

SECTION 07 90 05

JOINT SEALERS

PART 1 – GENERAL

1.1 PURPOSE

- A. This guideline is intended to provide useful information to the Professional Service Provider (PSP) to establish a basis of design. PSP is to apply the principles of this section such that the University of Texas at Arlington (UTA) may achieve a level of quality and consistency in the design and construction of their facilities. Deviations from these guidelines must be approved by UTA and may require justification through Life Cycle Cost (LCC) analysis and submitted to UTA for approval.

1.2 LESSONS LEARNED AND DESIGN CONSIDERATIONS

- A. X

1.3 SECTION INCLUDES

- A. Sealants and joint backing.
- B. Pre-compressed foam sealers.

1.4 RELATED REQUIREMENTS

- A. Section 07 84 00 – Firestopping: Firestopping sealants.
- B. Section 08 80 00 – Glazing: Glazing sealants and accessories.
- C. Section 09 21 16 – Gypsum Board Assemblies: Acoustic sealant.
- D. Section 09 30 00 – Tiling: Sealant used as tile grout.

1.5 REFERENCE STANDARDS

- A. ASTM C834 - Standard Specification for Latex Sealants; current edition.
- B. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; current edition.
- C. ASTM C1193 - Standard Guide for Use of Joint Sealants; current edition.

1.6 SUBMITTALS

- A. See Division 01 for submittal procedures.
- B. Product Data: Provide data indicating sealant chemical characteristics, performance criteria, substrate preparation, limitations, color availability, and non-staining qualities.
- C. Samples: Submit two cured samples, 4 inch long in size illustrating sealant colors for selection.
- D. Manufacturer's Installation Instructions: Indicate special procedures, surface preparation, perimeter conditions requiring special attention, and requirements for completing sealant intersections when different materials are joined.
- E. Test Reports:
 - 1. Submit results of laboratory pre-construction testing.
 - 2. Submit results of field pre-construction testing.
 - 3. Submit manufacturer's recommendations for joint preparation, priming, and joint accessory materials based on test results.
 - 4. Submit manufacturer's recommended installation procedure modifications resulting from field adhesion tests.
- F. Manufacturer's Field Reports:
 - 1. Indicate time present at project site.
 - 2. Include observations, indicate compliance with manufacturer's installation instructions, and supplemental instructions provided to installers.

1.7 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum ten years documented experience.
- B. Applicator Qualifications: Company specializing in performing the work of this section with minimum three years documented experience and approved by manufacturer.
- C. Sealant Compatibility and Adhesion Test Report: Confirm by manufacturer that sealants will not stain or

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damage stone. Include interpretation of test results and recommendations for primers and substrate preparation needed for adhesion.

D. Laboratory Pre-Construction Testing:

1. Test sealants, joint accessories, and joint substrates in accordance with the following, before starting work of this section:
 - a). Obtain samples of joint substrate products specified in other sections.
 - b). Adhesion: ASTM C 794 and ASTM C 719; determine surface preparation and required primer.
 - c). Compatibility: ASTM C 1087; determine materials forming joints and adjacent materials do not adversely affect sealant materials and do not affect sealant color.
 - d). Staining: ASTM D 2203, ASTM C 510, or ASTM C 1248; determine sealants will not stain joint substrates.
 - e). Sealant Compatibility and Adhesion Test Report: From sealant manufacturer complying with requirements in Section 07 92 00 "Joint Sealants" and indicating that sealants will not stain or damage stone. Include interpretation of test results and recommendations for primers and substrate preparation needed for adhesion.

E. Field Pre-Construction Testing:

1. Test each sealant and joint substrate in accordance with the following, before beginning work of this section:
 - a). Install sealants in mockups using joint preparation methods determined by laboratory pre-construction testing.
 - b). Install field-test joints in inconspicuous location as approved by Architect.
 - c). Test Method: Manufacturer's standard field adhesion test to verify joint preparation and primer required to obtain optimum adhesion of sealants to joint substrate.
2. When test indicates sealant adhesion failure, modify joint preparation, primer, or both and retest until joint passes sealant adhesion test.
3. Listing in the current-year classification or certification books of UL, FM, or ITS (Warnock Hersey) or Omega Point Laboratory will be considered as constituting an acceptable test report.
4. Valid evaluation report published by ICC Evaluation Service, Inc. (ICC-ES) at www.icc-es.org will be considered as constituting an acceptable test report.
5. Submission of actual test reports is required for assemblies for which none of the above substantiation exists.

1.8 MOCK-UP

- A. Provide mock-up of sealant joints in conjunction with window, wall, and air barrier system under provisions of Division 01.
- B. Construct mock-up with specified sealant types and with other components noted.
- C. Locate where directed.
- D. Mock-up may not remain as part of the Work.

