

SECTION 02764

PAVEMENT 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 the following:
 - 1. Expansion and contraction joints within Portland Cement concrete pavement.
 - 2. Joints between Portland Concrete and asphalt pavement.
- B. Related Sections** include the following:
 - 1. Division 2 Section "Asphalt Paving" for constructing joints between concrete and asphalt pavement.
 - 2. Division 2 Section "Portland Cement Concrete Paving" for constructing joints in concrete pavement.
 - 3. Division 7 Section "Joint Sealants" for sealing non-traffic and traffic joints in locations not specified in this Section.

1.3 SUBMITTALS

- A. Product Data:** For each joint-sealant product indicated.
- B. Samples for Verification:** For each type and color of joint sealant required. Install joint-sealant samples 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. Product Certificates:** For each type of joint sealant and accessory, signed by product manufacturer.
- D. Compatibility and Adhesion Test Reports:** From sealant manufacturer, indicating the following:
 - 1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.
 - 2. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.
- E. Product Test Reports:** Based on evaluation of comprehensive tests performed by a qualified testing agency, for sealants.

1.4 QUALITY ASSURANCE

- A. **Installer Qualifications:** An employer of workers trained and approved by manufacturer.
- B. **Source Limitations:** Obtain each type of joint sealant through one source from a single manufacturer.
- C. **Preconstruction Compatibility and Adhesion Testing:** Submit to joint-sealant manufacturers, for testing indicated below, samples of materials that will contact or affect joint sealants.
 - 1. Use ASTM C 1087 to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
 - 2. Submit not fewer than 2 pieces of each type of material, including joint substrates, shims, joint-sealant backings, secondary seals, and miscellaneous materials.
 - 3. Schedule sufficient time for testing and analyzing results to prevent delaying the Work.
 - 4. For materials failing tests, obtain joint-sealant manufacturer's written instructions for corrective measures including use of specially formulated primers.
 - 5. Testing will not be required if joint-sealant manufacturers submit joint preparation data that are based on previous testing of current sealant products for adhesion to, and compatibility with, joint substrates and other materials matching those submitted.
- D. **Product Testing:** Obtain test results for "Product Test Reports" Paragraph in "Submittals"
 - 1. Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 for testing indicated, as documented according to ASTM E 548.

1.5 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 multi-component materials.
- B. **Store and handle materials** to comply with manufacturer's written instructions to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

1.6 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.
 - 2. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.
 - 3. When joint substrates are wet or covered with frost.
 - 4. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
 - 5. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

- A. Available Products:** Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products listed in other Part 2 articles.
- B. Products:** Subject to compliance with requirements, provide one of the products listed in other Part 2 articles.

2.2 MATERIALS, GENERAL

- A. Compatibility:** Provide joint sealants, backing materials, 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.
- B. Colors of Exposed Joint Sealants:** As selected by Architect from manufacturer's full range.

2.3 COLD-APPLIED JOINT SEALANTS

- A. Multi-component Jet-Fuel-Resistant Sealant for Concrete:** Pourable, chemically curing elastomeric formulation complying with the following requirements for formulation and with ASTM C 920 for type, grade, class, and uses indicated:
 - 1. Urethane Formulation: Type M; Grade P; Class 12-1/2; Uses T, M, and, as applicable to joint substrates indicated, O.
 - a. Products: Pecora Corporation; Urexpan NR-300.
 - 2. Bitumen-Modified Urethane Formulation: Type M; Grade P; Class 25; Uses T, M, and, as applicable to joint substrates indicated, O.
 - a. Products: Tremco Sealant/Waterproofing Division; Vulkem 202.
- B. Single-Component Jet-Fuel-Resistant Urethane Sealant for Concrete:** Single-component, pourable, coal-tar-modified, urethane formulation complying with ASTM C 920 for Type S; Grade P; Class 25; Uses T, M, and, as applicable to joint substrates indicated, O.
 - 1. Products: Sonneborn, Div. of ChemRex, Inc.; Sonomeric 1.
- C. Single-component, low-modulus, neutral-curing, nonsag silicone sealant complying with ASTM D 5893 for Type NS.**
 - 1. Products:
 - a. Crafcro Inc.; RoadSaver Silicone.
 - b. Dow Corning Corporation; 888.
- D. Type SL Silicone Sealant for Concrete and Asphalt:** Single-component, low-modulus, neutral-curing, self-leveling silicone sealant complying with ASTM D 5893 for Type SL.
 - 1. Products:
 - a. Crafcro Inc.; RoadSaver Silicone SL.
 - b. Dow Corning Corporation; 890-SL.

2.4 HOT-APPLIED JOINT SEALANTS

- A. **Elastomeric Sealant for Concrete:** Single-component formulation complying with ASTM D 3406.
 - 1. Products:
 - a. Crafcro Inc.; Superseal 444/777.
 - b. Meadows, W. R., Inc.; Poly-Jet 3406.
- B. **Sealant for Concrete and Asphalt:** Single-component formulation complying with ASTM D 3405.
 - 1. Products:
 - a. Koch Materials Company; Product No. 9005.
 - b. Koch Materials Company; Product No. 9030.
 - c. Meadows, W. R., Inc.; Sealtight Hi-Spec.

2.5 JOINT-SEALANT BACKER MATERIALS

- A. **General:** Provide joint-sealant backer materials that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by joint-sealant manufacturer based on field experience and laboratory testing.
- B. **Round Backer Rods for Cold- and Hot-Applied Sealants:** ASTM D 5249, Type 1, of diameter and density required to control sealant depth and prevent bottom-side adhesion of sealant.
- C. **Backer Strips for Cold- and Hot-Applied Sealants:** ASTM D 5249; Type 2; of thickness and width required to control sealant depth, prevent bottom-side adhesion of sealant, and fill remainder of joint opening under sealant.
- D. **Round Backer Rods for Cold-Applied Sealants:** ASTM D 5249, Type 3, of diameter and density required to control sealant depth and prevent bottom-side adhesion of sealant.

2.6 PRIMERS

- A. **Primers:** Product 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.

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.
 - 1. 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.

- B. Joint Priming:** Prime joint substrates where indicated or 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.

3.3 INSTALLATION OF JOINT SEALANTS

- A. General:** Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Sealant Installation Standard:** Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Install backer materials** of type 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 backer materials.
 2. Do not stretch, twist, puncture, or tear backer materials.
 3. Remove absorbent backer materials that have become wet before sealant application and replace them with dry materials.
- D. 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 provided for each joint configuration.
 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- E. Tooling of Nonsag Sealants:** Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified 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 sealants from surfaces adjacent to joint.
 2. Use tooling agents that are approved in writing by joint-sealant manufacturer and that do not discolor sealants or adjacent surfaces.
- F. Provide joint configuration** to comply with joint-sealant manufacturer's written instructions, unless otherwise indicated.
- G. Provide recessed joint configuration** for silicone sealants of recess depth and at locations indicated.

3.4 CLEANING

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

3.5 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 and replace with joint sealant so installations with repaired areas are indistinguishable from the original work.

END OF SECTION