

SECTION 07 92 00 JOINT SEALANTS

PART 1 GENERAL

1.01 REFERENCES

A. The following is a list of standards which may be referenced in this section:

1. ASTM International (ASTM):
 - a. C661, Standard Test Method for Indentation Hardness of Elastomeric-Type Sealants by Means of a Durometer.
 - b. C834, Standard Specification for Latex Sealants.
 - c. C920, Standard Specification for Elastomeric Joint Sealants.
 - d. C1193, Standard Guide for Use of Joint Sealants.

1.02 SUBMITTALS

A. Action Submittals:

1. Manufacturer's Product Data for each material used and surface preparation instructions.
2. Shop Drawings: Indicate where each product is proposed to be used.
3. Samples: Sealant type proposed for use showing color range available. Provide cured sealant samples.

B. Informational Submittals:

1. Installation instructions.
2. Documentation showing applicator qualifications, including representative projects and client contacts.
3. Special guarantee.
4. Manufacturer's Certificate of Compliance, in accordance with Section 01 67 00, Product Requirements.
5. Sustainable Design: In accordance with Section 01 81 13, Sustainable Design Requirements for Non-LEED™ Projects, document sustainability performance for items below.
 - a. Product Data for Low Emitting Materials-Adhesives, and Sealants:
 - 1) A complete list of adhesives and sealants used inside the building envelope during construction.
 - 2) Manufacturer's literature documenting VOC content of each product, and compliance with requirements of South Coast Air Quality Management District (SCAQMD) Rule No. 1168.

1.03 QUALITY ASSURANCE

- A. Applicator Qualifications: Minimum of 5 years' experience installing sealants in projects of similar scope.

1.04 ENVIRONMENTAL REQUIREMENTS

- A. Ambient Temperature: Between 40 degrees F and 80 degrees F (4 degrees C and 27 degrees C) when sealant is applied. Consult manufacturer when sealant cannot be applied within these temperature ranges.

1.05 SPECIAL GUARANTEE

- A. Product: Furnish manufacturer's extended guarantee or warranty, with Contracting Officer named as beneficiary, in writing, as special guarantee. Special guarantee shall provide for correction or, at the option of the Contracting Officer, removal and replacement of Work specified in this section found defective during a period of 3 years after the date of Substantial Completion. Duties and obligations for correction or removal and replacement of defective Work shall be as specified in the Contract Clauses.
- B. Conditions: No adhesive or cohesive failure of sealant.
- C. Sealed Joints: Watertight and weathertight with normal usage.

PART 2 PRODUCTS

2.01 GENERAL CHARACTERISTICS FOR SEALANT MATERIALS

- A. Physical Characteristics:
 - 1. Uniform, homogeneous.
 - 2. Free from lumps, skins, and coarse particles when mixed.
 - 3. Hardness of 15 minimum and 50 maximum, measured by ASTM C661 method.
 - 4. Color: Unless specifically noted, match color of the principal material adjoining area of application or request color selection by Contracting Officer.
- B. Functional Characteristics: Nonstaining, nonbleeding.
- C. Performance Characteristics:
 - 1. Immersible may be substituted for nonimmersible.
 - 2. Sealant and Sealant Primers:
 - a. Meet the following requirements:
 - 1) Volatile Organic Compound (VOC) Content: Comply with the following limits for VOC content when calculated

according to South Coast Air Quality Management District Rule 1168.

- a) Sealants:
 - (1) Architectural: 250 g/L.
 - (2) Nonmembrane Roof: 300 g/L.
 - (3) Other: 420 g/L.
- b) Sealants Primers:
 - (1) Architectural – Nonporous: 250 g/L.
 - (2) Architectural – Porous: 775 g/L.
 - (3) Modified Bituminous: 500 g/L.
 - (4) Others: 750 g/L.
- 2) Prohibition of Toxic Compounds: Comply with South Coast Air Quality Management District Rule 1168.

2.02 SEALANT TYPES

A. Type 1—Silicone, Nonsag, Nonimmersible:

- 1. Manufacturers and Products:
 - a. Dow Chemical Co.; DOWSIL 790.
 - b. Or equal.
- 2. Physical Characteristics: Silicone base, single-component, moisture curing.
- 3. Functional Characteristics: Capable of withstanding movement up to 50 percent of joint width.
- 4. Performance Characteristics: ASTM C920, Type S, Grade NS, Class 25.

