

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
EXPANSION JOINT, TYPE E3

STM:JD

1 of 2

APPR:ARB:JFS:04-16-20

FHWA:APPR:04-23-20

a. Description. This work consists of constructing and sealing E3 expansion joints with a polyurethane or polyurethane hybrid joint sealant at the locations shown on the plans, or as directed by the Engineer. Perform all work in accordance with the standard specifications and standard plans, except as modified in this special provision.

b. Materials. Provide all materials in accordance with subsection 602.02 of the Standard Specifications for Construction, except as modified in this special provision.

Provide a solid, round, closed-cell, polyethylene foam backer rod meeting the requirements of *ASTM D5249, for Type 1*. Non-sag polyurethane and polyurethane hybrids must meet *ASTM C920, Type S, Grade NS, Class 35*. Self-leveling polyurethane and polyurethane hybrids must meet *ASTM C920, Type S, Grade P, Class 35*. Select a polyurethane or polyurethane hybrid based on the performance requirements in Table 1, or as approved by the Engineer.

Table 1: Polyurethane or Polyurethane Hybrid Sealant Requirements

Property	Test Method	Minimum Result
Movement capability, %	<i>ASTM C719</i>	+35/-35
Tensile strength, psi	<i>ASTM D412</i>	175
Tear strength, pli	<i>ASTM D624</i>	35
Ultimate elongation at break, %	<i>ASTM D412</i>	400
Hardness, Shore A	<i>ASTM C661</i>	25
Tack-free time, hrs	<i>ASTM C679</i>	6
Adhesion in peel, pli	<i>ASTM C794</i>	20

Provide general certification per MDOT's *Materials Quality Assurance Procedures Manual* to the Engineer that the materials meet the requirements specified herein.

c. Construction. Construct and seal E3 expansion joints in accordance with subsection 602.03 of the Standard Specifications for Construction and Standard Plan R-39 Series, except as modified in this special provision.

1. **Joint Preparation.** Immediately prior to application of the polyurethane or polyurethane hybrid sealant, clean joint faces by abrasive blasting to remove all materials that may interfere with the bonding or curing of the sealant. Ensure the prepared joint faces meet the *International Concrete Repair Institute Guideline No. 03732*, concrete surface profile 3 (CSP 3). Use a vacuum or oil-free moisture-free air blast to remove all dust and other loose material. Remove any oil or other contamination after initial cleaning. Ensure there is no visible moisture present on the surface of the concrete at the time of application. The Engineer will not allow the use of artificial heat to dry joints before sealing. Ensure that the fiber joint filler

is secure and installed at the proper elevation relative to the joint reservoir. Place backer rod to a depth in accordance with the sealant manufacturer's recommendations.

2. Joint Sealing. Provide Engineer with manufacturer's recommended application procedures. Do not install sealant on concrete surfaces that are less than the age specified by the manufacturer's recommendation. Horizontal applications with a cross slope less than or equal to 6 percent may use a self-leveling or non-sag sealant. Horizontal applications with a cross slope greater than 6 percent and vertical applications must use a non-sag sealant. Do not place sealant if weather or surface conditions are such that the material cannot be properly handled, placed, and cured within the manufacturer's requirements and specified requirements of traffic control.

d. Measurement and Payment. Measurement and payment for Joint, Expansion, E3 will be in accordance with subsection 602.04 of the Standard Specifications for Construction.