SECTION 07.92.00
JOINT SEALANTS

PART 1 GENERAL

1.01 SECTION INCLUDES
A. Nonsag gunnable joint sealants.
B. Self-leveling pourable joint sealants.
C. Joint backings and accessories.
D. Owner-provided field quality control.

1.02 RELATED REQUIREMENTS
A. Section 01.61.16 - Volatile Organic Compound (VOC) Content Restrictions: Additional requirements for sealants and primers.
B. Section 07.13.00 - Sheet Waterproofing: Sealing cracks and joints in waterproofing substrate surfaces using materials specified in this section.
C. Section 07.25.00 - WEATHER BARRIERS: Sealants required in conjunction with air barriers and vapor retarders.
D. Section 07.84.00 - Firestopping: Firestopping sealants.
E. Section 07.95.13 - Expansion Joint Cover Assemblies: Sealants forming part of expansion joint cover assemblies.
F. Section 08.71.00 - Door Hardware: Setting exterior door thresholds in sealant.
G. Section 08.80.00 - Glazing: Glazing sealants and accessories.
H. Section 09.21.16 - Gypsum Board Assemblies: Sealing acoustical and sound-rated walls and ceilings.
I. Section 09.22.16 - Non-Structural Metal Framing: Sealing between framing and adjacent construction in acoustical and sound-rated walls and ceilings.
J. Section 23.31.00 - HVAC Ducts and Casings: Duct sealants.

1.03 REFERENCE STANDARDS

1.04 SUBMITTALS
A. See Section 01.30.00 - Administrative Requirements, for submittal procedures.
B. Product Data for Sealants: Submit manufacturer's technical data sheets for each product to be used, that includes the following.
1. Physical characteristics, including movement capability, VOC content, hardness, cure time, and color availability.
2. List of backing materials approved for use with the specific product.
3. Substrates that product is known to satisfactorily adhere to and with which it is compatible.
4. Substrates the product should not be used on.
5. Substrates for which use of primer is required.

C. Product Data for Accessory Products: Submit manufacturer's technical data sheet for each product to be used, including physical characteristics, installation instructions, and recommended tools.

D. Color Cards for Selection: Where sealant color is not specified, submit manufacturer's color cards showing standard colors available for selection.

E. Sustainable Design Documentation: For sealants and primers, submit VOC content and emissions documentation as specified in Section 01.61.16.

F. Field Quality Control Plan: Submit at least two weeks prior to start of installation.

G. Field Quality Control Log: Submit filled out log for each length or instance of sealant installed, within 10 days after completion of inspections/tests; include bagged test samples and photographic records, if any.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

B. Installer Qualifications: Company specializing in performing the work of this section with minimum three years documented experience and approved by manufacturer.

C. Owner will employ an independent testing agency to perform the field quality control inspection and testing as referenced in PART 3 of this section and as follows, to prepare and submit the field quality control plan and log, and to provide recommendations of remedies in the case of failure.
   1. Contractor shall cooperate with testing agency and repair failures discovered and destructive test location damage.

D. Field Quality Control Plan:
   1. Visual inspection of entire length of sealant joints.
   2. Non-destructive field adhesion testing of sealant joints, except interior acrylic latex sealants.
      a. For each different sealant and substrate combination, allow for one test every 12 inches in the first 10 linear feet of joint and one test every 24 inches thereafter.
      b. If any failures occur in the first 10 linear feet, continue testing at 12 inch intervals at no extra cost to Owner.
   3. Field Quality Control Log Form: Show same data fields as on Preinstallation Field Adhesion Test Log, with known information filled out and lines for multiple tests per sealant/substrate combinations; include visual inspection and specified field testing; allow for possibility that more tests than minimum specified may be necessary.

E. Field Adhesion Test Procedures:
   1. Allow sealants to fully cure as recommended by manufacturer before testing.
   2. Have a copy of the test method document available during tests.
   3. Record the type of failure that occurred, other information required by test method, and the information required on the Field Quality Control Log.
   4. If any combination of sealant type and substrate does not show evidence of minimum adhesion or shows cohesion failure before minimum adhesion, report results to Architect.

