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SECTION 07920

CAULKING AND SEALANTS

PART 1 GENERAL

1.1 SUMMARY (Not Applicable)

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C 834 (1976; R 1986) Latex Ceiling Compounds

ASTM D 217 (1988) Cone Penetration of Lubricating Grease

FEDERAL SPECIFICATIONS (FS)

FS TT-C-00598 (Rev C; Am 1) Calking Compound, Oil and Resin Base Type (for Building Construction)

FS TT-S-00227 (Rev E; Am 3) Sealing Compound, Elastomeric Type, Multi-Component for Calking, Sealing, and Glazing (for Buildings and Other Structures)

FS TT-S-00230 (Rev C; Am 2) Sealing Compound, Elastomeric Type, Single Component for Calking, Sealing, and Glazing (in Buildings and Other Structures)

FS TT-S-001543 (Rev A) Sealing Compound: Silicone Rubber Base (for Calking, Sealing, and Glazing in Buildings and Other Structures)

FS TT-S-001657 (Basic) Sealing Compound, Single Component, Butyl Rubber Based, Solvent Release Type (for Buildings and Other Types of Construction)

1.3 GENERAL REQUIREMENTS

Caulking and sealants shall be provided in joints as indicated or specified. The joint design, shape, and spacing shall be as indicated. Mixing shall be in accordance with instructions provided by the manufacturer of the sealants.

#### 1.4 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01300  
SUBMITTAL DESCRIPTIONS:

##### SD-01 Data

Materials; [        ].

Manufacturer's descriptive data for materials including backstop material, primer and sealer. Descriptive data for elastomeric sealants shall include shelf life, curing time, and mixing instructions for two component sealants.

##### SD-13 Certificates

Materials; [        ].

Certificates of compliance stating that the caulking and sealants conform to the specified requirements. Certificates shall include laboratory test reports showing that the caulking and sealants have been tested within the last 12 months.

##### SD-14 Samples

Materials; [        ].

Five cartridges or 2 quarts of each caulking and sealant specified herein. The sample containers shall include the same information on the label as specified herein for containers delivered to the job.

#### ENVIRONMENTAL REQUIREMENTS

The ambient temperature shall be within the limits of 40 to 90 degrees F when the caulking and sealants are applied.

#### DELIVERY AND STORAGE

Materials shall be delivered to the job in the manufacturer's original unopened containers. The containers shall include the following information on the label: manufacturer, name of material, formula or specification number, lot number, color, date of manufacture, mixing instructions, shelf life, and curing time when applicable at the standard conditions for laboratory tests. Caulking compound or components outdated as indicated by shelf life shall not be used. Materials shall be carefully handled and stored to prevent inclusion of foreign materials or exposure to temperatures exceeding 90 degrees F. Sealant tape shall be handled and stored in a manner that will not deform the tape.

## PART 2 PRODUCTS

### 2.1 MATERIALS

Materials shall conform to the respective specifications and other requirements specified. Each container brought to the jobsite with a different sealant formulation shall be marked for the intended use. For each intended use, the color shall be one of the manufacturer's standard colors as selected by the Contracting Officer.

#### 2.1.1 No. 1 Caulking Compound

No. 1 caulking compound shall conform to FS TT-C-00598, Type I.

#### 2.1.2 No. 2 Sealant

No. 2 sealant shall be a two-component, elastomeric-type compound conforming to FS TT-S-00227, Type II, Class [A] [B]. The compound shall be supplied in pre-measured kit form for on-the-job mixing.

#### 2.1.3 No. 3 Sealant

No. 3 sealant shall be a single-component conforming to FS TT-S-001657, Type I or II.

#### 2.1.4 No. 4 Sealant

No. 4 sealant shall be a one-component, elastomeric-type compound conforming to FS TT-S-00230, Type II, Class [A] [B] or FS TT-S-001543, Class [A] [B].

#### 5 No. 6 Sealant

No. 6 sealant shall be a one-component latex sealing compound conforming to ASTM C 834.

#### 2.1.6 No. 7 Sealant

No. 7 sealant shall be a polyisobutylene-based or isoprene-isobutylene-based pressure-sensitive tape or bead as specified or shown. When applied between two clean, dry surfaces of specified thicknesses and under conditions of continuous pressure that will be encountered in the use specified, the sealant shall seal the joint from water and shall be weather resistant. The material shall be nonbleeding at 160 degrees F and below, shall withstand temperature ranges from minus 30 degrees F to 200 degrees F without loss of adhesion and without slipping, and shall have properties allowing the compound to move with the expansion and contraction of the structure. The tape or bead shall [be plain] [contain a cloth or fiber insert]. The tape or bead shall be supplied in rolls with a removable paper or cloth backing.

#### 7 No. 10 Sealant

No. 10 sealant shall be preformed polyurethane foam strip capable of sealing out moisture, air, and dust, when compressed to the extent

recommended by the manufacturer for the capability of the joint. Service temperature shall be minus 40 to plus 275 degrees F. Treated strips shall be saturated with butylene waterproofing or impregnated with asphalt. Untreated strips shall be furnished with adhesive to hold them in place. The cured adhesive shall not stain or bleed into adjacent finishes. The sealant shall be furnished in the proper width to obtain the degree of compression required when installed in the joint.

#### 2.1.8 Acoustical Sealant

Synthetic rubber or polymeric-based material shall conform to the following:

- a. Consistency: ASTM D 217; 290 to 310.
- b. Aging: Slightly tacky at 160 degrees F after 50 days.
- c. Accelerated Aging: No significant change after 260 hours in weatherometer.
- d. Nonstaining.
- e. Solids Content: Approximately 80 to 90 percent.
- f. No oil migration.

