

SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Joint sealants for interior and exterior joints in vertical surfaces and horizontal nontraffic surfaces, except as otherwise specified.
2. Joint sealants and fillers in interior concrete floor slab-on-grade joints.
3. Joint sealant and fillers in exterior concrete sidewalks and pavement adjacent to building.

1.2 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.
- B. ASTM International (ASTM):
 1. ASTM C920 - Specification for Elastomeric Joint Sealants.
 2. ASTM C1330 - Cylindrical Sealant Backing for Use with Cold Liquid Applied Sealants.
 3. ASTM D 1056 - Flexible Cellular Materials-Sponge or Expanded Rubber.
 4. ASTM E84 - Test Method for Surface Burning Characteristics of Building Materials

1.3 QUALITY ASSURANCE

- A. Interior sealants in food preparation areas shall meet the compositional requirements for use in USDA regulated facilities, as required by FDA according to 21 CFR 177.2600, and local authorities having jurisdiction.

1.4 ENVIRONMENTAL REQUIREMENTS

- A. Do not install solvent curing sealants in enclosed building spaces.
- B. Maintain temperature and humidity recommended by sealant manufacturer during and after installation.

PART 2 - PRODUCTS

2.1 ELASTOMERIC SEALANTS (BUILDING)

- A. General: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.
- B. Sealants identified as (Non-USDA) shall not be used in food preparation areas.
- C. Manufacturers:
 1. BASF Building Systems (Formerly Sonneborn Building Products). (952) 496-6000, Craig Agney.
 2. Convenience Products, (800) 325-6180.
 3. CSS Polymers, Inc. (770) 645-0101.
 4. Dow Corning Corporation. www.dowcorning.com
 5. Euclid Chemical Co., (877) 438-3826.
 6. Franklin International, (800) 877-4583.
 7. GE Silicones & GE Sealants and Adhesives (Momentive Performance Materials). (877) 943-7325 www.gesilicones.com
 8. Metzger/McGuire, (800) 223-6680.
 9. Pecora Corporation. (215) 796-1401, Keith Waters. www.pecora.com
 10. Tremco Sealant/Weatherproofing Division. (800) 841-3778. Jack Sykes. www.tremcosealants.com

11. VersaFlex Inc. (913) 321-1416
12. W. R. Meadows, Inc., (847) 214-2100.

D. Polyurethane Sealants (USDA Certified, unless otherwise noted):

1. Polyurethane Sealant #1 (P1): ASTM C920, Type S, Grade NS, Class 25, single component.
 - a. Vulkem 116, Dymonic, or Dymonic FC by Tremco.
 - b. Dynatrol I-XL, by Pecora.
 - c. Sonolastic NP-1, by BASF.
2. Polyurethane Sealant #2 (P2): ASTM C920, Type S, Grade P, Class 25, single component.
 - a. Vulkem 45 (Non-USDA), by Tremco.
 - b. Urexpan NR-201, by Pecora.
 - c. Sonolastic SL-1, by Sonneborn.
3. Polyurethane Sealant #3 (P3): ASTM C920, Type M, Grade NS, Class 50, multi-component.
 - a. Dymeric 240FC, by Tremco.
 - b. Sonolastic NP-2 by BASF.
 - c. Dynatrol II (Non-USDA) by Pecora.

E. Silicone Sealants (USDA Certified, unless otherwise noted):

1. Silicone Sealant #1 (S1): ASTM C920, Type S, Grade NS, Class 25.
 - a. Spectrem 1, Spectrem 2, or Spectrem 3, by Tremco.
 - b. 791 Silicone Perimeter Sealant (Non-USDA), by Dow
 - c. 864 or 890 by Pecora.
 - d. Sonolastic 150 by BASF.
 - e. SilPruf (Non-USDA), by GE.
 - f. Titebond 100% Silicone Sealant by Franklin International.
2. Silicone Sealant #2 (S2): ASTM C920, Type S, Grade NS, Class 25, mildew resistant.
 - a. Tremsil 200, by Tremco.
 - b. 898 by Pecora.
 - c. 786 Silicone Sealant (Non-USDA), by Dow.
 - d. Sanitary SCS 1700 (Non-USDA), by GE.

