Standard Structural Precast Concrete Repair Procedure #4: Hot-Dip Galvanize

Description

The following plan is for the repair of hot-dip galvanized components and is in accordance with subsection 716.03.E of the 2012 Michigan Department of Transportation Standard Specifications for Construction (MDOT SSC) and ASTM A780-09.

Procedure

Below is the standard repair procedure for hot-dip galvanizing. The fabricator must select a zinc-rich paint that meets ASTM A780 requirements and follow the following procedures:

1. Prepare the damaged galvanized area in accordance with paint manufacturer's instructions or as stated herein, whichever is stricter. Surface preparation must extend into the undamaged galvanized coating to ensure a smooth reconditioned coating can be effected.
2. Surfaces to be reconditioned with paints containing zinc dust shall be clean, dry, and free of oil, grease, preexisting paint, and corrosion by-products in accordance to SSPC-SP1 (Solvent Cleaning).
3. Clean the surface to bare metal, in accordance with SSPC-SP10 (Near-White Blast Cleaning) or SSPC-SP11 (Power Tool Cleaning to Bare Metal). Use a grinder and wire wheel to grind burrs, fins, tears, slivers, irregularities, or sharp edges. Sharp corners must be "broken" to ensure adequate edge dry film thickness.
4. Use a clean cloth to remove any contaminant from the area being repaired. Oil free pressurized air (90 psi minimum) must be used to remove any dust or any other particles.
5. If the area to be repaired includes welds, first remove all weld flux residue and weld spatter (of a size that cannot be removed by wire brushing or blast cleaning) by mechanical means such as chipping, grinding, or power scaling.
6. Hand coat the area according to the paint manufacturer's instructions or as stated herein, whichever is stricter.
7. Allow adequate cure time before recoating or placing the repaired component into service in accordance with paint manufacturer's product data sheet.
8. Use a magnetic, electromagnetic, or eddy-current gage to measure dry film thickness in accordance with SSPC-PA2 (Measurement of Dry Paint Thickness with Magnetic Gages). QC must calibrate the gage prior to each use. The repaired area must have a coating thickness of 1.5 times the thickness or thickness equivalent specified or 5 mils, whichever is greater. Spot or area measurements, as applicable, must be taken in accordance with the SSPC– PA 2 (Required Number of Measurements for Conformance to a Thickness Specification). Record thickness measurements for the job file on QC reports and provide to MDOT's QAI.