SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes sealants for the following locations:

1. Exterior joints in vertical surfaces and nontraffic horizontal surfaces as indicated below:

   a. Control and expansion joints in cast-in-place concrete.
   b. Control and expansion joints in unit masonry.
   c. Perimeter joints between materials listed above and frames of doors and windows.
   d. Joints between dissimilar materials.
   e. Joints in cast stone as indicated in Division 4 Section "Cast Stone."
   f. Other joints as indicated.
   g. Joints between curtain wall frame and dissimilar materials

2. Exterior joints in horizontal traffic surfaces as indicated below:

   a. Control, expansion, and isolation joints in cast-in-place concrete slabs.
   b. Joints between dissimilar materials.
   c. Other joints as indicated.

3. Interior joints in vertical surfaces and horizontal nontraffic surfaces as indicated below:

   a. Control and expansion joints on exposed interior surfaces of exterior walls.
   b. Perimeter joints of exterior openings where indicated.
   c. Tile control and expansion joints.
   d. Vertical control joints on exposed surfaces of interior unit masonry and concrete walls and partitions.
   e. Perimeter joints between interior wall surfaces and frames of interior doors and windows.
   f. Perimeter joints of toilet fixtures.
   g. Joints between dissimilar materials.
   h. Joints where acoustical sealant is called for under Wall Type General Notes on drawings.
   i. Other joints as indicated.
   j. Joints between curtain wall frame and dissimilar materials.

4. Interior joints in horizontal traffic surfaces as indicated below:

   a. Control and expansion joints in cast-in-place concrete slabs.
   b. Control and expansion joints in tile and terrazzo flooring.
   c. Joints between dissimilar materials.
   d. Other joints as indicated.

5. Fire Resistant Sealers

B. Related Sections include the following:

1. Division 7 Section "Flashing and Sheet Metal" for sealing joints related to flashing and sheet metal for

roofing.
2. Division 7 Section "Firestopping" for through-penetration firestopping systems.
3. Division 8 "Glazing" for sealants used in glazing.
4. Division 9 Section "Tile" for sealing tile joints.

1.3 PERFORMANCE REQUIREMENTS

A. Provide elastomeric joint sealants that have been produced and installed to establish and to maintain watertight and airtight continuous seals without causing staining or deterioration of joint substrates.

B. Provide joint sealants for interior applications that have been produced and installed to establish and maintain airtight continuous seals that are water resistant and cause no staining or deterioration of joint substrates.

1.4 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.

B. Product data from manufacturers for each joint sealant product required.

C. Samples for initial selection purposes in form of manufacturer's standard bead samples, consisting of strips of actual products showing standard range of colors available, for each product exposed to view.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced Installer who has completed joint sealant applications similar in material, design, and extent to that indicated for Project that have resulted in construction with a record of successful in-service performance.

B. Single Source Responsibility for Joint Sealant Materials: Obtain joint sealant materials from a single manufacturer for each different product required.

C. Field-Constructed Mock-Ups: Prior to installation of joint sealants, apply elastomeric sealants as follows to verify selections made under sample submittals and to demonstrate aesthetic effects as well as qualities of materials and execution:

1. Joints in field-constructed mock-ups of assemblies specified in other Sections that are indicated to receive elastomeric joint sealants specified in this Section.

1.6 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.

1.7 PROJECT CONDITIONS

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

1. When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer.
2. When ambient and substrate temperature conditions are outside limits permitted by joint sealant

manufacturer or are below 40 deg F (4.4 deg C).

3. 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. Joint-Substrate Conditions: Do not proceed with installation of joint sealants until contaminants capable of interfering with adhesion are removed from joint substrates.

1.8 SEQUENCING AND SCHEDULING

A. Sequence installation of joint sealants to occur not less than 21 nor more than 30 days after completion of waterproofing, unless otherwise indicated.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, joint fillers, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.

B. Colors: Provide color of exposed joint sealants to comply with the following:

1. Provide selections made by Architect from manufacturer's full range of standard colors for products of type indicated. Color selection must provide equivalent to match adjacent materials.

2.2 ELASTOMERIC JOINT SEALANTS (Interior & Exterior Vertical & Horizontal Joints)

A. Elastomeric Sealant Standard: Provide manufacturer's standard chemically curing elastomeric sealants that comply with ASTM C 920 and including those requirements referencing ASTM C920 classifications for Type, Grade, Class and Uses.

