BUILDING TRUST

Section 07 90 00
Joint Protection

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SIKA SPECIFICATION NOTE: *This guide specification includes test methods, materials and installation procedures for a Polymer Mortar Expansion Dam system with Rapid Cure Silicone Joint Sealant comprising* ***Sikadur®-72 JNS****, a Polymer Mortar Expansion Dam and* ***Sikasil®-728 RCS****, a Rapid-Cure Silicone Joint Sealant. This guide specification should be adapted to suit the needs and conditions of individual projects. It is prepared in CSI Master Format and should be included as a separate section under Division 3 - Concrete.*
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Part 1 - General

1.01 Summary

This Specification shall be read as a whole by all parties concerned. Each Section may contain more or less the complete Work of any trade. The Contractor is solely responsible to make clear to the Subcontractors the extent of their Work and coordinate overlapping Work.

1.02 System description

This specification describes the furnishing and installation of expansion dams with two-part, Rapid Cure Silicone Joint Sealant. The dimensions for the dams and joint widths shall be as specified or shown on plan drawings.

1.03 Related sections

A.	Maintenance of Joint Protection	07 01 90
B.	Rigid Paving Surface Treatment	32 01 19
C.	Flexible Paving	32 12 00

1.04 References

The following standards are applicable to this section:

- ASTM D5329 - Joint Elongation and Modulus
- ASTM C1183M, Type S - Extrusion Rate
- ASTM C882 - Slant Shear Bond Strength
- ASTM C579 - Compressive Strength
- ASTM D638 - Tensile Strength and Elongation

1.05 Quality Assurance

A. Manufacturing qualifications: The manufacturer of the specified product shall be ISO 9001 certified and have in existence a recognized ongoing quality assurance program independently audited on a regular basis.

B. Contractor qualifications: Contractor shall be qualified in the field of concrete repair and protection with a successful track record of 5 years or more. Contractor shall maintain qualified personnel who have receivced product training by a manufacturer's representative.

C. Store and apply materials in accordance with all safety and weather conditions required by manufacturer or as modified by applicable rules and regulations of local, state and federal authorities having jurisdiction. Consult the Safety Data Sheets (SDS) for complete handling recommendations.

1.06 Delivery, Storage, and Handling

A. All materials must be delivered in original, unopened containers with the manufacturer's name, labels, product identification, and batch numbers. Damaged material must be removed from the site immediately.

B. Store all materials off the ground and protect from rain, freezing or excessive heat until ready for use.

C. Condition the specified product as recommended by the manufacturer.

1.07 Job Conditions

A. Environmental Conditions: Do not apply material if it is raining or snowing or if such conditions appear to be imminent. Minimum application temperature 45°F (5°C) and rising.

B. Protection: Precautions should be taken to avoid damage to any surface near the work zone due to mixing and handling of the specified material.

1.08 Submittals

A. Submit two copies of manufacturer's literature, to include: Product Data Sheets (PDS), and appropriate Safety Data Sheets (SDS).
B. Submit copy of Certificate of Approved Contractor status by manufacturer.

1.09 Warranty

Provide a written warranty from the manufacturer against defects of materials for a period of one (1) year, beginning with date of substantial completion of the project.

Part 2 - Products

2.01 Manufacturer

Sikadur®-72 JNS with Sikasil®-728 RCS, as proposed by Sika Corporation, are considered to conform to the requirements of this specification.

2.02 Materials

A. Joint Backing Material: Provide joint backing material that is extruded, soft, low-density polyethylene that does not bond to the silicone sealant

B. Silicone Sealant:

a. The Silicone Sealant shall consist of two components

b. The Silicone Sealant shall be of a self-levelling consistency

c. The Silicone Sealant shall be resistant to road salts, gasoline and jet fuel

C. Polymer Mortar: The Polymer Mortar shall be a two-component, flexible epoxy with aggregate that cures to a semi-flexible impact and abrasion resistant epoxy concrete

2.03 Performance Criteria

Typical Properties of the Silicone Sealant:

Uncured Properties

1. Rheological	Self-levelling
2. Extrusion Rate	50g/min., 1/8”orifice @ 50 psi

Cured Properties (7-day cure)

1. Skin-Over Time	10 min (MNA method)
2. Cure Time	90% in 1 hr. (MNA method)
3. Joint Elongation	725%
4. Joint Modulus	5 (100% elongation)

Typical Properties of the Polymer Modified Mortar:

Neat Resin (cured)

1. Mixing Ratio	1:1 (by volume)
2. Tensile Strength (ASTM D-638)	> 2,650 psi
3. Elongation (ASTM D-638)	55%

Cured Mortar with Aggregate

1. Color	Gray
2. Compressive Strength at 1 day (ASTM C-579	5,400 psi
3. Bond Strength (ASTM C-882)	2,000 psi

Note: Tests above were performed with the material and curing conditions @ 71°F – 75°F and 45 - 55% relative humidity.

Part 3 – Execution

3.01 Surface Preparation

A. Polymer Mortar: Surface must be clean and sound. It may be dry or damp, but free of standing water. Remove dust, laitance, grease, curing compounds, impregnations, waxes and any other contaminants. Prepare concrete to CSP 3 or 4.

B. Rapid-Curing Silicone Sealant
   a) Surface must be clean, dry, frost0free, sound and free of any oils, greases or incompatible sealers, paints or coatings that may interfere with adhesion
   b) Porous substrates must be cleaned by mechanical methods to expose a sound surface free of contamination and laitance. Non-porous substrates must be wiped down with solvent and a rag. Make sure solvent is fully evaporated before proceeding with application.

3.02 Mixing and Application

A. Polymer Mortar
   a) Parts A and B must be thoroughly mixed together prior to adding part C. Combine parts A and B in a bucket and mix thoroughly for 2 minutes with a low-speed drill and egg-beater mixing blade (i.e. a jiffy mixing paddle), or appropriate mortar mixer. Slowly add part C and continue mixing until aggregate is fully wetted, approximately 3 minutes.
   b) Place material into joint or repair and tool with a margin trowel to achieve desired form
   c) Press down on material to compact the mortar prior to finishing, in order to ensure the right physical properties are achieved.
   d) Once mortar has been placed in the desired location, it must be compacted in order to achieve proper physical characteristics. This is achieved by pressing down on any exposed mortar surface with a margin trowel or other suitable tool. If done properly, there will be no open pores or voids visible on the surface, and a thin layer of liquid resin will rise to the surface.

B. Rapid-CurING Silicone Sealant
   a) Apply sealant using consistent, positive pressure to force sealant into the joint. For sausages use a 16 element, 3/4” diameter static mixing nozzle.
   b) Apply the sealant so that it is recessed 1/8” (3 mm) below the surface. For parking deck joints, recess 1/4” (6 mm). For highway joints, recess 1/2” (12.7 mm).
   c) Sikasil-728 RCS is self-leveling - no tooling is needed. DO NOT use soapy water or other liquids. Consult full application guide for further information.

3.02 Cleaning

A. Polymer Mortar: Uncured Mortar or Binder material must be removed with solvent. Cured material must be removed by mechanical means.

B. Rapid Cure Silicone Sealant: Remove excess sealant from substrate while uncured using a commercial solvent, such as xylene according to the solvent manufacturer’s warnings and instructions for use. Cured sealant can only be removed by mechanical means

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materials relieves the user of the obligation to read and follow the warnings and instructions for each Sika product as set forth in the current Technical Data Sheet, product label and Material Safety Data Sheet prior to product use.