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**SECTION 07 92 00****JOINT SEALANTS****PART 1 GENERAL****1.1 SUMMARY**

- A. Section Includes:
  - 1. Silicone joint sealants.
  - 2. Urethane joint sealants.
  - 3. Latex joint sealants.
  - 4. Epoxy security joint sealants.

**1.2 ACTION SUBMITTALS**

- A. Product Data: For each joint-sealant product indicated.
- B. Samples for Verification: For each kind and color of joint sealant required, provide Samples with joint sealants in 1/2 inch wide joints formed between two 6 inch long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.
- C. Joint-Sealant Schedule: Include the following information:
  - 1. Joint sealant application, joint location, and designation.
  - 2. Joint sealant manufacturer and product name.
  - 3. Joint sealant formulation.
  - 4. Joint sealant color.

**1.3 INFORMATIONAL SUBMITTALS**

- A. Qualification Data: For qualified Installer and testing agency.
- B. Product Certificates: For each kind of joint sealant and accessory, from manufacturer.
- C. Sealant, Waterproofing, and Restoration Institute (SWRI) Validation Certificate: For each sealant specified to be validated by SWRI's Sealant Validation Program.
- D. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, indicating that sealants comply with requirements.
- E. Warranties: Sample of special warranties.

**1.4 QUALITY ASSURANCE**

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.
  - B. Source Limitations: Obtain each kind of joint sealant from single source from single manufacturer.
  - C. Product Testing: Test joint sealants using a qualified testing agency.
    - 1. Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 to conduct the testing indicated.
    - 2. Test according to SWRI's Sealant Validation Program for compliance with requirements specified by reference to ASTM C 920 for adhesion and cohesion under cyclic movement, adhesion-in-peel, and indentation hardness.
  - D. Mockups: Install sealant in mockups of assemblies specified in other Sections that are indicated to receive joint sealants specified in this Section. Use materials and installation methods specified in this Section.
  - E. Preinstallation Conference: Conduct conference at Project site.
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**1.5 PROJECT CONDITIONS**

- A. 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 or are below 40 deg F.
  - 2. When joint substrates are wet.
  - 3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
  - 4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

**1.6 WARRANTY**

- A. Special Installer's Warranty: Manufacturer's standard form in which Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within five years from date of Substantial Completion.
- B. Special Manufacturer's Warranty: Manufacturer's standard form in which joint-sealant manufacturer agrees to furnish joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within 10 years from date of Substantial Completion.
- C. Special warranties specified in this article exclude deterioration or failure of joint sealants from the following:
  - 1. Movement of the structure caused by structural settlement or errors attributable to design or construction resulting in stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.
  - 2. Disintegration of joint substrates from natural causes exceeding design specifications.
  - 3. Mechanical damage caused by individuals, tools, or other outside agents.
  - 4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

**PART 2 PRODUCTS****2.1 MATERIALS, GENERAL**

- A. Regional Materials: Sealants and sealant primers shall be manufactured within 500 miles of Project site.
  - B. Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.
  - C. Low Emitting Interior Sealants: Sealants and sealant primers used inside the weatherproofing system shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
  - D. Liquid Applied Joint Sealants:
    - 1. Comply with ASTM C 920 and other requirements indicated for each liquid-applied joint sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.
    - 2. Suitability for Immersion in Liquids. Where sealants are indicated for Use I for joints that will be continuously immersed in liquids, provide products that have undergone testing according to ASTM C 1247. Liquid used for testing sealants is deionized water, unless otherwise indicated.
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- E. Stain Test Response Characteristics: Where sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.
- F. Suitability for Contact with Food: Where sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.2600.
- G. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

## **2.2 SILICONE JOINT SEALANTS**

- A. Mildew Resistant, Single Component, Acid Curing Silicone Joint Sealant: ASTM C 920, Type S, Grade NS, Class 25, for Use NT. As indicated in Section 08853 "Security Glazing" and subject to compliance with requirements, provide one of the following:
  - 1. Dow Corning Corporation.
  - 2. GE Advanced Materials.

## **2.3 URETHANE JOINT SEALANTS**

- A. Single Component, Pourable, Traffic Grade, Urethane Joint Sealant: ASTM C 920, Type S, Grade P, Class 25, for Use T. Subject to compliance with requirements, provide one of the following:
  - 1. BASF Building Systems; Sonolastic SL 1.
  - 2. Pecora Corporation; Urexpan NR-201.
  - 3. Sika Corporation. Construction Products Division; Sikaflex - 1CSL.
  - 4. Tremco Incorporated; Vulkem 45.
- B. Single Component, Non-sag, Urethane Joint Sealant: ASTM C 920, Type S, Grade NS, Class 25, for Use NT. Subject to compliance with requirements, provide one of the following:
  - 1. BASF Building Systems; Sonolastic NP1.
  - 2. Pecora Corporation; Dynatrol I-XL.
  - 3. Sika Corporation, Construction Products Division; Sikaflex - 1a.
  - 4. Tremco Incorporated; Dymonic.