F. Non-Destructive Field Adhesion Test: Test for adhesion in accordance with ASTM C1521, using Nondestructive Spot Method.

G. Field Adhesion Tests of Joints: Test for adhesion using most appropriate method in accordance with ASTM C1521, or other applicable method as recommended by manufacturer.
1.06 **WARRANTY**

A. See Section 01.78.00 - Closeout Submittals, for additional warranty requirements.

B. Correct defective work within a five year period after Date of Substantial Completion.

C. Warranty: Include coverage for installed sealants and accessories that fail to achieve watertight seal, exhibit loss of adhesion or cohesion, or do not cure.

**PART 2 PRODUCTS**

2.01 **MANUFACTURERS**

A. Nonsag Sealants: Permits application in joints on vertical surfaces without sagging or slumping.
   4. Substitutions: See Section 01.60.00 - Product Requirements.

B. Selfleveling Sealants: Pourable or self-leveling sealant that has sufficient flow to form a smooth, level surface when applied in a horizontal joint.
   5. Substitutions: See Section 01.60.00 - Product Requirements.

2.02 **JOINT SEALANT APPLICATIONS**

A. Scope:
   1. Exterior Joints: Seal open joints, whether or not the joint is indicated on the drawings, unless specifically indicated not to be sealed. Exterior joints to be sealed include, but are not limited to, the following items.
      a. Wall expansion and control joints.
      b. Joints between door, window, and other frames and adjacent construction.
      c. Joints between different exposed materials.
      d. Other joints indicated below.
   2. Interior Joints: Do not seal interior joints unless specifically indicated to be sealed. Interior joints to be sealed include, but are not limited to, the following items.
      a. Joints between door, window, and other frames and adjacent construction.
      b. In sound-rated wall and ceiling assemblies, gaps at electrical outlets, wiring devices, piping, and other openings; between wall/ceiling and other construction; and other flanking sound paths.
      c. Other joints indicated below.
   3. Do not seal the following types of joints:
      a. Joints indicated to be treated with manufactured expansion joint cover or some other type of sealing device.
      b. Joints where sealant is specified to be provided by manufacturer of product to be sealed.
      c. Joints where installation of sealant is specified in another section.
      d. Joints between suspended panel ceilings/grid and walls.

B. Exterior Joints: Use nonsag non-staining silicone sealant, unless otherwise indicated.
   1. Control and Expansion Joints in Concrete Paving: Self-leveling polyurethane "traffic-grade" sealant; Type ____.

C. Interior Joints: Use nonsag polyurethane sealant, unless otherwise indicated.
2. In Sound-Rated Assemblies: Acrylic emulsion latex sealant.

D. Interior Wet Areas: restrooms; fixtures in wet areas include plumbing fixtures, food service equipment, countertops, cabinets, other similar items, and breakrooms.
E. Sound-Rated Assemblies: Walls and ceilings identified as "STC-rated", "sound-rated", or "acoustical".

2.03 JOINT SEALANTS - GENERAL

A. Sealants and Primers: Provide products with levels of volatile organic compound (VOC) content as indicated in Section 01.61.16.

2.04 NONSAG JOINT SEALANTS

A. Non-Staining Silicone Sealant: ASTM C920, Grade NS, Uses M and A; not expected to withstand continuous water immersion or traffic.
1. Movement Capability: Plus and minus 50 percent, minimum.
2. Dirt Pick-Up: Reduced dirt pick-up compared to other silicone sealants.
3. Hardness Range: 15 to 35, Shore A, when tested in accordance with ASTM C661.
4. Color: To be selected by Architect from manufacturer's standard range.
5. Cure Type: Single-component, neutral moisture curing.
6. Service Temperature Range: Minus 65 to 180 degrees F.
7. Products:

B. Polyurethane Sealant: ASTM C920, Grade NS, Uses M and A; single or multicomponent; not expected to withstand continuous water immersion or traffic.
3. Color: To be selected by Architect from manufacturer's standard range.
4. Service Temperature Range: Minus 40 to 180 degrees F.
5. Products:

