

Section
Elastomer Waterproofing Coating, Steel Rail Bridge Deck and Abutments
Cold Spray-Applied Waterproofing

PART 1 - GENERAL

1.01 Summary

- A. Furnish labor, products and equipment required for the application of a seamless, spray elastomer coating system to suitable metal surfaces. Default thickness is 80 mils (2 mm) on the deck surfaces and 80 mils on the abutment areas where required.
- B. The membrane system shall pass ASTM C 836-00 Crack Bridging Test at 80 mils, or the membrane thickness applied shall be at least equal to the thickness used by the manufacturer for the ASTM C 836-00 Crack Bridging Test.
- C. The membrane system shall meet AREMA C-29.9.10 cold applied waterproofing membrane, and shall be applied at a minimum thickness of 80 mils, or the membrane thickness applied shall be at least equal to the thickness used by the manufacturer to pass the ASTM C 836 Crack Bridging Test. Primer is required.
- D. The membrane system shall be capable of sealing across the expansion joints using Bridge Preservation Expansion Joint System without the need to use a separate gland and bonding agents on the membrane. This will assure a continuous waterproofing membrane system across the entire deck.

1.02 Definitions

- A. Ballast - rock or other material used to bed rail track ties.
- B. SSPC Metal Preparation Standards - SSPC-SP 5, White Metal Blast; SP 6, Commercial Blast; and SP 10 Near White Blast .

1.03 Submittals

- A. Submit product data sheets and installation specification.
- B. Submit MSDS sheets for product used in the Work.
- C. Submit substrate preparation details.
- D. Submit sample of proposed membrane. 4 inch (100 mm) square sample shall include color, texture, and thickness of proposed membrane system.

1.03 Project Conditions

- A. Environmental Requirements
 - 1. Install system when air and substrate temperature is above -20° F and substrate is above dew point.
- B. Personnel Requirements
 - 1. Provide protective clothing, gloves, and respirators for use by installers as required.

1.04 Quality Control Provisions

- A. Manufacturer Qualifications: Use manufacturer with minimum five years experience providing similar systems. The manufacturer should be a primary blender with proprietary formulations, an Authorized Contractor program, and capacity to provide field technical services as required.
- B. Contractor Qualifications: Use Contractor holding a current Authorized Contractor Certificate from the manufacturer .

1.05 Quality Assurance Provisions

- A. Schedule pre-installation conference to review installation schedule, shut down and restricted access procedures. Indicate Owner's Representative and Contractor's Superintendent.
- B. Inspect surface preparation, application procedures, and review proposed dry film thickness at each installation location.

- 1.06 Delivery, Storage, and Handling
- A. Deliver product in manufacturer's original containers.
 - B. Store product in warm dry condition.
 - C. Replace product damaged by shipment, weather, or job conditions.

PART 2 - PRODUCTS

2.01 Manufacturer: Bridge Preservation
 87 Shawnee Ave
 Kansas City KS 66105
 913-321-9000

- 2.02 Materials
- A. Primer.
 Steel Bridge Deck Primer. Single component modified polymer primer.
 - B. Membrane.
 Bridge Deck Membrane - 100% solids, rapid curing elastomer. Install by spray.

<u>Property, Cured Product</u>	<u>Test Method</u>	<u>Typical Value</u>
Solids Content		100%
Shor Hardness	ASTM D 2240	50 D
Elongation	ASTM D 638	>250%
Tensile Strength, psi	ASTM D 638	>2,000
Tear Strength, pli, Die C	ASTM D 624	390
Tabor Abrasion, mg. Loss (1000 gm, 1000 rev, H-18)	ASTM D 4060	250
Moisture Vapor Transmission	ASTM E 96	<0.025 perms
Gel Time		<10 Seconds
Tack Free		<30 Seconds
Electrical Resistance	ASTM D 257-99	$\geq 2.0 \times 10^{13}$ ohm-cm
Crack Bridging Test (80 Mills - 1/8" Opening @ -15°F, 25 cycles)	ASTM C 836-00	Pass
Ballast Test (North American)	2.0 million cycles	No damage

- 2.03 Equipment
- A. Provide spray equipment suitable for use with products specified.

PART 3 - EXECUTION

3.01 Inspection

- A. Prior to application of primer inspect and approve substrate preparation.

- 3.02 Preparation
- A. Provide clean sound metal substrate.
 - B. Sand blast metal surfaces to remove laitance and other contamination and provide suitable 3-5 mil blast profile.
 - C. Prepare metal surfaces to SSPC-SP 10 Near White Blast or better.
 - D. Test prepared surface using Elcometer adhesion testing (ASTM D 4541). Minimum pull strength is 400 psi.
 - E. Metal surfaces must be above dew point prior to application.

- F. Mask protected surfaces prior to spray applications.
- G. Erect spray curtains and partitions as required.

3.03 Installation

- A. Spray or roll primer at 400 - 600 square feet per gallon over surfaces to receive coating system. Allow primer to go tack free before spraying Bridge Deck Membrane. Primer is not necessary provided steel surface is prepared to 5 mil profile or better and no rust present
- B. Metal surfaces must be dry, rust-free, and have proper SSPC profile and preparation.
- C. Reapply primer if set more than 24 hours.
- D. Spray base coat over primed surfaces at 20 square feet per gallon (80 mils).
- E. Retouch coat by filling low spots or areas with inadequate thickness.
- F. Spray additional base coats to achieve specified system thickness. Retouch as required.

3.04 Field Quality Control

- A. Perform dry film thickness tests in accordance with SSPC-PA2 Measurement of Dry Coating Thickness.
- B. Use magnetic or ultrasonic test equipment, destructive testing, or stroke per gallon method of assuring proper film thickness.
 - 1. Spray equipment is calibrated and tested to a stroke count per gallon of product sprayed. This is suitable for thickness assurance on most projects.
 - 2. Ultrasonic testing is usually accurate to +/- 5%.
 - 3. Repair destructive testing areas by respraying or filling with special two component gun grade material provided by manufacturer.
- C. Other components of system may be wet film tested for thickness.
- D. Maintain spray and other installation equipment in proper operating condition throughout installation. Provide reserve equipment as required.

3.05 Cleaning

- A. Clean spills and oversprays as they occur.
- B. Consult manufacturer's literature and MSDS sheets for proper cleaning products and methods.
- C. Clean site to Owner's satisfaction prior to final acceptance.

3.06 Protection

- A. Protect installed work prior to acceptance by Owner.
- B. Place ballast after coating has cured for minimum of one hour.

3.07 Schedules

- A. Submit spray schedule if required.