F. Sealant Color:

1. In interior and exterior exposed areas, match color of adjacent paint color finish or other adjacent finish color.
2. In joints where plumbing fixtures meet adjacent floor and wall finishes, match color of plumbing fixture.
3. Use clear, colorless sealant where applied to stainless steel surfaces.

2.2 EXPANDING FOAM SEALANTS

A. Polyurethane Expanding Foam Sealants:

1. Polyurethane Expanding Foam Sealant #1 (EF1): Closed-cell foam and non-flammable propellant; urea formaldehyde-free, CFC-free; UL Class 1 Foam with flame spread of 20 and smoke developed of 25 as tested in accordance with ASTM E84.
 - a. Touch'n Seal Quick Cure, by Convenience Products.
 - b. Space Invader by GE Sealants & Adhesives, (877) 943-7325.

2.3 JOINT FILLER (BUILDING)

A. Preformed Control Joint Filler:

1. Regular Joint: 2-5/8 inches by 1-1/2 inches; rubber.
 - a. RS-STANDARD Control Joint by Hohmann & Barnard, Inc., Hauppauge, NY (800) 645-0616.
 - b. Masonry Control Joint No. 571 by Greenstreak, St. Louis, MO (800) 325-9504.
2. Tee Joint: 2-5/8 inches by 1 inch; rubber.
 - a. RS-TEE Control Joint by Hohmann & Barnard.
 - b. Masonry Control Joint No. 572 by Greenstreak.

B. Expansion Joint Filler (Compression Seal):

1. Backerseal (Grayflex) expanding precompressed foam by Emseal Joint Systems, Ltd., Westborough, MA

- (800) 526-8365.
2. Willseal 600 polyurethane foam joint sealing tape by Willseal USA, Pelham, NH (800) 438-0684.

2.4 JOINT-SEALANT BACKING (BUILDING)

- A. Sealant Backing (Backer Rod): Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
 1. Cylindrical Sealant Backings: ASTM C 1330, types as approved by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:
 - a. Backer Rod for Exterior Masonry: Closed cell foam, oversized 50 percent; self-expanding.
 2. Elastomeric Tubing Sealant Backings: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D 1056,
- B. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

2.5 INTERIOR SLAB ON GRADE JOINT SEALANT MATERIALS

- A. Preformed Expansion (Isolation) Joint Filler (**PMEJ**) Strips: Flexible closed-cell synthetic foam expansion joint strips, non-extruding, for full depth of concrete.
 1. Ceramar Flexibe Foam Expansion Joint, by W.R. Meadows.
 2. Deck-O-Foam Expansion Joint Filler, by W.R. Meadows
 3. Expansion Joint Filler, by BASF Building Systems (Degussa) (Formerly Sonneborn Sonolastic).
- B. Elastomeric Joint Materials:
 1. Sealant:
 - a. Polyurethane Sealant: No. 2 (**P2**) as specified above.
 - b. Color: Match color of adjacent exposed surface of concrete slab..
 - c. Sealant shall be compatible with construction material placed against it.
 2. Joint Back-Up Material:
 - a. Polyethylene Foam, 100% closed cell.
 - b. Material shall be compatible with construction material to be placed against it such as tile adhesive.
- C. Polyurea Joint Filler (**PY1**): Rapid setting, two-component polyurea polymer liquid of 100% solids content, Shore Hardness 85 to 92, compatible with construction material placed against it. (USDA Certified, unless otherwise noted.)
 1. Spall-Pro RS 88 (Non-USDA), by Metzger/McGuire.
 2. Euco Qwik Joint 200 (Non-USDA), by Euclid Chemical.
 3. VersaFlex SL/85, by VersaFlex.
 4. Quick Joint 85, by CSS Polymers.
 5. Match color of adjacent exposed surface of concrete.
- D. Joint Filler Stain Preventing Film:
 1. SPF by Metzger/McGuire.
 2. Euco CleanCut by Euclid.

