manufacturer's full range.
- J. Exterior horizontal traffic and traffic isolation joints[: Refer to Division 32 Section "Concrete Paving Joint Sealants"].
  - 1. Joint Sealant: Single-component pourable urethane sealant.
  - 2. Joint-Sealant Color: As selected by Designer from manufacturer's full range.

### 3.6 INTERIOR JOINT-SEALANT SCHEDULE

- A. Interior vertical movement joints in exterior concrete and unit masonry.
  - 1. Joint Sealant: Single-component non-sag urethane sealant.
  - 2. Joint-Sealant Color: As selected by Designer from manufacturer's full range.
- B. Interior movement joints in interior unit masonry.
  - 1. Joint Sealant: Single-component non-sag urethane sealant.
  - 2. Joint-Sealant Color: As selected by Designer from manufacturer's full range.
- C. Interior perimeter joints of exterior aluminum frames.
  - 1. Joint Sealant: Single-component non-sag urethane sealant.
  - 2. Joint-Sealant Color: As selected by Designer from manufacturer's full range.
- D. Interior perimeter joints of interior frames.
  - 1. Joint Sealant: Single-component non-sag urethane sealant.
  - 2. Joint Sealant: Siliconized acrylic latex.
  - 3. Joint-Sealant Color: As selected by Designer from manufacturer's full range.
- E. Interior sanitary joints between plumbing fixtures, food preparation fixtures, and casework and adjacent walls, floors, and counters.
  - 1. Joint Sealant: Mildew-Resistant, Single-Component, nonsag, acid-curing silicone joint sealant.
  - 2. Joint-Sealant Color: As selected by Designer from manufacturer's full range.

- F. Interior traffic joints in floor and between floor and wall construction.
  - 1. Joint Sealant: Single-component pourable urethane sealant.
  - 2. Joint-Sealant Color: As selected by Designer from manufacturer's full range.
  
- G. Interior non-moving joints between interior painted surfaces and adjacent materials.
  - 1. Joint Sealant: Siliconized acrylic latex.
  - 2. Joint-Sealant Color: Paintable.
  
- H. Interior concealed sealants at thresholds and sills.
  - 1. Joint Sealant: Butyl-rubber-based joint sealant.
  
- I. Interior exposed and non-exposed acoustical applications:
  - 1. Joint Sealant: Acoustical joint sealant.

END OF SECTION 07 92 00

## SECTION 07 53 04

### ELASTOMERIC MEMBRANE ROOFING (EPDM) - FULLY ADHERED

#### PART 1 GENERAL

##### 1.1 SUMMARY

- A. Section includes membrane roofing system, base flashings, rigid insulation, and related components.
- B. Related Sections:
  - 1. Section 06 10 53 – Misc. Rough Carpentry
  - 2. Section 07 62 00 - Sheet Metal Flashing and Trim.
  - 3. Section 07 71 00 – Roof Specialties.

##### 1.2 REFERENCES

- A. ASTM International:
  - 1. ASTM C1278 – Standard Specification for Fiber-Reinforced Gypsum Panel.
  - 2. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.
  - 3. ASTM D412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers-Tension.
- B. FM Global:
  - 1. FM DS 1-28 - Wind Loads to Roof Systems and Roof Deck Securement.
- C. National Roofing Contractors Association:
  - 1. NRCA - The NRCA Roofing and Waterproofing Manual.
- D. Single Ply Roofing Institute:
  - 1. SPRI ES-1 - Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems.
- E. Underwriters Laboratories Inc.:
  - 1. UL - Fire Resistance Directory.
  - 2. UL 790 - Tests for Fire Resistance of Roof Covering Materials.
  - 3. UL 1256 - Fire Test of Roof Deck Construction.
  - 4. UL 1897 - Uplift Tests for Roof Covering Systems.

##### 1.3 SYSTEM DESCRIPTION

- A. Elastomeric Sheet Membrane Conventional Roofing System: Single ply membrane system with membrane flashings, rigid roof insulation, and adhesive applied membrane.

#### 1.4 PERFORMANCE REQUIREMENTS

- A. Conform to applicable NFPA for roof assembly fire hazard requirements.
- B. UL 790: Class A Fire Hazard Classification.

#### 1.5 SUBMITTALS

- A. Section 01 33 00 - Submittal Procedures.
- B. Shop Drawings: Indicate joint and termination detail conditions, conditions of interface with other materials. Indicate membrane layout and seam locations.
- C. Product Data: Submit characteristics on membrane materials, adhesives, seaming materials, flashing materials, and insulation.
- D. Manufacturer's Installation Instructions: Submit special precautions required for seaming membrane.
- E. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.
- F. Manufacturer's Field Reports: Indicate procedures followed; ambient temperatures, humidity, wind velocity during application.

