Revise this section by deleting and inserting text to meet project-specific requirements

SECTION 321373 - CONCRETE PAVING JOINT SEALANTS

1. GENERAL
   * + 1. SUMMARY
          1. Section Includes:

Cold-applied joint sealants.

Hot-applied joint sealants.

Cold-applied, fuel-resistant joint sealants.

Hot-applied, fuel-resistant joint sealants.

Joint-sealant backer materials.

Primers.

* + - 1. REFERENCES
         1. ASTM International

ASTM C920 - Standard Specification for Elastomeric Joint Sealants

ASTM C1193 - Standard Guide for Use of Joint Sealants

ASTM D1752 - Standard Specification for Preformed Sponge Rubber, Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction

ASTM D5249 - Standard Specification for Backer Material for Use with Cold- and Hot-Applied Joint Sealants in Portland-Cement Concrete and Asphalt Joints

ASTM D5893 - Standard Specification for Cold Applied, Single Component, Chemically Curing Silicone Joint Sealant for Portland Cement Concrete Pavements

* + - 1. SUBMITTALS
         1. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.
         2. Manufacturer’s installation instructions shall be provided along with product data.
         3. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).
         4. Product Data: For each type of product, including federal specification number, expiration date, and packaging date or batch number (if applicable).
         5. Paving-Joint-Sealant Schedule: Include the following information:

Joint-sealant application, joint location, and designation.

Joint-sealant manufacturer and product name.

Joint-sealant formulation.

Joint-sealant color.

* + - * 1. Qualification Data: For Installer.

Retain "Product Certificates" paragraph below to require submittal of product certificates from manufacturers.

* + - * 1. Product Certificates: For each type of joint sealant and accessory.
      1. QUALITY ASSURANCE
         1. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.
      2. FIELD CONDITIONS
         1. Do not proceed with installation of joint sealants under the following conditions:

When ambient and substrate temperature, humidity, or moisture conditions are outside limits permitted by joint-sealant manufacturer or temperatures are below 40 deg F.

When joint substrates are wet.

Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.

Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1. PRODUCTS

See editing Instruction No. 1 in the evaluations for cautions about named manufacturers and products.

* + - 1. MATERIALS, GENERAL
         1. 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.
      2. COLD-APPLIED JOINT SEALANTS
         1. Single-Component, Nonsag, Silicone Joint Sealant: ASTM D5893, Type NS.

Products:

Tremco Vulkem 116

Pecora Dynatrol I XL

Sika Sikaflex Textured Sealant

DOWSIL CCS or CWS

Pecora 301-NS

Pecora 311-NS

Approved equivalent.

* + - * 1. Single-Component, Self-Leveling, Silicone Joint Sealant: ASTM D5893, Type SL.

Products:

Bostik Chem-Calk 955-SL

Pecora Urexpan NR-201

Pecora 300-SL

Pecora 310-SL

Sika Sikaflex-1c SL

DOWSIL 890-SL

Approved equivalent.

* + - 1. HOT-APPLIED JOINT SEALANTS

Classifications of sealants in this article are based on ASTM D6690. Type I is for moderate climates and tested down to Zero deg F with 50 percent extension. Type II and Type III are for most climates and tested down to minus 20 deg F with 50 percent extension. Type IV is for very cold climates and tested down to minus 20 deg F with 200 percent extension. NYS DOT specifies hot-applied join sealants meeting ASTM D6690 Type IV for concrete, and Type II for asphalt.

Type II sealants generally perform well in climates where the temperature seldom drops below -18D F. Type IV sealants perform better in very cold climates.

* + - * 1. Hot-Applied, Single-Component Joint Sealant: ASTM D6690, Type II.

[Products:](http://www.specagent.com/LookUp/?ulid=9005&mf=04&src=wd) As appearing on the NYS DOT Approved List.

In "Hot-Applied, Single-Component Joint Sealant" paragraph below, Type IV sealants may not be suitable for paving areas with high levels of foot traffic.

* + - * 1. Hot-Applied, Single-Component Joint Sealant: ASTM D6690, Type IV.

[Products:](http://www.specagent.com/LookUp/?ulid=9005&mf=04&src=wd) As appearing on the NYS DOT Approved List.