2.6 EXTERIOR PAVEMENT JOINT MATERIALS

- A. Joint Back-up Material: Polyethylene foam, 100% closed cell
- B. Sealant:
 1. Dow 888, by Dow Corning.
 2. 301 NS by Pecora.
 3. Spectrum 800 or 900 by Tremco.

- C. Soft Preformed Joint Filler: Flexible closed-cell non-extruding synthetic foam expansion joint strips.
 - 1. Ceramar Flexibe Foam Expansion Joint, by W.R. Meadows.
 - 2. Deck-O-Foam Expansion Joint Filler, by W.R. Meadows
 - 3. Expansion Joint Filler, by BASF Building Systems (Degussa) (Formerly Sonneborn Sonolastic).

2.7 ACCESSORIES

- A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.
- B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that surfaces and joint openings are ready to receive work and field measurements are as indicated on Drawings.
- B. Beginning of installation means installer accepts existing substrates.

3.2 PREPARATION

- A. Clean and prime joints in accordance with manufacturer's instructions.
- B. Remove loose materials and foreign matter which might impair adhesion of sealant.
- C. Verify that joint backing and release tapes are compatible with sealant.
- D. Protect elements surrounding work of this Section from damage or disfiguration.

3.3 INSTALLATION

- A. Install sealant in accordance with manufacturer's instructions.
- B. Measure joint dimensions and size materials to achieve required width/depth ratios.
- C. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
 - 1. Do not leave gaps between ends of sealant backings.
 - 2. Do not stretch, twist, puncture, or tear sealant backings.
 - 3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
- D. Install bond breaker where joint backing is not used.
- E. Apply sealant within recommended temperature ranges. Consult manufacturer when sealant cannot be applied within recommended temperature ranges.
- F. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
- G. Tool joints concave.

3.4 INTERIOR SLAB ON GRADE JOINT SEALING AND FILLING

A. General:

1. Seal/fill contraction, isolation and construction joints in floor slabs and pavements, unless otherwise indicated on Drawings or specified herein.
2. Unless noted otherwise, use polyurea joint filler in floor slab contraction and construction joints and use elastomeric joint sealant in isolation joints.
3. Use pavement sealant in pavement's contraction, construction, and isolation joints.
4. Do not seal joints with materials specified herein when below relatively impervious floor finish material, such as PVC flooring, sheet rubber, wood, epoxy topping; refer to floor finish specification for joint sealing requirements.
5. Do not place polyurea joint filler under resilient flooring. Coordinate placement of polyurea joint filler with joint filler placement specified under resilient flooring as specified in Section 09650.

B. Cleaning:

1. Immediately prior to sealing/filling, clean joints to full depth of sealant/filler in accordance with manufacturer's recommendation.
2. Remove dirt, debris, saw laitance, and other foreign material from joint. Clean inner joint walls mechanically using dustless dry-cut saw, or similar tool, to the full depth of saw cuts and 2 inch minimum depth in construction joints.
3. Remove form release agent, curing compound, or other components.

C. General Installation:

1. Commence placing floor joint sealant / filler no sooner than 30 days after first placement of concrete.
2. If joint is wet or damp, allow joint to dry for 72 hours prior to filling.
3. Delay floor joint sealing / filling operations until facility's environmental systems have been placed in operation for 14 days.
4. Mix and install sealant and filler in accordance with manufacturer's recommendations. Use primer if recommended for specific application.
5. Choke off shrinkage crack if necessary at bottom of contraction joint or void below construction joints by the following methods.
 - a. Saw Cut Contraction Joints:
 - 1) Place 1/8 inch to 1/4 inch (maximum) layer of dry-bagged silica sand. Do not use compressible backer rod.
 - b. Construction Joints Through Slab: Fill by one of the following methods:
 - 1) Fill joint with dry-bagged silica sand to within 2 inches of slab surface.
 - 2) Insert compressible backer rod to a minimum depth of 2 inches below slab surface.
6. Do not allow sealant / filler to extend over joint edges in finished condition.