C. Acrylic Emulsion Latex: Water-based; ASTM C834, single component, non-staining, non-bleeding, non-sagging; not intended for exterior use.
1. Color: To be selected by Architect from manufacturer's standard range.
2. Grade: ASTM C834; Grade - Minus 18 Degrees C.
3. Products:

2.05 SELF-LEVELING SEALANTS

A. Type ___ - Self-Leveling Polyurethane Sealant: ASTM C920, Grade P, Uses M and A; single or multicomponent; explicitly approved by manufacturer for traffic exposure; not expected to withstand continuous water immersion.
2. Hardness Range: 35 to 55, Shore A, when tested in accordance with ASTM C661.
4. Service Temperature Range: Minus 40 to 180 degrees F.
5. Products:

2.06 ACCESSORIES
   A. Backer Rod: Cylindrical cellular foam rod with surface that sealant will not adhere to, compatible with specific sealant used, and recommended by backing and sealant manufacturers for specific application.
      1. Type for Joints Not Subject to Pedestrian or Vehicular Traffic: ASTM C1330; Type O - Open Cell Polyurethane.
      2. Type for Joints Subject to Pedestrian or Vehicular Traffic: ASTM C1330; Type B - Bi-Cellular Polyethylene.
      3. Open Cell: 40 to 50 percent larger in diameter than joint width.
      4. Closed Cell and Bi-Cellular: 25 to 33 percent larger in diameter than joint width.
   B. Backing Tape: Self-adhesive polyethylene tape with surface that sealant will not adhere to and recommended by tape and sealant manufacturers for specific application.
   C. Masking Tape: Self-adhesive, nonabsorbent, non-staining, removable without adhesive residue, and compatible with surfaces adjacent to joints and sealants.
   D. Joint Cleaner: Non-corrosive and non-staining type, type recommended by sealant manufacturer; compatible with joint forming materials.
   E. Primers: Type recommended by sealant manufacturer to suit application; non-staining.

PART 3 EXECUTION

3.01 EXAMINATION
   A. Verify that joints are ready to receive work.
   B. Verify that backing materials are compatible with sealants.
   C. Verify that backer rods are of the correct size.

3.02 PREPARATION
   A. Remove loose materials and foreign matter that could impair adhesion of sealant.
   B. Clean joints, and prime as necessary, in accordance with manufacturer's instructions.
   C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.
   D. Mask elements and surfaces adjacent to joints from damage and disfigurement due to sealant work; be aware that sealant drips and smears may not be completely removable.
   E. Concrete Floor Joints That Will Be Exposed in Completed Work: Test joint filler in inconspicuous area to verify that it does not stain or discolor slab.

3.03 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. Perform acoustical sealant application work in accordance with ASTM C919.
   D. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer, except where specific dimensions are indicated.
   E. Install bond breaker backing tape where backer rod cannot be used.
F. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.

G. Do not install sealant when ambient temperature is outside manufacturer's recommended temperature range, or will be outside that range during the entire curing period, unless manufacturer's approval is obtained and instructions are followed.

H. Nonsag Sealants: Tool surface concave, unless otherwise indicated; remove masking tape immediately after tooling sealant surface.

I. Concrete Floor Joint Filler: After full cure, shave joint filler flush with top of concrete slab.

3.04 FIELD QUALITY CONTROL

A. Owner will employ an independent testing agency to perform field quality control inspection and testing as specified in PART 1 under QUALITY ASSURANCE article.

B. Non-Destructive Adhesion Testing: If there are any failures in first 100 linear feet, notify Architect immediately.

C. Remove and replace failed portions of sealants using same materials and procedures as indicated for original installation.

3.05 POST-OCCUPANCY

A. Post-Occupancy Inspection: Perform visual inspection of entire length of project sealant joints at a time that joints have opened to their greatest width; i.e. at the low temperature in the thermal cycle. Report failures immediately and repair.

END OF SECTION