#### 1.6 QUALITY ASSURANCE

- A. Perform Work in accordance with NRCA Roofing and Waterproofing Manual- Latest Edition.
- B. Provide periodic inspections and approval performed by roofing manufacturer's technical representative during the installation of roofing materials at intervals not exceeding each 30% of the total roof system installation. Written inspection report must be submitted to Architect/Engineer within 72 hours of inspection.

#### 1.7 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing the specified roof system with minimum five years documented experience.
- B. Applicator: Company specializing in performing Work of this section with minimum five years experience and approved by manufacturer.

#### 1.8 PRE-INSTALLATION MEETINGS

- A. Section 01 30 00 - Administrative Requirements: Preinstallation meetings.
- B. Convene minimum one week prior to commencing Work of this section.

- C. Manufacturer's representative shall review preparation, installation, and detailing procedures required to obtain the specified roof system warranty.
- D. Mandatory Startup Technical Service provided by manufacturer's representative must be completed prior to installation of new roof system membrane.

#### 1.9 DELIVERY, STORAGE, AND HANDLING

- A. Section 01 60 00 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.
- B. Deliver products in manufacturer's original containers, dry, undamaged, with seals and labels intact.
- C. Store products in weather protected environment, clear of ground and moisture.
- D. Protect foam insulation from direct exposure to sunlight.
- E. Store adhesives and solvent-based liquids away from excessive heat, sparks, and open flame.
- F. Store adhesives and sealants at temperature above 40° F.
- G. Store Products on roof deck in a manner to prevent deformation of deck and overloading the structure. Properly secure to prevent movement due to wind or other forces.

#### 1.10 ENVIRONMENTAL REQUIREMENTS

- A. Do not apply roofing membrane during inclement weather or when ambient temperatures are below 40 degrees F.
- B. Do not apply roofing membrane to damp or frozen substrate surface or when precipitation is expected or occurring.
- C. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed during same day.

#### 1.11 COORDINATION

- A. Section 01 30 00 - Administrative Requirements: Coordination and project conditions.
- B. Coordinate Work with installation of associated roof penetrations and metal flashings, as Work of this section proceeds.
- C. Schedule and execute work to prevent leaks and excessive traffic on completed roof sections. Care should be exercised to provide protection for the interior of the building and to ensure water does not flow beneath any completed sections of the membrane system.
- D. Do not disrupt activities in occupied spaces.

- E. Before beginning work, the roofing contractor must secure approval from the building owner's representative for the following:
  - 1. Areas permitted for personnel parking.
  - 2. Access to the site.
  - 3. Areas permitted for storage of materials and debris.
  - 4. Areas permitted for the location of cranes, hoists and chutes for loading and unloading materials to and from the roof.
- F. Interior stairs or elevators may not be used for removing debris or delivering materials, except as authorized by the building owner's representative.

## 1.12 WARRANTY

- A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for warranties.
- B. Furnish 30-year manufacturer's total system warranty including coverage of materials and installation and resulting damage to building resulting from failure to resist penetration of moisture. Warranty must be transferable with no dollar amount limitation and a minimum 72 Mph wind speed coverage and damage from hail up to and including 2" diameter hail.
  - 1. Furnish 3-year warranty on workmanship by Roofing Contractor.
  - 2. Provide all testing, inspections, and surveys required to obtain the specified roof system warranty.

## 1.13 SAFETY

- A. The contractor shall be solely responsible for all means and methods as they relate to safety and shall comply with all applicable local, state and federal requirements. All related personnel shall be instructed daily of the full-time requirement to maintain a safe environment for the contractors personnel and facility's occupants.

## PART 2 PRODUCTS

### 2.1 SINGLE PLY ROOFING - FULLY ADHERED

- A. Manufacturers:
  - 1. Versico; VersiGard White EPDM (0.090" non-reinforced)
  - 2. Elevate Roofing.; RubberGard EcoWhite Platinum EPDM (0.090" non-reinforced)
  - 3. Carlisle SynTec Systems; Sure-White EPDM (0.090" non-reinforced)
  - 4. Substitutions: Section 01 60 00 - Product Requirements.