## **2.4 LATEX JOINT SEALANTS**

- A. Latex Joint Sealant: Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF. Subject to compliance with requirements, provide one of the following:
  - 1. BASF Building Systems; Sonolac.
  - 2. Bostik, Inc.; Chem-Calk 600.
  - 3. Pecora Corporation; AC-20+.
  - 4. Tremco Incorporated; Tremflex 834.

## **2.5 EPOXY SECURITY JOINT SEALANTS**

- A. Epoxy Joint Sealants: 100 percent reactive, two component, moisture insensitive, high modulus epoxy gel for vertical, horizontal, and overhead joints. ASTM C881-90, Types I, IV, and VI, Grade 3, Class B and Class C. Suitable for use under ACI specifications 503.1, 503.2, 503.3, and 503.4. Subject to compliance with requirements, provide one of the following:
  - 1. Euclid Chemical Co., EUCO #452-P Epoxy System.
  - 2. Pecora Corporation, Dynapoxy™ EP-1200.
  - 3. Superior Epoxies & Coating, Inc., SPS Standard Superior Security Sealant.
  - 4. Unitex, Pro-Flex Gel.

**2.6 JOINT SEALANT BACKING**

- A. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
- B. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer.

**2.7 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.
- C. Masking Tape: Non-staining, non-absorbent 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.
- B. Proceed with installation only after 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 porous joint substrate surfaces by brushing, grinding, 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 after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:
      - a. Concrete.
      - b. Masonry.
    - 3. Remove laitance and form-release agents from concrete.
    - 4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.
      - a. Non-porous joint substrates include the following:
        - b. Metal.
        - c. Glass.
  - B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply
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1. 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 or primer 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**

- A. Comply with joint sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Install sealant backings of kind 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 behind sealants where sealant backings are not used between sealants and backs of joints.
- E. Install sealants using proven techniques that 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 in each joint configuration.
  3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- F. Tooling of Non-sag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs 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 sealant from surfaces adjacent to joints.
  2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
  3. Provide concave joint profile per Figure 8A in ASTM C 1193, unless otherwise indicated.
- G. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

### **3.4 CLEANING**

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

### **3.5 PROTECTION**

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- 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 original work.

### **3.6 JOINT-SEALANT SCHEDULE**

- A. Joint-Sealant Application: Exterior joints in horizontal traffic surfaces (JS-1).
1. Joint Locations: Isolation and contraction joints in cast-in-place concrete slabs.
  2. Urethane Joint Sealant: Single component, pourable, traffic grade.
  3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.
- B. Joint Sealant Application: Exterior joints in vertical surfaces and horizontal non-traffic surfaces (JS2).
1. Joint Locations:
    - a. Construction joints in cast-in-place concrete.
    - b. Control and expansion joints in unit masonry.
    - c. Joints in stone masonry.
    - d. Joints between different materials listed above.
    - e. Perimeter joints between materials listed above and frames of doors, windows, curtain wall systems, storefront framing, and louvers.
    - f. Other joints as indicated.
  2. Urethane Joint Sealant: Single component, non-sag, Class 25.
  3. Joint Sealant Colors: As selected by Architect from manufacturer's full range of colors.
- C. Joint-Sealant Application: Interior joints in horizontal traffic surfaces (JS3).
1. Joint Locations:
    - a. Isolation joints in cast-in-place concrete slabs.
    - b. Control and expansion joints in terrazzo flooring.
    - c. Control and expansion joints in tile flooring.
    - d. Other joints as indicated.
  2. Urethane Joint Sealant: Single component, pourable, traffic grade.
  3. Joint Sealant Colors: As selected by Architect from manufacturer's full range of colors.
- D. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal non-traffic surfaces (JS4).
1. Joint Locations:
    - a. Perimeter joints of exterior openings where indicated.
    - b. Vertical joints on exposed surfaces of interior unit masonry, concrete, walls, and partitions.
    - c. Perimeter joints between interior wall surfaces and frames of interior doors, windows, and elevator entrances.
    - d. Other joints as indicated.
  2. Joint Sealant: Latex.
  3. Joint Sealant Colors: As selected by Architect from manufacturer's full range of colors.
- E. Joint-Sealant Application: Mildew-resistant interior joints in vertical surfaces and horizontal non-traffic surfaces (JS5).
1. Joint Sealant Location:
    - a. Joints between plumbing fixtures and adjoining walls, floors, and counters in staff toilets, janitor's closet and mechanical/electrical room.
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- b. Tile control and expansion joints.
    - c. All joints in food preparation areas.
    - d. Other joints as indicated.
  - 2. Joint Sealant: Single component, non-sag, mildew resistant, acid curing.
  - 3. Joint Sealant Colors: As selected by Architect from manufacturer's full range of colors.
  - F. Joint Sealant Application: Interior Security Joint Sealant - 2 part Epoxy Security Sealant Tamper and Abuse Resistant (JS-6).
    - 1. Joint Sealant Location:
      - a. Vertical, horizontal, and overhead joints as indicated on Contract Drawings.
      - b. Joints between plumbing fixtures and adjoining walls, floors, and counters in all holding and group holding cells, inmate toilet, and inmate search room.
      - c. Perimeter joints between cast-in-place concrete, unit masonry and frames of doors, windows, curtain wall systems, storefront framing, and louvers.

**END OF SECTION 07 92 00**