#### SEALER

Sealer for use with No. 1 caulking compound shall be aluminum paint

#### 2.3 PRIMER

Primer for No. [2] [3] [4] sealant shall be as recommended by the sealant manufacturer. Primer shall have been tested for durability with the sealant to be used and on samples of the surfaces to be sealed.

#### BACKSTOP MATERIAL

Backstop materials shall be resilient urethane or polyvinyl chloride foam, closed-cell polyethylene foam, closed-cell sponge of vinyl or rubber, polychloroprene tubes or beads, polyisobutylene extrusions, oilless dry jute, or rope yarn. Backstop material shall be nonabsorbent, nonstaining, and compatible with the sealant used. Tube or rod stock shall be rolled into the joint cavity. Preformed support strips for ceramic and quarry tile control-joint and expansion-joint work shall be polyisobutylene or polychloroprene rubber.

#### BOND-PREVENTIVE MATERIALS

Bond-preventive materials shall be pressure-sensitive adhesive polyethylene tape, aluminum foil or wax paper. At the option of the Contractor, backstop material with bond breaking characteristics may be installed in lieu of bond-preventive materials specified.

**PART 3 EXECUTION**

**3.1 SURFACE PREPARATION**

**3.1.1 General**

The surfaces of joints to be sealed shall be dry. Oil, grease, dirt, chalk, particles of mortar, dust, loose rust, loose mill scale, and other foreign substances shall be removed from all joint surfaces to be sealed. Oil and grease shall be removed with solvent and surfaces shall be wiped with clean cloths.

**3.1.2 Concrete and Masonry Surfaces**

Where surfaces have been treated with curing compounds, oil, or other such materials, the materials shall be removed by sandblasting or wire brushing. Laitance, efflorescence and loose mortar shall be removed from the joint cavity.

**3.1.3 Steel Surfaces**

Steel surfaces to be in contact with sealant shall be sandblasted or, if sandblasting would not be practical or would damage adjacent finish work, the metal shall be scraped and wire brushed to remove loose mill scale. Protective coatings on steel surfaces shall be removed by sandblasting or by a solvent that leaves no residue.

**3.1.4 Aluminum Surfaces**

Aluminum surfaces of windows and door frames in contact with sealants shall be cleaned of temporary protective coatings. When masking tape is used for a protective cover, the tape and any residual adhesive shall be removed just prior to applying the sealant. Solvents used to remove protective coating shall be as recommended by the manufacturer of the aluminum work and shall be nonstaining.

**3.2 SEALANT USES**

The sealant(s) to be used in the various joints indicated shall be as follows:

<u>Joint Symbol</u>	<u>Sealant No.</u>
.]	[ .]

**3.3 APPLICATION**

**3.3.1 Paper Masking Tape**

Paper masking tape shall be placed on the finish surface on one or both sides of a joint cavity to protect adjacent finish surfaces from primer or compound smears. Masking tape shall be removed within 10 minutes after joint has been filled and tooled.

### 3.3.2 Bond-Preventive Materials

Bond-preventive materials for sealant shall be installed on the bottom of the joint cavity and other surfaces indicated to prevent the sealant from adhering to the surfaces covered by the bond-preventive materials. The materials shall be carefully applied to avoid contamination of adjoining surfaces or breaking bond with surfaces other than those covered by the bond-preventive materials.

### 3.3.3 Backstops

The back or bottom of joints constructed deeper than indicated shall be packed tightly with backstop material to provide a joint of the depth indicated. Where necessary to provide a backstop for caulking compound, the joint shall be packed tightly with rope yarn.

### 3.3.4 Primer

Primer shall be used on concrete masonry units, wood, or other porous surfaces in accordance with instructions furnished with the sealant. Primer shall be applied to the joint surfaces to be sealed. Surfaces adjacent to joints shall not receive primer.

#### No. 1 Caulking Compound

Compound shall be gun-applied with a nozzle of proper size to fit the width of joint indicated and shall be forced into grooves with sufficient pressure to expel air and fill the groove solidly. Caulking shall be uniformly smooth and free of wrinkles and shall be left sufficiently convex to result in a flush joint when dry. One coat of sealer shall be applied over joint after compound has dried sufficiently to develop a surface skin so as not to deform the surface of the joint.

#### Sealant

Compound shall be gun-applied with a nozzle of proper size to fit the width of joint indicated and shall be forced into grooves with sufficient pressure to expel air and fill the groove solidly. Sealant shall be uniformly smooth and free of wrinkles. Joints shall be tooled slightly concave after sealant is installed. When tooling white or light-color sealant, dry or water-wet tool shall be used.

### 3.3.7 No. 7 Sealant

Tape shall be placed with removable backing exposed. The backing shall be removed after the tape has been smoothed. Tape shall not be stretched and shall be lapped at least 1 inch at splices.

### 3.3.8 No. 10 Sealant

In concrete, masonry, or plaster work, a primer shall be applied if recommended by the manufacturer. The sealant shall be precompressed to less than the joint width and inserted in the joint cavity.

### 3.3.9 Acoustical Sealant

Acoustical sealant shall be applied only to concealed surfaces. A full bead shall be gunned into joints or openings. Piping and backs of electrical boxes shall be covered with a sealant and perimeters sealed.

### 3.4 CLEANING

The surfaces adjoining the caulked and sealed joints shall be cleaned of smears and other soiling resulting from the caulking and sealing application as work progresses.

-- End of Section --