

SECTION 07 92 00 JOINT SEALANTS

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Clean and Prepare Joint Surfaces
 - 2. Sealant and Backing Materials including primers, backer rods, bond breakers and accessories.
- B. Related Sections:
 - 1. Section 07 84 00 - Firestopping
 - 2. Section 08 11 13 - Hollow Metal Frames
 - 3. Section 09 21 16 - Gypsum Board Assemblies
 - 4. Section 09 30 00 - Tiling
 - 5. Section 09 90 00 - Painting

1.02 REFERENCES

- A. [ASTM International](#) Publications:
 - 1. C834 "Standard Specification for Latex Sealants"
 - 2. C920 "Standard Specification for Elastomeric Joint Sealants"
 - 3. C1193 "Standard Guide for Use of Joint Sealants"
 - 4. C1248 "Standard Test Method for Staining of Porous Substrate by Joint Sealants"
 - 5. D1056 "Standard Specification for Flexible Cellular Materials-Sponge or Expanded Rubber"
- B. [Code of Federal Regulations \(CFR\)](#) Publications:
 - 1. 21 CFR, Part 177 "Indirect Food Additives: Polymers"
- C. [Federal Specifications \(FS\)](#) Publications:
 - 1. TT-S-1543B Sealing Compound; Silicone Rubber Base (For Caulking, Sealing)
- D. [Underwriter's Laboratories, Inc. \(UL\)](#) Standards
 - 1. "Fire Resistance Directory"
- E. [Warnock Hersey, ETL SEMKO division of Intertek \(WHI\)](#) Publications:
 - 1. "Certification Listings"

1.03 SYSTEM DESCRIPTION

- A. Work shall include providing sealant at the intersection of construction components within and exterior to the building, including, but not limited to the following conditions:
 - 1. Interior joints in the following vertical surfaces and horizontal nontraffic surfaces:
 - a. Control and expansion joints on exposed interior surfaces of exterior walls.
 - b. Tile control and expansion joints.
 - c. Vertical control joints on exposed surfaces of interior unit masonry and concrete walls and partitions.

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- d. Perimeter joints between interior wall surfaces and frames of interior doors, windows, and elevator entrances.
 - e. Joints between plumbing fixtures and adjoining walls, floors, and counters.
 - f. Other joints as indicated
2. Interior joints in the following horizontal traffic surfaces:
- a. Control and expansion joints in cast-in-place concrete slabs.
 - b. Control and expansion joints in tile flooring.
 - c. Joints at countertops, Lavatories.
 - d. Lavatories, water closets, and other plumbing fixtures.
 - e. Other joints as indicated.

1.04 SUBMITTALS

- A. General: Submit in accordance with Conditions of Contract and Division 01 Specification Sections.
- 1. Product data including samples and manufacturer's surface preparation and installation instructions.
 - a. List of primers recommended for each application.
 - 2. Submit samples of each color required for each type of joint sealer exposed to view in duplicate.
 - 3. Certifications: Indicate compliance with standards specified in duplicate.

1.05 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has specialized in installing joint sealants similar in material, design, and extent to those indicated for this Project and whose work has resulted in joint-sealant installations with a record of successful in-service performance.
- B. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.
- C. All materials shall be verified by this Contractor to be compatible with adjacent materials.
- D. Field Adhesion Test Reports: For each sealant application tested.
- E. Product Testing: Test joint sealants using a qualified testing agency.
- Testing Agency Qualifications: An independent testing agency qualified according to ASTM C1021 to conduct the testing indicated.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to Project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration date, pot life, curing time, and mixing instructions for multicomponent materials.
- B. Store and handle materials in compliance with manufacturer's written instructions to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

1.07 PROJECT CONDITIONS

- A. Environmental Limitations: Do not proceed with installation of joint sealants under the following conditions:

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1. When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer or are below 40 degrees F. and less than 100 degrees F.
 2. When joint substrates are wet.
- B. Joint-Width Conditions: Do not proceed with installation of joint sealants where joint widths are less than those allowed by joint sealant manufacturer for applications indicated.
- C. Contaminants: Do not proceed with installation if contaminants capable of interfering with adhesion have not yet been removed from joint substrates

1.08 WARRANTY

A. Special Warranty:

1. Submit two copies of a written guarantee agreeing to repair or replace joint sealers which fail to perform as air tight and water-tight joints; or fail in joint adhesion, cohesion, abrasion resistance weather resistance, or general durability; or appear to deteriorate or become unserviceable or causing an objectionable appearance resulting from either defective or non-conforming materials and workmanship or in any other manner not clearly specified by submitted manufacturer's data as an inherent quality of the material for the exposure indicated. Provide five -year Warranty.
 - a. Defects shall include, but are not limited to:
 - 1) Staining from abutting materials or filler.
 - 2) Migrating, bleeding into, or staining abutting materials.
 - 3) Unsightly surface deformation by causes other than movement.
 - 4) Excessive color change, chalking, or dust pick-up.
 - 5) Railing adhesively or cohesively where maximum elongation is less than 25% of designed width of exposed joints.
 - 6) Hardening to more than 25% over specified hardness.
 - b. Replace sealants which fail because of loss of cohesion or adhesion or do not cure.