B. Base polymer must be silicone.

C. Available Products: Subject to compliance with requirements, chemically curing elastomeric sealants that may be incorporated in the Work include, but are not limited to, the following:

Substrate/Detail	Dow Corning Product
Brick to Window Frame	Solvent Wipe Dow Corning 1200 primer to brick substrates Dow Corning 795
Brick to Brick	Solvent Wipe (non-alcohol type) Dow Corning 790 OR Dow Corning 1200 Primer Dow Corning 795
Brick to Precast/Concrete	Solvent Wipe (non-alcohol type) Dow Corning 790

OR

Solvent Wipe
Dow Corning 1200 Primer
Dow Corning 795

Metal to Metal	As recommended by sealant manufacturer.

2.3 LATEX JOINT SEALANTS (Interior Joints in Vertical & Horizontal Surfaces)

A. General: Provide manufacturer's standard one-part, nonsag, mildew-resistant, paintable latex sealant of formulation indicated that is recommended for exposed applications on interior and protected exterior locations and that accommodates indicated percentage change in joint width existing at time of installation without failing either adhesively or cohesively.

B. Acrylic-Emulsion Sealant: Provide product complying with ASTM C 834 that accommodates joint movement of not more than 5 percent in both extension and compression for a total of 10 percent.

C. Silicone Emulsion Sealant: Provide product complying with ASTM C 834 and, except for weight loss measured per ASTM C 792, with ASTM C 920 that accommodates joint movement of not more than 25 percent in both extension and compression for a total of 10 percent.

D. Available Products: Subject to compliance with requirements, latex joint sealants that may be incorporated in the Work include, but are not limited to, the following:

1. Acrylic-Emulsion Sealant:

a. "AC-20", Pecora Corp.
b. "Sonolac", Sonneborn Building Products Div., ChemRex, Inc.
c. "Tremco Acrylic Latex 834", Tremco, Inc.

2. Silicone-Emulsion Sealant:

a. "Trade Mate Paintable Glazing Sealant", Dow Corning Corp.

2.4 ACOUSTICAL JOINT SEALANTS

A. Acoustical Sealant: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834 and the following requirements:

1. Product is effective in reducing airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies per ASTM E 90.
2. Product has flame spread and smoke developed ratings of less than 25 per ASTM E 84.

B. Acoustical Sealant for Concealed Joints: Manufacturer's standard, nondrying, nonhardening, nonskinning, nonstaining, gunnable, synthetic-rubber sealant recommended for sealing interior concealed joints to reduce airborne sound transmission.

C. Available Products: Subject to compliance with requirements, acoustical joint sealants that may be incorporated in the Work include, but are not limited to, the following:

1. Acoustical Sealant:

a. "SHEETROCK Acoustical Sealant", United States Gypsum Co.

b. "AC-20 FTR Acoustical and Insulation Sealant", Pecora Corp.

2. Acoustical Sealant for Concealed Joints:

a. "BA-98", Pecora Corp.
b. "Tremco Acoustical Sealant", Tremco, Inc.

2.5 TAPE SEALANTS

A. Tape Sealant: Manufacturer's standard, solvent-free, butyl-based tape sealant with a solids content of 100 percent formulated to be nonstaining, paintable, and nonmigrating in contact with nonporous surfaces with or without reinforcement thread to prevent stretch and packaged on rolls with a release paper on one side.

B. Available Products: Subject to compliance with requirements, tape sealants that may be incorporated in the Work include, but are not limited to, the following:

1. "Extru-Seal Tape", Pecora Corp.
2. "Shim-Seal Tape", Pecora Corp.
3. "PTI 606", Protective Treatments, Inc.
4. "Tremco 440 Tape", Tremco, Inc.
5. "MBT-35", Tremco, Inc.

2.6 JOINT-SEALANT BACKING

A. General: 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.

B. Plastic Foam Joint Fillers: Preformed compressible, resilient, nonstaining, nonwaxing, nonextruding strips of flexible plastic foam of material indicated below and of size, shape, and density t control sealant depth and otherwise contribute to producing optimum sealant performance:

1. Open-cell polyurethane foam.
2. Closed-cell polyethylene foam, nonabsorbent to liquid water and gas, nonoutgassing in unruptured state.
3. Proprietary, reticulated, closed-cell polymeric foam, nonoutgassing, with a density of 2.5 pcf and tensile strength of 35 psi per ASTM D 1623, and with water absorption less than 0.02 gms/cc per ASTM C 1083.
4. Equivalent to Nomaco's "Sof Rod".

