

Section 07 90 00 - Caulking and Sealants**PART 1 - GENERAL****1.01 DESCRIPTION**

- A. Work Included:
- Section covers all sealant and caulking materials and their application, wherever required for complete installation of building materials or systems, unless otherwise noted.
1. Exterior Sealing: Clean out, caulk and seal exterior joints at the following locations.
 - a. Metal air intakes and louvers
 - b. Items projecting through or against walls or floors; building expansion joints
 - c. Door and window frames, including lintels
 - d. Joint between gravel stop drip edge and wall and coping drip edge and wall.
 - e. Other locations where sealing is required by material or product manufacturers.
 2. Interior Caulking:
 - a. Metal-to-masonry and metal-to-gypsum board at metal frames caulked with paintable sealant.
 - b. Joint between windows and window stools
 - c. Joint between plumbing fixtures and adjacent surfaces.
 - d. Building control joints.
 - e. All other locations where caulking is required by material and product manufacturers even though not specifically mentioned herein.
- B. Related Work Specified Elsewhere:
1. Sealing joints in aluminum composite panel system - Section 07 42 23
 2. Smoke Sealant and Fire Rated Sealant at Gypsum Board Partitions - Section 07 84 00.
 3. Acoustical Sealant at Gypsum Board Partitions - Section 09 21 16.

1.02 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. Coordinate work with Section 04 20 00 regarding placement and sealing of control joints in concrete masonry.
- C. Mockups: Before installing, apply joint sealants to a designated mockup to verify selections made under sample Submittals and to demonstrate aesthetic effects and qualities of materials and execution.
- D. Perform work in accordance with ASTM C1193, "Standard Guide for Use or Joint Sealants", and Sealant, Waterproofing & Restoration Institute (SWR Institute), "Sealants: The Professional's Guide."

- E. Sealants in contact with marble, limestone, sandstone, granite and other porous substrates shall pass ASTM C1248 - "Standard Test Method for Staining of Porous Substrate by Joint Sealants".

1.03 SUBMITTALS

- A. Submit the following:
 - 1. Materials list of items proposed to be furnished under this Section.
 - 2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements.
 - 3. Cured samples of exposed sealants for each color where required to match adjacent material.

1.04 PRODUCT DELIVERY, HANDLING AND STORAGE

- A. Deliver materials in sealed containers with manufacturer's name, type, grade and date of manufacture clearly shown on each package.
- B. Store materials in a cool, dry, covered or shaded area assigned exclusively to this contractor so as to protect them from damage, contamination and premature aging.

1.05 JOB CONDITIONS

- A. Environmental Requirements: Do not apply sealants when surfaces are frosty, damp or wet or when temperatures are below 40 degrees F with out written approval from sealant manufacturer.
- B. Joint-Substrate Conditions:
Do not proceed with installation of joint sealants until contaminants capable of interfering with adhesion are removed from joint substrates.

1.06 SITE ENVIRONMENTAL PROCEDURES

- A. Indoor Air Quality:
 - 1. Temporary ventilation: Provide temporary ventilation during work of this Section.
 - 2. Coordinate interior application of joint sealants with interior finishes schedule.

1.07 DEFINITIONS:

- A. Definitions of terms in accordance with ASTM C717 and as specified.
- B. Back-up Rod: A type of sealant backing.
- C. Bond Breakers: A type of sealant backing.
- D. Filler: A sealant backing used behind a back-up rod.

1.08 GUARANTEE

- A. All work in this Section shall be guaranteed to be free from defects in materials and workmanship for a period of five (5) years from date of final completion of project.
- B. Repair or replace all such defective work and all other work damaged as a result of defective caulking and sealing work, which becomes defective during term of this guarantee.
- C. Silicone Sealants shall be warranted for stain resistance and structural properties for a period of twenty (20) years from date of final completion of Project.
- D. Following will be considered defective work:
 - 1. Discoloration of sealant or materials to which sealant is applied.
 - 2. Improper bonding to surfaces to which sealant is applied.
 - 3. Cracking, checking and discoloration of sealant.

PART 2 - PRODUCTS**2.01 MATERIALS**

- A. Sealing compound for general exterior caulking: One (1) part moisture curing polyurethane or silicone sealant factory mixed and packaged in cartridges ready for use without stirring, thinning or other preparation conforming to ASTM C920, Type S, Grade NS, Class 50, or Federal Specification TT-S-00230C, Type II, Class A.
Approved Manufacturers:
 - 1. Dow-Corning Corporation, "No. 795, 791, 756 SMS"
 - 2. Tremco Manufacturing Company, "Dymonic"
 - 3. Tremco, "Spectrem 3"
 - 4. Pecora, "Dynatrol I"
 - 5. Sonneborn, "Sonolastic NP 1"
 - 6. General Electric Company, "Silpruf"
 - 7. Sherwin-Williams, "Stampede-1"
- B. General Purpose Interior caulk: Acrylic emulsion latex; ASTM C834, Type OP, Grade NF single component, paintable.
 - 1. Color: Colors as selected.
 - 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.
- C. Sealants for use with porous materials and for joints between porous and non-porous materials shall be one (1) part moisture curing polyurethane sealant or one (1) part neutral cure 100% silicone sealant, factory mixed and packed in cartridges ready for use without stirring, thinning or other preparation. Products shall conform to Federal Specification TT-S-00230C, Type II, Class A or ASTM C920.
 - 1. Dow Corning, "790"
 - 2. Tremco, "Dymonic"
 - 3. Sonneborn, "Sonolastic NP 1"
 - 4. Pecora, Dynatrol"
 - 5. Sherwin-Williams, "Stampede-100"

