

SECTION 07920

SEALANTS AND CAULKING

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Work Included: Throughout the work, caulk and seal all joints in conjunction with metal roofing, sheet metal work, wall penetrations, windows, doors, wall penetrations, and exterior masonry, plaster/stucco and concrete wall surfaces, where shown on the drawings and elsewhere as required to provide a positive barrier against passage of air and passage of moisture.

1.02 RELATED SECTIONS

- A. Section 07620 - Roof Related Sheet Metal
- B. Section 09790 – Exterior Cleaning
- C. Section 09830 – Elastomeric Wall Coating
- D. Section 09870 – Urethane Paint

1.03 SUBMITTALS

- A. As provided in Section 1330 and 01340 and as required by the consultant.
- B. Product Data: For each joint-sealant product indicated.
- C. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.
- D. Samples for Verification: For each type and color of joint sealant required. Install joint sealants in ½-inch wide joints formed between two 6-inch long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.
- E. Product Certificates: Signed by manufacturers of joint sealants certifying that products furnished comply with requirements and are suitable for the use indicated.
- F. SWRI Validation Certificate: For each elastomeric sealant specified to be validated by SWRI's Sealant Validation Program.
- G. Qualification Data: For firms and persons specified in "Quality Assurance" Article to

demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and the City of Houston's, and other information specified.

- H. Preconstruction Field Test Reports: Indicate which sealants and joint preparation methods resulted in optimum adhesion to joint substrates based on preconstruction testing specified in "Quality Assurance" Article.
- I. Field Test Report Log: For each elastomeric sealant application.
- J. Compatibility and Adhesion Test Reports: From sealant manufacturer indicating the following:
 - 1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.
 - 2. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.
- K. Product Test Reports: From a qualified testing agency indicating sealants comply with requirements, based on comprehensive testing of current product formulations.
- L. Warranties: Special warranties specified in this Section.

1.04 QUALITY ASSURANCE

- A. As provided in Section 01450 and the GENERAL CONDITIONS OF THE CONTRACT.
- B. Qualifications of Manufacturer
 - 1. Products used in the work included in this section shall be produced by manufacturers regularly engaged in the manufacturing of similar items and with a history of successful production and product installations.
- C. Qualifications of Installers
 - 1. Installers shall be a professional waterproofing contractor thoroughly trained and experienced in the necessary crafts. Installers shall be made familiar with any unique requirements specified for proper performance of the work in this section.
- D. Rejection

1. In the acceptance or rejection of work under this section, no allowance will be made for lack of skill or specification understanding on the part of the workmen. It shall be incumbent upon the contractor to use adequate numbers of skilled installers and to instruct them in the requirements of the project specifications as well as maintaining a set of the project specifications and drawings on the project site at all times

E. Replacement

1. In the event inadequate or improper installation is determined, contractor shall make all repairs and replacements required to render the installation compliant with the project specifications. Replacements, due to improper performance shall be at the sole cost of the contractor

1.05 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Coordinate delivery with the City of Houston.

B. Material containers, mixing, and dilution.

1. Containers shall be closed and sealed except when materials are being removed.
2. Follow Manufacturers' instructions for mixing and stirring.
3. Cements, adhesives, primers, coatings, and sealants which have been diluted or cut-back, after their manufacture shall not be incorporated into the Work.

1.06 ENVIRONMENTAL REQUIREMENTS

A. Work shall not commence during inclement weather.

B. Work shall not commence on a day when precipitation is imminent or probable.

C. Work shall not proceed over damp substrates.

D. Sealants, caulking, primers and adhesives shall not be applied when the surrounding air and surface temperature, relative humidity, or wind velocity is not within the range acceptable under the manufacturer's recommendations.

E. Do not begin work if rain is expected within twenty-four hours of application or, if temperatures are expected to fall below 50° F, during the duration of the job.

1.07 SEQUENCING AND SCHEDULING

- A. Proceed with new sealant installations concurrently with membrane and sheet metal installation on roofing. Wall renovation shall be performed concurrently with roof replacement work.
- B. Coordinate and schedule all phases of the Work of the Contract Documents with the City of Houston, Subcontractors, Material Suppliers and other parties as necessary to ensure the smooth and orderly transition of separate phases, or portions, of the Work, the timely placement of components and materials, including the complete cooperation between parties and proper execution of the Work.
- C. Work shall not be performed outside of normal business hours without the prior approval of the City representative.

1.08 WARRANTY

- A. General Warranty: Special warranties specified in this Article shall not deprive the City of other rights the City may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Special Installer's Warranty: Written warranty, signed by Installer agreeing to repair or replace elastomeric joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
 - 1. Warranty Period: Five years from date of Substantial Completion.
- C. Special Manufacturer's Warranty: Written warranty, signed by elastomeric sealant manufacturer agreeing to furnish elastomeric joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.
 - 1. Warranty Period: 10 years from date of Substantial Completion.
- D. Special warranties specified in this Article exclude deterioration or failure of elastomeric joint sealants from the following:
 - 1. Movement of the structure resulting in stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression caused by structural settlement or errors attributable to design or construction.
 - 2. Disintegration of joint substrates from natural causes exceeding design specifications.
 - 3. Mechanical damage caused by individuals, tools, or other outside agents.