C. Elastomeric Tubing Joint Fillers: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D 1056, nonabsorbent to water and gas, capable of remaining resilient at temperatures down to -26 deg F (-32 deg C). Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and otherwise contribute to optimum sealant performance.

D. 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.

2.7 FIRE RESISTANT SEALERS

A. General: Provide manufacturer's standard fire stopping sealant with accessory materials, having fire-resistant ratings indicated as established, by the testing agency acceptable to authorities having jurisdiction.

1. Fire safing insulation to be used as a sealant back-up is specified in another Division 7 section.

B. Foamed in Place Fire Stopping Sealant: Two-part, foamed-in-place, silicone sealant formulated for use in a through penetration fire stop system for filling openings around cables, conduit, pipes, and similar penetrations through walls and floors.

C. Products: Subject to compliance with the requirements, provide one of the following:

1. Dow Corning Fire Stop Foam.
2. Pensil 851, General Electric.

2.8 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants with joint substrates.

C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance. Do not proceed with installation of joint sealants until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint sealant manufacturer's written instructions and the following requirements:

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, 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 sealants. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air.

3. Remove laitance and form-release agents from concrete.

4. Clean metal, glass, porcelain enamel, glazed surfaces of ceramic tile, and other 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 recommended in writing by joint sealant manufacturer, based on preconstruction 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.

C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

A. General: comply with joint sealant manufacturer's printed installation instructions applicable to products and applications indicated, except where more stringent requirements apply.

B. Sealant Installation Standard: Comply with recommendations of ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Latex Sealant Standard: Comply with recommendations of ASTM C90 for use of latex sealants.

D. Acoustical Sealant Application Standard: Comply with recommendations of ASTM C 919 for use of joint sealants in acoustical applications as applicable to materials, applications, and conditions indicated.

E. Installation of Sealant Backings: Install sealant backings to comply with the following requirements:

1. Install joint fillers of type indicated to provide support of sealants during application and at position required to produce the cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
2. Do not leave gaps between ends of joint fillers.
3. Do not stretch, twist, puncture, or tear joint fillers.
4. Remove absorbent joint fillers that have become wet before sealant application and replace them with dry material.
5. Install bond-breaker tape between sealants where backer rods are not used between sealants and joint fillers or back of joints.

F. Installation of Sealants: Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration, and providing uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability. Install sealants at the same time sealant backings are installed.

G. Tooling of Nonsag Sealants: Immediately after sealant application and prior to time skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated, to eliminate air pockets, and to ensure contact and adhesion of sealant with sides of joint. Remove excess sealants from surfaces adjacent to joint. Do not use tooling agents that discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.

1. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.
2. Provide flush joint configuration, per Figure 5B in ASTM C 1193, where indicated.

   a. Use masking tape to protect adjacent surfaces of recessed tooled joints.

3. Provide recessed joint configuration, per Figure 5C in ASTM C1193, of recess depth and at locations indicated.

H. Installation of Preformed Foam Sealants: Install each length of sealant immediately after removing protective wrapping, taking care not to pull or stretch material, and to comply with sealant manufacturer's directions for installation methods, materials, and tools that produce seal continuity at ends, turns, and intersections of joints. For applications at low ambient temperatures where expansion of sealant requires acceleration to produce seal,

apply heat to sealant in conformance with sealant manufacturer's recommendations.

3.4 FOAMED IN PLACE FIRE STOPPING SEALANT

A. Install continuously around piping, conduit, wiring, joists, columns, etc. at penetrations through corridor partitions and fire rated partitions, walls, floors, and ceilings.

B. Provide fire rating required at penetrations through fire rated partitions, walls, and ceilings. Minimum fire rating shall be equal to the rating of the wall.

C. Install around irregularly shaped component passing through partitions, walls and ceilings requiring sealants where other sealant types will not adequately fill area.

3.5 CLEANING

A. Clean off excess sealant smears adjacent to joints as work progresses by methods and with cleaning materials approved by manufacturers of joint sealants and of products in which joints occur.

3.6 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from the original work.

END OF SECTION 079200