* + - 1. COLD-APPLIED, FUEL-RESISTANT JOINT SEALANTS
         1. Fuel-Resistant, Single-Component, Pourable, Modified-Urethane, Elastomeric Joint Sealant: ASTM C920, Type S, Grade P, Class 25, for Use T.

[Manufacturers:](http://www.specagent.com/Lookup?ulid=9008) Subject to compliance with requirements, provide products by the following:

[BASF Corporation](http://www.specagent.com/Lookup?uid=123456931541), (973) 245-6000, 100 Park Ave Florham Park, NJ 07932 United States

Approved equivalent.

* + - * 1. Fuel-Resistant, Multicomponent, Pourable, Modified-Urethane, Elastomeric Joint Sealant: ASTM C920, Type M, Grade P, Class 12-1/2 or 25, for Use T.

[Manufacturers:](http://www.specagent.com/Lookup?ulid=9009) Subject to compliance with requirements, provide products by one of the following:

[Pecora Corporation](http://www.specagent.com/Lookup?uid=123456931527), (800)-523-6688, 165 Wambold Road, Harleysville, Pennsylvania 19438

W.R. Meadows, Inc, (800) 342-5976, 300 Industrial Drive, P.O. Box 338, Hampshire, IL 60140-0338

Approved equivalent.

* + - 1. HOT-APPLIED, FUEL-RESISTANT JOINT SEALANTS

Classifications of sealants in this article are based on ASTM D7116. Type I is for moderate climates with a minimum of 60 percent resilience when tested down to Zero deg F with 50 percent extension. Type II is for moderate climates and tested down to Zero deg F with 50 percent extension. Type III is for most climates and tested down to minus 20 deg F with 50 percent extension.

* + - * 1. Hot-Applied, Fuel-Resistant, Single-Component Joint Sealants: ASTM D7116, Type I or Type II.

Manufacturers: Subject to compliance with requirements, provide products by one of the following:

Crafco Inc, (800)-227-4059, 6165 W. Detroit Street, Chandler, AZ 85226

Approved equivalent.

* + - * 1. Hot-Applied, Fuel-Resistant, Single-Component Joint Sealants: ASTM D7116, Type III.

Manufacturers: Subject to compliance with requirements, provide products by one of the following:

Crafco Inc, (800)-227-4059, 6165 W. Detroit Street, Chandler, AZ 85226

Approved equivalent.

* + - 1. JOINT-SEALANT BACKER MATERIALS
         1. Joint-Sealant Backer Materials: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by joint-sealant manufacturer, based on field experience and laboratory testing.

Retain "Round Backer Rods for Cold- and Hot-Applied Joint Sealants" or "Round Backer Rods for Cold-Applied Joint Sealants" paragraph below for use in joints such as contraction joints cut partially through paving material.

* + - * 1. Round Backer Rods for Cold- and Hot-Applied Joint Sealants: ASTM D5249, Type 1, of diameter and density required to control sealant depth and prevent bottom-side adhesion of sealant.
        2. Round Backer Rods for Cold-Applied Joint Sealants: ASTM D5249, Type 3, of diameter and density required to control joint-sealant depth and prevent bottom-side adhesion of sealant.

Retain "Backer Strips For Cold- and Hot-Applied Joint Sealants" paragraph below for use in joints extending through the full depth of the paving.

* + - * 1. Backer Strips for Cold- and Hot-Applied Joint Sealants: ASTM D5249; Type 2; of thickness and width required to control joint-sealant depth, prevent bottom-side adhesion of sealant, and fill remainder of joint opening under sealant.
      1. PRIMERS

Generally, retain this article unless it is known that priming of substrates is not required with joint sealants specified. Purpose of primers is to improve adhesion of joint sealant to substrate.

* + - * 1. Primers: Product recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated.
      1. COLOR OF MATERIALS
         1. For exposed materials furnish color as indicated, or if not indicated, as selected by the Director from the manufacturer’s standard colors. For concealed materials, provide the natural color which has the best overall performance characteristics.