4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 - PRODUCTS

2.01 SEALANTS

- A. General: Except as specifically otherwise directed by the City. Use only the type of sealants described in this section.
- B. Metal to metal joints:
 1. Dymeric, manufactured by Tremco
 2. Sonolatic NP-1, manufactured by Sonneborn
 3. SikaFlex, manufactured by Sika
 4. Taped metal joints:
 - a. 440 II Tape by Tremco.
- C. Metal to masonry or plaster/stucco:
 1. Polyurethane Sealant:
 - a. A low modulus high elongation, non-sag two part component gun grade polyurethane joint sealant with plus minus 25% joint movement capacity conforming to ASTM C920-87, Type M Grade NS, Class 25, Type II, Class A.
 - b. “NP-2”, as manufactured by Sonneborn.
- D. Glass to metal joints and metal to metal glazing joints:
 1. SilPruf SCS 9000 silicone sealant, manufactured by GE, or approved equal.

2.02 BACK-UP MATERIALS

- A. General: Use only those back-up materials which are specifically recommended for this installation by the manufacturer of the sealant used, and which are non-absorbent and non-staining. Back-up materials must be 1.5 times the width of the joint.

B. Acceptable Types Include:

1. Closed-Cell, Polyethylene Foam.

2.03 BOND PREVENTATIVE

A. Bond preventative materials: Adhesive Polyethylene strip as recommended by sealant manufacturer.

2.04 CLEANER

A. Xylol, toluene, or commercial solvent recommended by the sealant manufacturer.

2.05 PRIMER

A. Shall be as recommended by sealant manufacturer, if required.

2.06 OTHER MATERIALS

A. All other materials not specifically described but required for complete and proper caulking and installation of sealants shall be first quality of their respective kinds, new, and as selected by the contractor subject to the approval of the City.

PART 3 - EXECUTION

3.01 GENERAL

A. Examine the areas and conditions under which work of this section will be performed. Correct conditions detrimental to the proper and timely completion of the work. Do not proceed until unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Steel Surfaces

1. Use solvent to remove oil and grease, wiping the surfaces with clean rags.
2. When masking tape is used for a protective cover, remove the tape just prior to applying the sealant.

B. Glass, Concrete, Wood and Masonry Surfaces

1. All surfaces to come in contact with new sealants shall be dry, sound, well

brushed and free from dust.

2. Remove all bitumen and/or existing sealant and paint from the joint area.
3. Where surfaces have been treated remove the surface treatment by use of sandblasting or wire brushing.
4. Where back-up material is required inset the backer rod or bond breaker tape in the joint cavity to the depth required.
5. Structural cracks in masonry shall be routed as recommended by the sealant manufacturer to provide an acceptable joint for sealant installation.

3.03 INSTALLATION OF BACK-UP MATERIAL

- A. Use only the back-up material recommended by the manufacturer of the sealant and approved by the City for the particular installation, compressing the back-up material 25% to 50% to secure a positive and secure fit. When using back-up of tube or rod stock, avoid lengthwise stretching of the material. Do no twist or braid hose, or rod backup stock.

3.04 JOINT DESIGN

- A. Joint depth shall never be greater than width.
 1. Joint width is 1/4" to 1/2" wide, sealant depth at midpoint is to be 1/4".
 2. Joint width is 1/2" to 1" wide, sealant depth at midpoint is to be 3/8" to 1/2".
 3. Joint width is 1" to 2" wide, sealant depth at midpoint is to be 1/2".
- B. In deep joints, the sealant depth shall be controlled by the use of back-up materials to maintain the recommended depth.
- C. Where depth of joint does not permit the use of back-up material then a bond breaker strip must be installed to prevent three point bonding.

3.05 INSTALLATION OF SEALANTS

- A. General: Prior to the start of installation in each joint, verify the joint type according to the details in the drawings and verify that the required proportion of width of joint to depth of joint has been secured.
- B. Equipment: Apply sealant under pressure with hand or power-actuated gun or other

appropriate means. Guns shall have nozzle of proper size and shall provide sufficient pressure to completely fill joints as designed.

- C. Masking: Thoroughly and completely mask all joints where the appearance of sealant on adjacent surfaces would be objectionable.
- D. Installation of Sealant: Install the sealant in strict accordance with the manufacturer's recommendations as approved by the City, thoroughly filling all joints to the recommended depth.
- E. Tooling: Tool all joints to the profile shown on the details in the drawings. Tooling is to be done immediately after sealant application.

3.06 CLEAN UP

- A. Remove masking tape immediately after joints have been tooled.
- B. Keep adjacent surfaces clean and free from sealant as the installation progresses. Use solvent or cleaning agent as recommended by the sealant manufacturer.

END OF SECTION