Standard Structural Precast Concrete Repair Procedure #7: Epoxy Injection

Description

The following plan is for the repair of concrete cracks using epoxy injection in accordance with subsection 712.03.U of the 2012 Michigan Department of Transportation Standard Specifications for Construction (MDOT SSC).

The epoxy resin used for injecting into the cracks must be selected from the Qualified Products List (QPL) in the MDOT Materials Source Guide (MSG).

Procedure

Below is the standard repair procedure for epoxy crack injection. The fabricator must follow the following procedures or the manufacturer's recommendations, whichever are more strict:

1. Remove leaching deposits from cracks by abrasive blasting or wire brushing.
2. Apply a temporary seal, with entry ports for adhesive, along the clean, dry crack without defacing the concrete surface. Ensure the seal will contain the pumped adhesive.
3. Space ports farther apart than the estimated crack depth and close enough to allow adhesive material to travel between ports.
4. Flush the cracks with water by pressure washing through injection ports. Wash out concrete laitance or contaminants in the crack. Remove free water by blowing oil-free air (90 psi minimum) through the crack after flushing.
5. Perform injection when the concrete and ambient air temperatures are above 50 degrees Fahrenheit.
6. Begin injection at the lower entry port and continue until adhesive is visible at the port directly above, or next to the pumping port. Stop injection and seal the port. Transfer the injector from both sides of a cracked member to complete crack repair. Prevent leakage of the adhesive from the crack after injection is complete.
7. Cure adhesive at temperatures of at least 50 degrees Fahrenheit for the minimum cure time recommended by the manufacturer. Remove the seal or grind flush with the concrete surface.
8. Clean areas repaired by injection of surface contamination caused by injections.