B. Type 2—Multipart Polyurethane, Self-leveling, Immersible:

- 1. Manufacturers and Products:
 - a. Sika Chemical Corp.; Sikaflex 2c SL.
 - b. Or equal.
- 2. Physical Characteristics: Polyurethane base, multicomponent, chemical curing.
- 3. Functional Characteristics: Capable of being continuously immersed in water.
- 4. Performance Characteristics: ASTM C920, Type M, Grade P, Class 25.

C. Type 3—Multipart Polyurethane, Nonsag, Immersible:

- 1. Manufacturers and Products:
 - a. Sika Chemical Corp.; Sikaflex 2c NS TG.
 - b. Or equal.
- 2. Physical Characteristics Polyurethane base, multicomponent, chemical curing.

3. Functional Characteristics: Capable of being continuously immersed in water.
 4. Performance Characteristics: ASTM C920, Type M, Grade NS, Class 25.
- D. Type 5—One-part Polyurethane, Immersible:
1. Manufacturers and Products for Nonsag:
 - a. Sika Chemical Corp.; Sikaflex 1a.
 - b. Or equal.
 2. Manufacturers and Products for Self-leveling:
 - a. Sika Chemical Corp.; Sikaflex 1c SL.
 - b. Or equal.
 3. Physical Characteristics: Polyurethane base, single-component, moisture curing.
 4. Functional Characteristics: Capable of being continuously immersed in water.
 5. Performance Characteristics: ASTM C920, Type S, Grade NS or P, Class 25.
- E. Type 6—One-part Polyurethane, Nonimmersible:
1. Manufacturers and Products:
 - a. BASF; MasterSeal, NP-1.
 - b. Or equal.
 2. Physical Characteristics: Polyurethane base, single-component, moisture curing.
 3. Functional Characteristics: None.
 4. Performance Characteristics: ASTM C920, Type S, Grade NS, Class 25.
- F. Type 7—Multipart Polysulfide, Immersible:
1. Manufacturers and Products:
 - a. BASF; MasterSeal, two-part Polysulfide.
 - b. Or equal.
 2. Physical Characteristics: Polysulfide base, two-component, chemical curing.
 3. Functional Characteristics:
 - a. Capable of being continuously immersed in water.
 - b. For use above grade and below grade.
 4. Performance Characteristics: ASTM C920, Type M, Grade P or NS, Class 25.

G. Type 10—Sanitary Sealant:

1. Manufacturers and Products:
 - a. General Electric; Sanitary Sealant SCS1700.
 - b. Or equal.
2. Physical Characteristics: Silicone sealant similar to Type 1, above, formulated to resist mold growth and repeated exposure to high humidity while retaining adhesion, flexibility, and color.
3. Functional Characteristics: Capable of withstanding movement up to 50 percent of joint width.
4. Performance Characteristics: ASTM C920, Type S, Grade NS, Class 25.

H. Type 13—Tape Sealant:

1. Manufacturers and Products:
 - a. Emseal Joint Systems, Ltd.; AST—High Acrylic.
 - b. Or equal.
2. Physical Characteristics:
 - a. Compressible polyurethane foam impregnated with polybutylene or polymer-modified asphalt.
 - b. Color: Black.
 - c. Size: 3/4 inch wide by length required by expanded thickness recommended by manufacturer for particular application.
3. Functional Characteristics: None.
4. Performance Characteristics:
 - a. Tensile Strength (ASTM D3574): 21 psi minimum.
 - b. Elongation (ASTM D3574): 150 percent minimum.
 - c. Temperature Range (ASTM C711): Negative 40 degrees F to 185 degrees F.
 - d. Excellent UV and Mildew resistance.
 - e. Low Temperature Flexibility (ASTM C711): No cracking or splitting.

2.03 BACKUP MATERIAL

A. Manufacturers and Products:

1. BASF; MasterSeal 920 and 921 (Closed-cell Backing Rod).
2. Or equal.

B. Physical Characteristics:

1. Nongassing, extruded, closed-cell round polyurethane foam or polyethylene foam rod.
2. Size: As shown or as recommended by sealant material manufacturer. Provide for joints greater than 3/16 inch wide.
3. Color: Gray or black.

- C. Functional Characteristics: Compatible with sealant used, and as recommended by sealant manufacturer.
- D. Performance Characteristics:
 - 1. ASTM C1330, Type C for closed-cell polyethylene foam.
 - 2. ASTM C1330, Type B for polyethylene foam with continuous outer skin.