1.09 EXTRA MATERIALS

- A. Furnish extra sealant materials from same production run as the materials applied in the quantities described below. Package materials in unopened, factory-sealed containers with labels describing contents.
1. Quantity: Furnish one unused tube of each type and color of exterior sealant applied.

PART 2 PRODUCTS

2.01 SEALANTS, GENERAL

- A. Colors: As shown on the Drawings or if not shown, match sealant material to colors of adjacent materials, as approved by the Associate, unless indicated otherwise.
- B. Elastomeric Sealant Standard: Comply with [ASTM C920](#) and other requirements indicated for each liquid-applied chemically curing sealant, including those referencing [ASTM C920](#) classifications for type, grade, class, and uses.
- C. Stain-Test-Response Characteristics: Where elastomeric sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to [ASTM C1248](#) and have not stained porous joint substrates indicated for Project.
- D. Suitability for Contact with Food: Where elastomeric sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 [CFR 177.2600](#).

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2.02 JOINT SEALANTS

- A. Sanitary Sealant, Interior Use: One component silicone rubber sealant.
1. [ASTM](#) C920, Type S, Grade NT, Class 25, and [FS](#)-TT-S-1543B, Class A.
 2. Provide acid cure, nonporous bond type, mildew resistant silicone rubber where both joint faces are metal, glass, plastic, tile, or other non-porous material.
 3. Acceptable Products:
 - a. "Omni-Plus"; [Sonneborn Bldg. Products Div., BASF Building Systems](#) (800-243-6739)
 - b. "786 Mildew Resistant"; [Dow Corning Corp.](#) (800-248-2481)
 - c. "Sanitary SCS1700"; [General Electric \(GE\) Silicones](#) (800-255-8886)
 - d. "Tremsil 600"; [Tremco, Inc.](#), an RPM Company (800-562-2728)
 - e. "898"; [Pecora Corp.](#) (800-523-6688)
- B. Interior Joints Not Subject to Movement: One part, gun grade, acrylic latex.
1. [ASTM](#) C 834 with 10 year life expectancy.
 2. Acceptable Products:
 - a. "Chem-Calk 600"; [Bostik Findley, Inc.](#) (888-603-8558)
 - b. "AC-20"; [Pecora Corp.](#) (800-523-6688)
 - c. "Tremflex 834"; [Tremco, Inc.](#) (800-562-2728)
- C. Interior Joints subject to Movement: One-part, non-sag acrylic Terpolymer formulation
1. [FS](#)-TT-S230 with 20-year life expectancy.
 2. Colors: Match sealant material to colors of adjacent materials, as selected by Architect from manufacturer's standard colors.
 3. Acceptable Products:
 - a. "Dynatrol I"; [Pecora Corp.](#) (800-523-6688)
 - b. "Dymonic"; [Tremco, Inc., an RPM Company](#) (800-562-2728)
 - c. "Vulkem 911"; [Tremco, Inc., an RPM Company](#) (800-562-2728)
 - d. "NP1"; [Sonneborn Bldg. Products Div., BASF Building Systems](#) (800-243-6739)
- D. Sealant Materials - Glazing:
1. Sealant composition shall be a silicone base, single component, solvent curing, capable of withstanding movement of up to 50 percent of joint width and shore a hardness of 26.
 2. [ASTM](#) C920, TTS-S-001543A and TT-S-00230C (COM-NBS).
 - a. Acceptable Manufacturers:
 - 1) "SILGLAZE N"; [General Electric \(GE\) Silicones](#) (800-255-8886)
 - 2) "SPECTRUM 2"; [Tremco, Inc., an RPM Company](#) (800-562-2728)

2.03 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 Filler Backer Rod: [ASTM D1056](#); round, closed cell polyethylene, non-gassing rod sized to produce 25% compression when installed in joint.
 - 1. Approved Manufacturers:
 - a. "Ethafoam"; [Dow Chemical](#) (800-447-4361)
 - b. "Sonofoam Soft Backer Rod"; [Sonneborn Bldg. Products Div., BASF Building Systems](#) (800-243-6739)
- D. Bond Breaker Tape:
 - 1. Approved Manufacturers:
 - a. Pressure Sensitive 470 or 481 Polyethylene"; [3M Adhesives, Coatings and Sealers Div., \(800-328-1687\)](#)
 - b. Approved Substitution
- E. Cleaners for Nonporous Surfaces: Provide nonstaining, chemical cleaners of type which are acceptable to manufacturers of sealants and sealant backing materials, which are not harmful to substrates and adjacent nonporous materials, and which do not leave oily residues or otherwise have a detrimental effect on sealant adhesion or in-service performance.
 - 1. Provide cleaner conditioner required for glass and glazed surfaces as recommended by sealant manufacturer.
- F. Masking Tape: Provide nonstaining, nonabsorbent type compatible with joint sealants and to surfaces adjacent to joints.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine joints indicated to receive joint sealers, with Installer present, for compliance with requirements for joint configuration, installation tolerances and other conditions affecting joint sealer performance.
- B. Do not proceed with installation of joint sealers until unsatisfactory conditions have been corrected. Beginning of Installation means acceptance of all existing conditions making this Contractor responsible for correcting all unsatisfactory and defective work encountered at his expense.