D. Elastomeric Joint Sealant Installation:

1. Use joint back-up material.
2. Tool surface to provide smooth, attractive appearance and geometry recommended by sealant manufacturer.

E. Joint Filler Installation

1. Installation shall be by installer who is approved in writing by the manufacturer's corporate office for this project.
2. Do not use joint back-up material (i.e. backer rod, sand, etc.) except below bottom of saw cut in construction joints. Provide a minimum joint filler depth of 2 inches.
3. Install test sample of the polyurea joint filler to determine if filler will leave a stain, shadow, or film on slab surface.
4. If test sample reveals stain, shadow, or film, use joint filler stain preventing film at joints to receive polyurea joint filler.
5. Fill joint using single pass method. Fill joint full depth from bottom to top, leave slight crown at slab surface.
6. Add extra filler prior to filler set if needed to prevent depressed areas. If concave filler is already set, abrade with wire wheel or similar tool to minimum depth of 1/4" below surface prior to refilling.
7. Razor off crowned filler flush with floor surface after filler has sufficiently set.

8. Remove stain preventing film (if used). Film shall be removed by joint filler installer immediately after shaving joint filler.
 9. One week prior to Grand Opening, refill joints if:
 - a. Joint filler sidewall separation or splitting exceeds 1/32 in.
 - b. Joint filler surface profile is concave, crowned, or chattered or if voids occur.
 10. Follow manufacturer's requirements for joint preparation for proper adhesion.
- F. Isolation Joints: Form isolation joints of preformed joint-filler strips (PMEJ) where indicated.
1. Extend joint fillers full width and depth of joint.
 2. Terminate joint filler or otherwise provide joint sealant cavity of not less than 1/2 inch or more than 1 inch below finished surface if joint sealant is indicated.
 3. Place top of joint filler flush with finished concrete surface if joint sealant is not indicated.
 4. Furnish joint fillers in one-piece lengths. Where more than one length is required, lace or clip joint-filler sections together.
 5. Protect top edge of joint filler during concrete placement with metal, plastic, or other temporary preformed cap. Remove protective cap after concrete has been placed on both sides of joint.

3.5 EXTERIOR SIDEWALK AND PAVEMENT JOINT SEALING AND FILLING

- A. Fill and seal sidewalk and pavement joints in areas of pavement adjacent to the building. Joint filling and sealing of sidewalks and pavement not adjacent to building is specified in Division 2.
- B. Joint Fillers: Extend joint fillers full-width and depth of joint, and not less than 1/2-inch or more than 1-inch below finished surface where joint sealer is indicated. Furnish joint fillers in 1-piece lengths for full width being placed, wherever possible. Where more than 1 length is required, lace or clip joint filler sections together.
- C. Joint Sealants: Joints shall be sealed as shown and scheduled and shall be installed in accordance with manufacturer's recommendations.

3.6 SCHEDULE

- A. Provide sealants in accordance with the following schedule. Joint sealing required by the drawings or required for a complete and proper installation but not listed in the following schedule shall be sealed as necessary regardless of whether shown or scheduled. Such joints not shown or scheduled shall be sealed with sealants consistent with specified materials or as recommended by the manufacturer for the specific application.

<u>LOCATIONS</u>	<u>TYPE</u>
Metal Flashing	S1
Aluminum Store Front	P1 or P3
Hollow Metal Door Frame	P1 or P3
Thresholds	P1 or P3
Vent Flashing Joints	S1
RTU Flashing Joints	S1
Waterproof Membrane Termination Bar	S1
Gutter and Downspouts	S1
Flue Penetrations	P1 or P3
Mop Sink	P1 or P3
Wood Base at Concrete Floor	P1 or P3
CMU Control Joint	P1
Ceramic Tile at wood or steel	P1 or P3
FRP at Base	S1 or S2
Sink	S2
Toilets and Urinals	S2
Pre-manufactured Cooler at Concrete Floor	P1 or P3
Stainless Steel Equipment or Trim	S1 or S2
Plastic Laminates	S2
Building Siding	as required by siding manufacturer