### 2.2 COMPONENTS

- A. All components of the roof system shall be manufactured, supplied, or accepted in writing by the roof system manufacturer.
- B. Membrane: 90-mil thick, non-reinforced White EPDM membrane.
- C. Adhesive Materials:



1. Field Membrane and Flashing Adhesive: Cold-applied synthetic polymer bonding adhesive as recommended by membrane manufacturer.
  2. Thinner and Primers: As recommended by adhesive manufacturer, compatible with sheet membrane.
- D. Insulation: ASTM C1289, Type II, Class I, faced rigid cellular polyisocyanurate roof insulation, with the following characteristics:
1. Board Density: 2.0 pcf nominal.
  2. Compressive Strength: 20 psi minimum (Grade 2).
  3. Tapered panels shall have manufactured slope and minimum thicknesses as indicated on the Drawings.
  4. Thermal Resistance: Long Term Thermal Resistance (LTTR) R-Value: 5.7/inch.
- E. Base Sheet: SBS-modified asphalt base sheet meeting ASTM D6163 Type 1, Grade S for SBS-modified bituminous sheet materials using glass fiber reinforcements.
1. Mechanically attach to existing decking with fasteners and plates as recommended and approved by the roof system manufacturer.
- F. Coverboard: ½” Gypsum Cover Board conforming to ASTM E84, ASTM C473, ASTM E661, ASTM E96, ASTM C518, ASTM C1177, and ASTM C473, 900 psi compressive strength. Fully adhere coverboard to insulation.
- G. Insulation and Coverboard Adhesive: Low-rise, two component polyurethane adhesive as recommended and approved by the roof system manufacturer.

## 2.3 ACCESSORIES

- A. Sealant: One component urethane, non-sag, non-curing, gun grade elastomeric sealant provided by the roof system manufacturer.
- B. Joint Filler: Extruded closed-cell polyethylene foam or polyethylene jacketed polyurethane foam, non-bleeding, non-staining, oversized 30 to 50 percent.
- C. Surface Mounted Termination: Extruded aluminum termination bar and related fasteners by roof system manufacturer.
- D. Provide all adhesives, fasteners, tape, sealants and primer/solvent materials as recommended by membrane manufacturer.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Inspect existing conditions prior to commencing work, including elements subject to damage or movement during work of this section.
- B. After uncovering existing work, inspect conditions affecting performance of work.

- C. Verify surfaces and site conditions are ready to receive Work.
- D. Verify substrate is clean and smooth, free of depressions, waves, or projections, properly sloped to drains and valleys, and suitable for installation of roof system.
- E. Verify substrate surfaces are dry and free of snow or ice.
- F. Verify roof openings, curbs, pipes, sleeves, ducts, and vents through roof are solidly set, and reglets, and crickets are in place.

### 3.2 PREPARATION

- A. Remove all loose debris from the deck surface.
- B. The substrate surface shall be free of standing water, ice, or snow.

### 3.3 INSTALLATION

- A. Insulation Application:
  1. Lay boards with edges in moderate contact without forcing. Cut insulation to fit neatly to perimeter blocking and around penetrations through roof. Stagger joints horizontally and vertically if multiple layers are provided.
  2. Insulation shall be mechanically attached to existing roof deck as recommended and approved by the roof system manufacturer.
  3. Apply no more insulation than can be covered in the same day.
- B. Membrane Application:
  1. Consult manufacturer's published installation instructions for complete installation information.
    - a. Begin installation of roofing membrane in the presence of roof system manufacturer's technical personnel.
    - b. The roofing membrane shall be fully adhered to properly installed and prepared substrate surface. The surface shall be clean, dry, smooth, and free from contamination.
    - c. Attach membrane with full coverage of cold adhesive to properly installed and prepared substrate in accordance with the roof manufacturer's published installation instructions.
    - d. The membrane shall be cut to fit neatly around all penetrations and roof projections.
- C. Flashings and Accessories:
  1. Apply flexible flashings to seal membrane to vertical elements.
  2. Fabricate roofing control and expansion joints to isolate roof into areas as indicated on Drawings. Make joints watertight.
  3. Coordinate installation of related flashings.
  4. Seal flashings and flanges of items penetrating membrane.
- D. Execute work by methods to avoid damage to other work, and which will provide appropriate surfaces to receive patching and finishing.

- E. Refinish surfaces to match adjacent finish. For continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
- F. Fit work water-tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

### 3.4 FIELD QUALITY CONTROL

- A. Section 01 40 00 – Quality Requirements.
- B. Require site attendance of roofing materials' manufacturers prior to, during, and after installation of the Work.

### 3.5 CLEANING

- A. Section 01 70 00 – Execution and Closeout Requirements
- B. In areas where finished surfaces including the roofing membrane surface are soiled by Work of this section, consult manufacturer of surfaces for cleaning advice and conform to their documented instructions.
- C. The contractor must take all precautions necessary to protect the finished roof surface from being soiled by roofing asphalt or other work of this section. Clean, repair or replace defaced or disfigured finishes caused by Work of this section prior to substantial completion.

### 3.6 PROTECTION OF INSTALLED CONSTRUCTION

- A. Section 01 70 00 - Execution and Closeout Requirements: Protecting installed construction.
- B. The contractor must take all precautions necessary to protect areas of finished roof surface from being soiled during construction. Provide surface protection where traffic must continue over finished roof membrane.

END OF SECTION