MICHIGAN

DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

FOR

**CONCRETE SURFACE COATINGS FOR RAPID SETTING POLYMER CONCRETE**

STR:JAB 1 of 3 APPR:SCK:REL:06-07-24

**a. Description.** This work consists of furnishing and applying an acrylic based concrete surface coating to rapid setting polymer concrete patches, at locations shown on the plans. Ensure all work and materials are in accordance with the standard specifications, except as modified herein.

**b. Materials.** Furnish all materials in accordance with section 710 of the Standard Specifications for Construction, except as modified in this special provision.

Select the acrylic based concrete surface coating from the products listed herein. Verify surface coating compatibility with rapid setting polymer concrete patches and determine if a primer is required. Submit verification results to the Engineer.

The color(s) to be used for the polymer concrete surface coatings and the location(s) of the specific colors are on the plan sheets. Ensure the color of the first coat is in contrast with both the bare polymer concrete and the finish coat. On any single structure, use the same product for all areas to be coated with a specified color. Do not mix colors or products from more than one source.

Submit color samples to the Engineer for review and approval. Complete a test section to demonstrate the final color prior to application of the coating to the structure.

Company Product

Benjamin Moore Super Spec Masonry 100% Acrylic Elastomeric Coating Flat 056

Carboline Company Carbocrylic 3350

ChemMasters Colorcoat

ChemMasters Colorlastic

Conspec Permacoat

ICI Dulux Paints Decra-Flex 300

O’Leary Paint Company O’Leary 1375 Elastomeric

PPG Idustries, Inc. Perma-Crete Pitt-Flex Elastomeric Coating 4-110

Sherwin-Williams Concrete Texture Coating Smooth B97-160 Series

Sika Corporation Elastocolor

Sika Corporation Sikagard 550W Elastic

Sonneborn Super Color Coat

Tamms Industries Tammolastic

Thoro Thorocoat

Thoro Thorolastic

Furnish general certification per the MDOT’s *MQAP Manual* to the Engineer that the materials meet the requirements specified herein.

**c. Construction.**

1. Test Sections. Complete a coating test to verify the compatibility with the rapid setting polymer concrete patches and to demonstrate the color range, surface preparation, application methods, quality, and finish as described in this special provision. To ensure prepared surface is adequate for coating adhesion, perform a pull-off test per *ASTM D7234*. Minimum bond strength must be 250 psi for the surface preparation to be considered adequate.

Obtain the Engineer’s approval for the location of the test sections. The Engineer will furnish sample photos of the desired color range.

Once the coating test section is approved by the Engineer, use this section as a measure of the quality and finish of the remaining work. Complete an additional coating test section, if necessary, to obtain the Engineer’s approval.

2. Surface Preparation. Cure rapid setting polymer concrete patches in accordance with manufacturer’s recommendations and the contract.

Ensure the surface to be coated is dry and free from all contamination including, but not limited to: dirt, form release agents, oil, grease, laitance, loose material and curing compounds. Clean the surface by abrasive blasting (followed by oil-free moisture-free compressed air cleaning) to achieve an acceptable cleaned surface. Ensure the polymer CSP is CSP 2 to CSP 4 in accordance with the *International* *Concrete Repair Institute Guideline for Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays* *(Guideline No. 310.2R-2013)*.

Verify that the compressed air used for any work is free of oil and moisture contamination in accordance with *ASTM D4285*. Use either an absorbent or a nonabsorbent white collector positioned within 24 inches of the air-discharge point, centered in the air stream. Allow air to discharge onto the collector for a minimum of 1 minute. Visually examine the collector for the presence of oil and/or water. Conduct the test at least one time per shift for each compressor system in operation in the presence of the Engineer. If air contamination is evident, make adjustments to achieve clean, dry air. Examine the work performed since the last acceptable test for evidence of defects or contamination due to contaminated compressed air. Repair contaminated work at no additional cost to the contract.

3. Visual Inspection. Check surface cleanliness by lightly rubbing with a dark cloth or by pressing translucent adhesive tape onto the polymer concrete surface in the presence of the Engineer. An acceptable level of residual dust can be agreed upon by the Engineer and the Contractor. Perform a water drop test in the presence of the Engineer prior to coating the polymer concrete surface to detect for the presence of any hydrophobic contaminants. Hydrophobic contaminants include materials such as form release agents, curing compounds, oil, grease, wax, and resins. If contaminants are detected, as evidenced by a lack of rapid absorption of the water drop into the polymer concrete, remove the contaminants, and perform the tests again until no contaminants are detected.

4. Application. Apply two coats (do not dilute) of the acrylic based concrete surface coating. Apply each coat to furnish the minimum wet film thickness as recommended by the manufacturer. A primer is not required unless stated as required in the manufacturer’s product data sheet. Temperature limitations of the air, coating material and polymer concrete for application must follow manufacturer’s recommendations but must not be outside the temperature range of 45 °F to 90 °F. Ensure the temperature of the air, coating material and polymer concrete is at least 5 °F above the dew point and rising. Do not apply the concrete surface coating at a relative humidity greater than 90 percent or if rain is forecasted within the specified rain resistance period.

**d. Measurement and Payment.** The completed work, as described, will be measured and paid for at the contract unit price using the following pay item:

**Pay Item Pay Unit**

Conc Surface Coating, Spec Square Yard

**Conc Surface Coating, Spec** includes the test section, preparing the substrate polymer concrete surface, conducting the visual inspection and applying the primer (if required) and two top coats of surface coating.