1.9 FIELD CONDITIONS

- A. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

1.10 WARRANTY

- A. See Division 01 for additional warranty requirements.
- B. Correct defective work within a five year period after Date of Substantial Completion.
- C. Sealant Installer Warranty:
 1. Submit a written warranty to repair or replace any and all sealant failure as defined in this Section.
 2. Warranty shall cover all labor and material cost for sealant replacement for a period of 2-years from the date of issuance of a Certificate of Occupancy for the building or the minimum Installer Warranty period required as part of the 20-year Special Manufacturer Labor and Material Warranty noted herein.
- D. Manufacturer's Special 20-year Warranty:
 1. Submit a written warranty agreeing to repair or replace any and all sealant failure as defined in this Section.
 2. Warranty shall cover all labor and material cost for sealant replacement for a period of 20-years from the day of expiration of the Installer Warranty noted above.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

- A. Interior Silicone Sealants:
 - 1. Momentive Performance Materials, Inc (formerly GE Silicones); Product Sanitary SCS1700: www.momentive.com.
 - 2. Pecora Corporation: www.pecora.com.
 - 3. BASF Construction Chemicals-Building Systems: www.buildingsystems.basf.com.
 - 4. Tremco Global Sealants; Product TremSil 200: www.tremcosealants.com.
 - 5. Sherwin-Williams Company; Silicone Rubber All Purpose Sealant: www.sherwin-williams.com.
- B. Exterior Silicone Sealants:
 - 1. Dow Corning; Product DOW Corning DC 756, www.dowcorning.com.
 - 2. Tremco Global Sealants; Product Spectrem 3: www.tremcosealants.com.
 - 3. Substitutions: See Division 01.
- C. Butyl Sealants:
 - 1. Pecora Corporation; Product BC-158: www.pecora.com.
 - 2. Tremco Global Sealants; Product Tremco Butyl Sealant: www.tremcosealants.com.
- D. Acrylic Emulsion Latex Sealants:
 - 1. Pecora Corporation; Product AC 20: www.pecora.com.
 - 2. Sherwin-Williams Company; White Lightning 3006 Siliconized Acrylic Latex Caulk: www.sherwin-williams.com.
 - 3. Tremco; Product TremFlex 834.
- E. Preformed Compressible Foam Sealers:
 - 1. EMSEAL Joint Systems, Ltd: www.emseal.com.

2.2 SEALANTS

- A. Exterior Expansion Joint Sealer: Pre-compressed foam sealer; silicone with water-repellent;
 - 1. Face color: Selected from manufacturer's full color line.
 - 2. Size as required to provide weathertight seal when installed.
 - 3. Provide product recommended by manufacturer for traffic-bearing use.
 - 4. Applications: Use for:
 - a). Exterior wall expansion joints.
 - b). Other locations shown on the drawings.
 - 5. Products:
 - a). EMSEAL Joint Systems, Ltd; Colorseal: www.emseal.com.
- B. Exterior Metal Lap Joint Sealant: Butyl or polyisobutylene, nondrying, nonskinning, noncuring.
 - 1. Applications: Use for:
 - a). Concealed sealant bead in sheet metal work.
 - b). Concealed sealant bead in siding overlaps.
 - c). Sealant under metal stud track at exterior or other locations where shown.
 - d). Gutter sealant.
- C. General Purpose Interior Sealant: Acrylic emulsion latex; ASTM C834, Type OP, Grade NF single component, paintable.
 - 1. Color: To be selected by Architect from manufacturer's standard range.
 - 2. Applications: Use for:
 - a). Interior wall and ceiling control joints.
 - b). Joints between door and window frames and wall surfaces.
 - c). Other interior joints for which no other type of sealant is indicated.
- D. Concrete Paving Joint Sealant: Polyurethane, self-leveling; ASTM C920, Class 25, Uses T, I, M and A; single component.
 - 1. Color: Selected from manufacturer's full range of colors. Assume at least two different colors will be selected.
 - 2. Applications: Use for:
 - a). Joints in sidewalks and vehicular paving.
- E. Non-Staining Silicone Sealant: ASTM C920, Grade NS, Class 25, Uses NT, A, G, M, O; single component, neutral curing, non-sagging, non-staining, fungus resistant, non-bleeding.
 - 1. Color: To be selected by Architect from manufacturer's custom range. Assume three colors to be selected and used.

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2. Product: Spectrum 3 manufactured by Tremco.
3. Movement Capability: Plus and minus 50 percent.
4. Service Temperature Range: -65 to 180 degrees F.
5. Shore A Hardness Range: 35.
6. Applications: Use for:
 - a). Control, expansion, and soft joints in masonry and stone.
 - b). Joints between concrete and other materials.
 - c). Joints between metal frames and other materials.
 - d). Other exterior joints for which no other sealant is indicated.