- D. Sealants for use with non-porous materials shall be silicone sealant factory mixed and packed in cartridges ready for use without stirring or other preparation. Products shall conform to ASTM C920, Type S, Grade NS, Class 50.
 - 1. Dow Corning, "No. 791, 795 or 756 SMS"
 - 2. GE "Silpruf"
 - 3. Tremco, "Spectrem 3"
 - 4. Sherwin-Williams, "Silicone Rubber All Purpose Sealant"
- E. Sealant designed for weatherproofing sensitive porous stone and metal panel substrates to reduce residue rundown and substrate staining in new and remedial construction.
 - 1. Dow Corning "756 SMS Building Sealant"
- F. Sealing compound for horizontal surfaces, including construction and expansion joints in concrete slabs:
Single or multi-component polyurethane based compound conforming to requirements of FS TT-S-00227E , Type 1, Class A and ASTM C920-87, Type M, Grade P, Class 25.
Approved Manufacturers:
 - 1. Tremco, "Vulkem 45SSL"
 - 2. Sika, "Sikaflex-1a"
 - 3. Tremco, "THC-901"
 - 4. BASF, "Sonolastic SL 2"
 - 5. Sherwin-Williams, "Stampede 2SL"
- G. Sealing compound for sealing joints between plumbing fixtures and adjacent surfaces: Mildew resistant, silicone sanitary sealant. Products shall meet requirements of Federal Specification TT-S-001543, Class A or ASTM C920, Type S, Grade NS, Class 25, Use NT.
 - 1. Dow Corning "786 Mildew-Resistant Silicone Sealant"
 - 2. GE (Momentive) "SCS 1700 Silicone Sanitary Sealant"
 - 3. BASF, "Sonolastic Omniplus"
 - 4. Pecora, "898 Silicone"
 - 5. Tremco, "Tremsil 200"
 - 6. Sherwin-Williams, "White Lightning 100% Silicon Rubber."
- H. Colors:
Colors for each sealant installation will be selected by the Contractor from standard colors normally available from the specified manufacturers subject to Architect approval.
- I. Primer: Made by manufacturer of sealant applied in accordance with manufacturer's instructions.
- J. Solvent Cleaner: as recommended by sealant manufacturer.
- K. Provide other materials, not specifically described, but required for a complete and proper installation, as selected by the Contractor, subject to approval of Architect.

2.02 JOINT SEALANT BACKING:

- A. General: Provide sealant backings of material and type that are non-staining; 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.

- B. Cylindrical Sealant Back-up Rod: ASTM C1330, of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:
- C. 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.

2.03 FILLER:

- A. Definition: Sealant backing used behind a back-up rod.
- B. Material: Mineral fiber board: ASTM C612, Class 1.
- C. Thickness same as joint width.
- D. Depth to fill void completely behind back-up rod.

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS

Examine the areas and conditions under which work of this Section will be performed. Report to Construction Manager any conditions which may adversely affect installation or performance of caulking and sealants. Do not start application of sealants until such conditions have been corrected.

3.02 ENVIRONMENTAL CONDITIONS

- A. Provide increased ventilation during interior sealant application.
- B. Provide off-gassing period prior to building occupancy.

3.03 PREPARATORY WORK

- A. Prepare joints in accordance with sealant manufacturer's instructions
- B. Clean surfaces of joint to receive caulking or sealants leaving joint dry to the touch, free from frost, moisture, grease, oil, wax, lacquer paint, or other foreign matter that would tend to destroy or impair adhesion.
 - 1. Clean porous joint substrate surfaces to produce a clean, sound substrate capable of developing optimum bond with joint sealants.
 - 2. Remove laitance and form-release agents from concrete.
 - 3. Remove loose particles remaining from above cleaning. Porous joint surfaces include the following:
 - a. Concrete.
 - b. Masonry.
 - c. Unglazed surfaces of ceramic tile.

4. Clean non-porous surfaces with cleaners that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.
 - a. Metal.
 - b. Glass.
 - c. Porcelain enamel.
 - d. Glazed surfaces of ceramic tile

3.04 BACKING INSTALLATION:

- A. Where joint backing is required, insert backer material into the joint cavity so that joint depth does not exceed one half (1/2) joint width. Do not apply sealant directly against mortar in a joint.
- B. Where deep joints occur, install filler to fill space behind the back-up rod and position the rod at proper depth.
- C. Cut fillers installed by others to proper depth for installation of back-up rod and sealants.
- D. Install back-up rod, without puncturing the material, to a uniform depth.
- E. Where space for back-up rod does not exist, install bond breaker tape strip at bottom (or back) of joint so sealant bonds only to two opposing surfaces.
- F. Take all necessary steps to prevent three sided adhesion of sealants.

3.05 APPLICATION

- A. Prior to start of installation, verify that the required proportion of joint width to depth has been secured.
- B. Prime surfaces. Apply primer to joints to be sealed. Follow manufacturer's instructions regarding application and number of coats.
- C. Application of Sealant:
 1. For application of sealants, follow requirements of ASTM C1193 unless specified otherwise.
 2. Apply sealant by means of a pressure gun with nozzle diameter equal to width of joint.
 3. Firmly press sealant into joint to ensure complete wetting of bonding surface and obtain good adhesion.
 4. Apply sealant in accordance with manufacturer's instructions and tool to a concave surface.
 5. Where practical, mask joints and do not remove tape until joint has been tooled and initial cure has taken place.
- D. Control Joints:
 1. Seal control joints in concrete masonry. If control joints are not shown or noted on Drawings, consult with Architect and masonry contractor regarding placement and spacing of joints. Coordinate work with Section 04 20 00.
 2. Install backer rod and seal with specified sealant.

3.06 CLEANING

Clean adjacent materials which have been soiled and leave work in a neat, clean condition.

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