



MARKET APPLICATION FOCUS

Stadiums

Concrete Repair & Protection

Reinforcing Steel Corrosion

The Project: Indianapolis Motor Speedway
The Owner: Indianapolis Motor Speedway Corporation
The Specifier: Fink Roberts & Petrie, Inc.
The Year: 1995

THE PROBLEM



The entire racetrack of this world-famous speedway was being prepared for re-paving. Prior to replacement of the asphalt, six concrete tunnels which served as entry points to the interior of the raceway were inspected and found in need of repair. Corrosion of the reinforcing steel was prevalent, mainly caused by some chlorides and carbonation (pH loss) of the concrete.

The owners and their engineers wanted a long-term, technically sound solution to keep these important access tunnels in service for many years to come. They knew that the spalled areas of concrete were only the symptom of the real problem of the steel corrosion. While patching the spalled areas was definitely necessary, they also knew that additional measures were required to protect surrounding areas from latent (underlying) corrosion.

THE SIKA SOLUTION

A system approach of repair and protection was selected. This consisted of the removal of any loose or delaminated concrete, followed by a thorough preparation and cleaning of any exposed steel and concrete to be repaired.

Sika Armatec® 110 EpoCem®, an epoxy-cement based anti-corrosion coating was applied to the exposed rebar. Armatec 110 was also used as a bonding bridge between the existing concrete and the repair mortar. SikaTop® 122 PLUS, a polymer-modified cementitious repair mortar was used to repair the spalls and restore the concrete surface. In addition to its high strengths and low permeability, SikaTop 122 PLUS contains a corrosion inhibiting admixture to help reduce the effects of corrosion at the interface of the patch.

Next, the entire exposed area was treated with Sika's spray-applied corrosion-inhibiting impregnation. This material is able to penetrate at least 3 inches into the hardened concrete. When it comes in contact with the steel rebars, it forms a protective layer on the steel which dramatically reduces the corrosion activity. By addressing the areas around the patches in this manner, latent corrosion can be reduced thus extending the service life of these important tunnels.

Finally, the surface was leveled with a new concrete overlay. A new waterproofing membrane was applied to the top of the tunnel before the new asphalt racing surface was applied.





For Stadiums and Sports Complexes... **Sika's System Approach to Repair and Protection**

Anti-Corrosion Primer and Bonding Bridge

Sika Armatec® 110 EpoCem® - protects the steel from corrosion in areas of inadequate cover. Improves bond of repair mortar to both the substrate and steel.

High-Performance Repair Mortars

SikaTop® PLUS mortars - two-component, polymer-modified materials containing Sika FerroGard 901 corrosion-inhibiting admixture.

Corrosion-Inhibiting Impregnation

Sika FerroGard® 903 - spray-applied corrosion inhibitor to protect areas outside the repair zone against future damage. Proven to penetrate and reduce corrosion effects of carbonation and salt exposure.

Surface Levelling/Pore-Filling Mortars

SikaTop® levelling mortars - achieve a level surface by filling pores, bugholes, or other irregularities in the surrounding substrate. Adds effective cover over the steel for increased protection.

Anti-Carbonation Coatings

Sikagard® 550W and 670W - protect concrete facades from the damaging effects of carbon dioxide (carbonation), water and pollutants. Either crack-bridging (550W) or rigid (670W), both are high-performance protective coatings available in a variety of decorative colors.

Crack-Bridging Deck Coatings

SikaFloor® Traffic Systems - protect decks, ramps, grandstands, and walkways with a durable crack-bridging wearing surface which waterproofs and prevents chloride ingress.

Joint Sealing/Waterproofing

SikaFlex® High Performance Sealants - are premium-grade polyurethane joint sealants that are fully compatible with Sika's concrete repair systems.

Epoxy Injection and Bonding

Sikadur® - epoxy resins help restore structural integrity by injection into cracks and voids. The most comprehensive range of epoxy products for structural bonding and grouting available.

Structural Strengthening Systems (CFRP)

Sika CarboDur® - a proven system of external strengthening using epoxy-bonded Carbon Fiber Reinforced Plastic (CFRP) laminate strips. Stronger than steel, yet lightweight and non-corrosive, this system can solve unique strengthening problems in a variety of concrete structures.



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