2.3 FIRESTOPPING SYSTEM

- A. Firestopping at Uninsulated Metallic Pipe and Conduit Penetrations, of diameter 4 inches or less: Any material meeting requirements.
 1. Area Separation Walls: UL Design No. WJ 1000 Series, F Rating 2 or 3 hour.
 2. Corridor Walls: UL Design No. WL 1000, F Rating 1-1/2 hour.
 3. Other Interior Partitions: UL Design No. WL 1000, F Rating 3/4 hour.
- B. Firestopping at Combustible Pipe and Conduit Penetrations, of diameter 4 inches or less: Any material meeting requirements.
 1. Area Separation Walls: UL Design No. WJ 2000 Series, F Rating 2 or 3 hour.
 2. Corridor Walls: UL Design No. WL 2000, F Rating 1-1/2 hour.
 3. Other Interior Partitions: UL Design No. WL 2000, F Rating 3/4 hour.
- C. Firestopping at Cable Tray Penetrations - not in Conduit or Cable Tray: Any material meeting requirements:
 1. Area Separation Walls: UL Design No. WJ 4000 Series, F Rating 3 hour.
 2. Corridor Walls: UL Design No. WJ 4000 Series, T Rating 1-1/2 hour.
 3. Other Interior Partitions: UL Design No. WJ 4000 Series, F Rating 3/4 hour.
- D. Construction Joints:
 1. Area Separation Walls: UL Design No. FWD, F Rating 3 hour. HWD F Rating 1 or 2 hour.
 2. Corridor Walls: UL Design No. WWD, F Rating 1-1/2 hour. HWD F Rating 1 or 2 hour.
 3. Other Interior Partitions: UL Design No. WWD, F Rating 3/4 hour.
- E. Firestopping at Cable Penetrations, not in Conduit or Cable Tray: Caulk or putty.
 1. Area Separation Walls: UL Design No. WJ 3000, F Rating 3 hour.
 2. Corridor Walls: UL Design No. WJ 3000, F Rating 1-1/2 hour.
 3. Other Interior Partitions: UL Design No. WJ 3000, F Rating 1 or 2 hour.
- F. Firestopping Between Edge of Floor Slab and Curtain Wall (without Penetrations): System to be behind shadow back assembly.
 1. Intertek: CEJ 127 P.

2.4 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.
- C. Joint Backing: Round foam rod compatible with sealant; ASTM D 1667, closed cell PVC; oversized 30 to 50 percent larger than joint width.
- D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Verify that substrate surfaces are ready to receive work.
- B. Verify that joint backing and release tapes are compatible with sealant.

3.2 PREPARATION

- A. Remove loose materials and foreign matter that could impair adhesion of sealant.
- B. Clean and prime joints in accordance with manufacturer's instructions.
- C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.
 1. Apply sealant to small area and perform adhesion test in accordance with ASTM C1193, Method A, to determine if primer is required. Based upon test results, apply primer when required.

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- D. Protect elements surrounding the work of this section from damage or disfigurement.
- E. Mask adjacent material(s) to protect surfaces and to ensure straight bead line and to facilitate cleaning.

3.3 IDENTIFICATION

- A. Identify penetration firestopping with preprinted metal or plastic labels. Attach labels permanently to surfaces adjacent to and within 6 inches of firestopping edge so labels will be visible to anyone seeking to remove penetrating items or firestopping. Use mechanical fasteners or self-adhering-type labels with adhesives capable of permanently bonding labels to surfaces on which labels are placed. Include the following information on labels:
 - 1. The words "Warning – Penetration Firestopping – Do Not Disturb. Notify Building Management of any Damage."
 - 2. Contractor's name, address and phone number.
 - 3. Designation of applicable testing and inspecting agency.
 - 4. Date of installation.
 - 5. Manufacturer's name.
 - 6. Installer's name.

3.4 INSTALLATION

- A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.
- B. Perform installation in accordance with ASTM C1193.
- C. Measure joint dimensions and size joint backers to achieve the following, unless otherwise indicated:
 - 1. Width/depth ratio of 2:1.
 - 2. Neck dimension no greater than 1/3 of the joint width.
 - 3. Surface bond area on each side not less than 75 percent of joint width.
- D. Install bond breaker where joint backing is not used.
- E. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
- F. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
- G. Tool joints concave.
- H. Pre-compressed Foam Sealant: Do not stretch; avoid joints except at corners, ends, and intersections; install with face 1/8 to 1/4 inch below adjoining surface.
- I. Compression Gaskets: Avoid joints except at ends, corners, and intersections; seal all joints with adhesive; install with face 1/8 to 1/4 inch below adjoining surface.

3.5 CLEANING

- A. Clean adjacent soiled surfaces.

3.6 FIELD QUALITY CONTROL

- A. Perform adhesion tests in accordance with manufacturer's instructions and ASTM C1193, Method A, Field-Applied Sealant Joint Hand-Pull Tab.
 - 1. Perform 10 tests for the first 1,000 feet of applied sealant and 1 test for each 1,000 feet thereafter.
 - 2. When sealant is applied between dissimilar materials, test both sides of the joint.
- B. Sealants that fail the adhesion test shall be removed, substrates cleaned, sealants re-installed and re-testing performed.
- C. Perform Stain Testing on all building materials scheduled to be in contact with silicone sealant. Begin test a minimum of 180 days prior to required application date.
- D. Maintain Test Log and submit to Architect indicating tests, locations, dates, results and remedial action.

3.7 PROTECTION

- A. Protect sealants until cured.

END OF SECTION