1. EXECUTION
   * + 1. EXAMINATION
          1. Examine joints to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.
          2. Proceed with installation only after unsatisfactory conditions have been corrected.
       2. PREPARATION
          1. Surface Cleaning of Joints: Before installing joint sealants, clean out joints immediately to comply with joint-sealant manufacturer's written instructions.

Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.

Purpose of primers in "Joint Priming" paragraph below is to improve adhesion of joint sealant to substrate.

* + - * 1. 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.
      1. INSTALLATION OF JOINT SEALANTS
         1. Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated unless more stringent requirements apply.
         2. Joint-Sealant Installation Standard: Comply with recommendations in ASTM C1193 for use of joint sealants as applicable to materials, applications, and conditions.
         3. Install joint-sealant backings to support joint 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.

Do not leave gaps between ends of joint-sealant backings.

Do not stretch, twist, puncture, or tear joint-sealant backings.

Remove absorbent joint-sealant backings that have become wet before sealant application and replace them with dry materials.

* + - * 1. Install joint sealants immediately following backing installation, using proven techniques that comply with the following:

Place joint sealants so they fully contact joint substrates.

Completely fill recesses in each joint configuration.

Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

* + - * 1. Tooling of Nonsag Joint Sealants: Immediately after joint-sealant application and before skinning or curing begins, tool sealants according to the following requirements 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 joint sealant from surfaces adjacent to joints.

Use tooling agents that are approved in writing by joint-sealant manufacturer and that do not discolor sealants or adjacent surfaces.

* + - * 1. Provide joint configuration to comply with joint-sealant manufacturer's written instructions unless otherwise indicated.
      1. CLEANING AND PROTECTION
         1. Clean off excess joint sealant as the Work progresses, by methods and with cleaning materials approved in writing by joint-sealant manufacturers.
         2. 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 in repaired areas are indistinguishable from the original work.
      2. PAVING-JOINT-SEALANT SCHEDULE

Joint-Sealant Applications in this article represent only a limited number of examples; revise to suit Project. For projects with more than one kind of sealant for joint locations listed, copy applicable paragraph below and re-edit for each product.

For each joint sealant scheduled, retain corresponding product requirements in Part 2 that reference sealant standards, specify product properties, and, if required, name manufacturers and products.

* + - * 1. Joint-Sealant Application: Joints within concrete paving.

Joint Location:

Expansion and isolation joints in concrete paving.

Contraction joints in concrete paving.

Other joints as indicated.

Joint Sealant: [**Single-component, nonsag, silicone joint sealant**] [**Single-component, self-leveling, silicone joint sealant**] [**Hot-applied, single-component joint sealant**] <**Insert joint sealant**>.

Retain "Joint-Sealant Color" Subparagraph below if joint sealants specified are offered in a range of colors and colors are not indicated on Drawings. Typically, color choice is unavailable for paving joint sealants.

Joint-Sealant Color: [**Manufacturer's standard**].

* + - * 1. Joint-Sealant Application: Joints within concrete paving and between concrete and asphalt paving.

Joint Location:

Joints between concrete and asphalt paving.

Joints between concrete curbs and asphalt paving.

Other joints as indicated.

Joint Sealant: [**Hot-applied, single-component joint sealant**].

Retain "Joint-Sealant Color" Subparagraph below if joint sealants specified are offered in a range of colors and colors are not indicated on Drawings. Typically, color choice is unavailable for paving joint sealants.

Joint-Sealant Color: [**Manufacturer's standard**].

* + - * 1. Joint-Sealant Application: Fuel-resistant joints within concrete paving.

Joint Location:

Expansion and isolation joints in concrete paving.

Contraction joints in concrete paving.

Other joints as indicated.

Joint Sealant: [**Fuel-resistant, single-component, pourable, modified-urethane, elastomeric joint sealant**] [**Fuel-resistant, multicomponent, pourable, modified-urethane, elastomeric joint sealant**] [**Hot-applied, fuel-resistant, single-component joint sealant**].

Retain "Joint-Sealant Color" Subparagraph below if joint sealants specified are offered in a range of colors and colors are not indicated on Drawings. Typically, color choice is unavailable for paving joint sealants.

Joint-Sealant Color: [**Manufacturer's standard**].

END OF SECTION 321373