3.02 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealers to comply with recommendations of joint sealer manufacturers and the following requirements:
 - 1. Remove all foreign material from joint substrates which could interfere with adhesion of joint sealer, including dust; paints, except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer; old joint sealers; oil; grease; waterproofing; water repellents; water; surface dirt; and frost.
 - 2. Clean concrete, masonry, unglazed surfaces of ceramic tile and similar porous joint substrate surfaces, by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealers. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air. Remove laitance and form release agents from concrete.
 - 3. Clean metal, glass, glazed surfaces of ceramic tile and similar nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.

- B. Joint Priming: Prime joint substrates where indicated or where recommended by joint sealer manufacturer based on preconstruction joint sealer-substrate tests or prior experience. Apply primer to comply with joint sealer manufacturer's recommendations. Confine primers to areas of joint sealer bond, do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces which otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears such as masonry or EIFS materials. Remove tape immediately after tooling without disturbing joint seal.

3.03 INSTALLATION OF JOINT SEALERS

- A. General: Comply with joint sealer manufacturers' printed installation instructions applicable to products and applications indicated, except where more stringent requirements apply. Surfaces and air temperature shall be greater than 30 degrees F and less than 100 degrees F.
- B. Joint Priming: Prime joint substrates where recommended in writing by joint sealant manufacturer, based on reconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
 - 1. Ensure that primer fully covers surfaces to which sealant is to adhere.
 - 2. Apply with bristle brush. Do not flood surfaces.
 - 3. Allow primer to dry 30 minutes minimum or as recommended by manufacturer prior to application of backing rod and sealant.
- C. Install sealant backings of type 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 tape between sealants and joint fillers, compression seals, or back of joints where adhesion of sealant to surfaces at back of joints would result in sealant failure. Bond breaker must be used in all conditions where three-sided adhesion may be possible.
- E. Install sealants by proven techniques to comply with the following and at the same time backings are installed:
 - 1. Place sealants so they directly contact and fully wet joint substrates.
 - 2. Completely fill recesses provided for each joint configuration.
 - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
 - 4. Joint Size:
 - a. Depth of joint shall not exceed width of joint.
 - b. Minimum depth: ¼"
 - c. Maximum depth: ½"
- F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
 - 1. Remove excess sealants from surfaces adjacent to joint.

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2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
 - a. Provide concave joint configuration per Figure 5A in [ASTM C 1193](#), unless otherwise indicated.
 - b. Provide flush joint configuration, per Figure 5B in [ASTM C 1193](#), where indicated.
 - c. Provide recessed joint configuration, per Figure 5C in [ASTM C 1193](#), of recess depth and at locations indicated.
 - 1) Use masking tape to protect adjacent surfaces of recessed tooled joints.
 - 2) All joints shall be free of air pockets, foreign embedded matter, ridges, and sags.

3.04 CURE:

- A. Cure sealant in compliance with manufacturer's instructions and recommendations to obtain high, early bond strength, internal cohesion strength and surface durability.

3.05 CLEANING:

- A. Clean off excess sealants or sealant smears adjacent to joints as work progresses by methods and with cleaning materials approved by manufacturers of joint sealers and of products in which joints occur. Remove masking material immediately following sealant application.

3.06 FIELD QUALITY CONTROL

- A. Field-Adhesion Testing: Field test joint-sealant adhesion to joint substrates as follows:
 1. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C1193 or Method A, Tall Procedure, in ASTM C 1521.
 - a. For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side. Repeat procedure for opposite side.
 2. Repair sealants pulled from test area by applying new sealants following same procedures used originally to seal joints. Ensure that original sealant surfaces are clean and that new sealant contacts original sealant.
- B. Evaluation of Field-Adhesion Test Results: Sealant not evidencing adhesion failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

3.07 PROTECTION:

- A. Protect joint sealers during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage and deterioration occurs, cut out and remove damaged or deteriorated joint sealers immediately and reseal joints with new materials to produce joint sealer installations with repaired areas indistinguishable from original work.

END OF SECTION 07 92 00

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