2.04 ANCILLARY MATERIALS

- A. Bond Breaker: Pressure sensitive tape as recommended by sealant manufacturer to suit application.
- B. Joint Cleaner: Noncorrosive and nonstaining type, recommended by sealant manufacturer; compatible with joint forming materials.
- C. Primer: Nonstaining type recommended by sealant manufacturer to suit application.

PART 3 EXECUTION

3.01 GENERAL

- A. Use of more than one material for the same joint is not allowed unless approved by sealant manufacturer.
- B. Install joint sealants in accordance with ASTM C1193.
- C. Horizontal and Sloping Joints up to 1 Percent Maximum Slope: Use self-leveling (Grade P) joint sealant.
- D. Steeper Sloped Joints, Vertical Joints, and Overhead Joints: Use nonsag (Grade NS) joint sealant.
- E. Use joint sealant as required for the applicable application and as follows:

<u>Joint Size</u>	<u>Sealant Type</u>
Less than 1"	1, 2, 3, 5, 6, 7, or 10
Less than 2"	1, 2, 3, or 7
Over 2"	Follow manufacturer's recommendation

3.02 PREPARATION

- A. Verify that joint dimensions, and physical and environmental conditions, are acceptable to receive sealant.
- B. Surfaces to be sealed shall be clean, dry, sound, and free of dust, loose mortar, oil, and other foreign materials.
 - 1. Mask adjacent surfaces where necessary to maintain neat edge.
 - 2. Starting of work will be construed as acceptance of subsurfaces.
 - 3. Apply primer to dry surfaces as recommended by sealant manufacturer.
- C. Verify joint shaping materials and release tapes are compatible with sealant.
- D. Examine joint dimensions and size materials to achieve required width/depth ratios.
- E. Follow manufacturer's instructions for mixing multi-component products.

3.03 INSTALLATION

- A. Use joint filler to achieve required joint depths, to allow sealants to perform intended function.
 - 1. Install backup material as recommended by sealant manufacturer.
 - 2. Where possible, provide full length sections without splices; minimize number of splices.
 - 3. Tape sealant may be used as joint filler if approved by sealant manufacturer.
- B. Use bond breaker where recommended by sealant manufacturer.
- C. Seal joints around window, door and louver frames, expansion joints, control joints, and elsewhere as indicated.
- D. Joint Sealant Materials: Follow manufacturer's recommendation and instructions, filling joint completely from back to top, without voids.
- E. Joints: Tool slightly concave after sealant is installed.
 - 1. When tooling white or light color sealant, use a water wet tool.
 - 2. Finish joints free of air pockets, foreign embedded matter, ridges, and sags.
- F. Tape Sealant: Compress to 50 percent of expanded thickness and install in accordance with manufacturer's instructions.

3.04 CLEANING

- A. Clean surfaces next to the sealed joints of smears or other soiling resultant of sealing application.
- B. Replace damaged surfaces resulting from joint sealing or cleaning activities.

3.05 JOINT SEALANT SCHEDULE

- A. This schedule lists the sealant types acceptable for each joint location. Use as few different sealant types as possible to meet the requirements of Project.

Joint Locations	Sealant Type(s)
Expansion/Contraction and Control Joints At:	
Concrete Walls (except water-holding and belowgrade portions of structures)	1, 3, 5, 6
Concrete Floor Slabs (except for water-holding Structures)	2, 5
Concrete Walls and Slabs immersed in water and/or below grade	7
Slabs Subject to Vehicle and Pedestrian Traffic	2, 5
Masonry Walls	1, 3, 5, 6, 7, 13
Ceramic Tile Floors	1, 2, 5, 10
Ceramic Tile Walls	1, 3, 5, 10
Material Joints At:	
Metal Door, Window, and Louver Frames (Exterior)	1, 5, 6
Metal Door, Window, and Louver Frames (Interior)	1, 5, 6
Wall Penetrations (Exterior)	1, 5, 6
Wall Penetrations (Interior)	1, 5, 6
Floor Penetrations	5, 6, 7
Ceiling Penetrations	1, 3, 5, 6, 7
Roof Penetrations	5
Sheet Metal Flashings	5, 13
Sheet Metal Roofing	5, 13

Joint Locations	Sealant Type(s)
Other Joints:	
Threshold Sealant Bed	5
Between Counter Tops and Backsplashes	10
Around Plumbing Fixtures	10
Openings Around Pipes, Conduits, and Ducts Through Fire-Rated Construction	As specified in Section 07 84 00, Firestopping

END OF SECTION

