

MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
CONCRETE SURFACE COATINGS

C&T:DEB

1 of 3

C&T:APPR:TES:DBP:05-11-07

a. Description. Furnish and apply an acrylic based concrete surface coating to concrete structures, including but not limited to barriers, fascias, cheekwalls, piers and substructure locations as specified on the plans. Conform to the 2003 Standard Specifications for Construction except as modified herein.

b. Materials. Select the acrylic based concrete surface coating from the products listed below. 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.

For this project, furnish and apply a smooth textured, Federal No. 36515 (Matte Gray) or other colors as approved by the Engineer.

Submit color samples to the Engineer for review and approval. If required by the Engineer, complete a test section to demonstrate the final color prior to application of the coating to the structure.

<u>Company</u>	<u>Product</u>
Carboline Company	Carbocrylic 600
ChemMasters	Colorcoat
ChemMasters	Colorlastic
Conspec	Permacoat
ICI Dulux Paints	Decra-Flex 300
Sika Corporation	Elastocolor
Sika Corporation	Sikagard 550W Elastic
Sonneborn	Super Color Coat
Tamms Industries	Tammolastic
Thoro	Thorocoat
Thoro	Thorolastic
O'Leary Paint Company	O'Leary 1375 Elastomeric

c. Construction.

1. **Surface Preparation.** All concrete to be coated must be tested for the presence of moisture after surface preparation has been completed and prior to application of the coating. Testing shall be in accordance with ASTM D4263. An 18 inch by 18 inch sheet (4mil) of transparent polyethylene shall be taped to the concrete surface to be coated. All edges will be sealed with tape that will stick to the concrete substrate and not allow the infiltration of air. Leave the plastic sheet in place a minimum of 16 hours to detect the presence of moisture in the concrete. There must be no moisture visible on the polyethylene sheet after the minimum period of time has elapsed. This will be verified by the Engineer before application of the

coating begins. This test may not be reliable in cooler conditions. Alternate methods to detect moisture shall be approved by the Engineer. This test should be performed a minimum of once every 100 feet on barriers, walls etc., and a minimum of once on columns, piers, etc. Prepare the surface, including removing fins and projections and filling surface voids and cracks (if required), according to manufacturer's recommendations, except as modified by this specification.

The surface to be coated must be dry and free from all contamination including, but not limited to: dirt, form release agents, oil, grease, laitance, loose material and curing compounds. Clean surface by low-pressure water cleaning, steam cleaning, or abrasive blasting (followed by oil-free compressed air cleaning) or by combination to achieve an acceptable cleaned surface. When low-pressure water cleaning or steam cleaning is used, the concrete surface profile (CSP) shall be CSP 1 in accordance with the International Concrete Repair Institute Guideline for Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays (Guideline No. 03732). When abrasive blasting is used, the concrete surface profile shall be CSP 3. Low-pressure water or steam-cleaning primarily removes water soluble contaminants. Aged concrete with contaminants such as hardened curing compound may require light abrasive blasting to completely remove the curing compound. Since many curing compounds contain wax, even well adhered residue shall be removed prior to coating to ensure a good bond between the surface coating and the concrete.

When low pressure water cleaning or steam cleaning is used, the power washer must deliver 3000 - 4500 psi and utilize a 15 degree or smaller nozzle tip held perpendicular to the surface being cleaned. When using light abrasive blasting to remove contaminants on new construction, be careful not to remove excessive concrete material.

2. **Visual Inspection.** Check surface cleanliness by lightly rubbing with a dark cloth or by pressing translucent adhesive tape onto the 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 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 concrete, remove the contaminants and perform the tests again until no contaminants are detected.

3. **Application.** Apply two coats (do not dilute) of the acrylic based concrete surface coating. Apply each coat to provide the minimum wet film thickness as recommended by the manufacturer. A primer is not required unless stated as required in the product list under part B. Temperature limitations for application will follow manufacturer's recommendations without exceeding an ambient temperature of 45-90 degrees F and the temperature must be at least 5 degrees F above the dew point when relative humidity is below 90 percent.

d. **Measurement and Payment.** The completed work as measured for **Conc Surface Coating** will be paid for at the contract unit price for the following contract item (pay item):

Contract Item (Pay Item)	Pay Unit
Conc Surface Coating	Square Yard

Payment for **Conc Surface Coating** includes all labor, equipment, and materials to prepare the

substrate concrete surface, conduct the visual inspection and apply the primer (if required) and two top coats of surface coating. No additional payment will be made for the test section.