



# CASE STUDY

## MARKET APPLICATION FOCUS

Parking

Waterproofing

Crackbridging Deck Membrane

Project: Cathedral Hill Project  
San Francisco, CA  
Specifier: Clark & Wilkins  
Contractor: Alpha Restoration & Waterproofing  
Year: 1998

### THE PROBLEM



A failed waterproofing membrane caused moisture to leak into and become trapped between the layers of a split-slab concrete plaza deck. The options for the owner were to remove the concrete topping slab and replace the waterproofing layer on the structural slab or find a way to waterproof on top of the topping slab. After taking readings of MVT (Moisture Vapor Transmission) it was determined that direct application of the Sikafloor Traffic System was not an option. Calcium Chloride tests showed transmission of 6 to 13 pounds of water over 1,000 square feet in 24 hours (industry standards allow only 3 pounds or less).

### THE SIKA SOLUTION

To place the resinous Sikafloor Traffic System, an "osmotic buffer" would first need to be installed. This is not an option in freeze/thaw climates, however the mild climate of San Francisco made the use of Sikafloor EpoCem 81 an excellent option.

After removal of the existing waterproofing layer the concrete was prepared using Blastrac<sup>®</sup> shotblasting equipment. Alpha Restoration then installed the Sikafloor EpoCem 81. This unique combination of epoxy and cement in the EpoCem 81 allowed the contractor to use a self-leveling mortar to temporarily stop the MVT. Once the MVT was stopped with the EpoCem, installation of the Sikafloor Traffic System proceeded.



After the sealant was installed in the cracks and joints the deck was primed using Sikafloor 152 primer, a two-component solvent containing epoxy primer. The waterproofing layer was then installed using Sikafloor 450, a single-component, moisture-cured urethane. The Pedestrian Duty Traffic System was then completed using one coat of Sikafloor 455, Sika's UV stable, extremely abrasion resistant, single-component top coat.



## For Parking Garages... Sika's System approach to Concrete Repair and Protection

### Corrosion Inhibitors

**Sika FerroGard® 903** as a dual action, corrosion inhibitor will reduce corrosion currents by penetrating through the concrete and forming a protective coating on the embedded steel bars.

### 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 substrate and steel.



### High Performance Repair Mortars

**Sikatop® Plus Mortars** - two component polymer modified materials containing Sika Ferrogard 901 corrosion inhibiting admixture.

**Sikacem®** mortars are machine applied by dry process shotcrete techniques for large scale repair.

### Problem Joints/Crack Sealing

**Sikadur® Combiflex** is a unique 'strip and seal' system used to seal irregular or large cracks, even those having large or shear movement.

### Crackbridging Deck Membrane

**Sikafloor® 450/455** is a single component polyurethane system used in locations from aggressive vehicular abrasion to foot traffic of balconies and plaza decks.

### Epoxy Injection and Bonding

**Sikadur®** epoxy resins help restore structural integrity by injection of cracks and voids.

### Structural Strengthening Systems CFRP

**Sika CarboDur®** a proven system of external strengthening using epoxy bonded lightweight carbon Fiber Reinforced Polymer (CFRP) strips or sheet. Stronger than steel yet lightweight and non corrosive, this strengthening system can solve unique strengthening systems in many concrete structures.

### Anti-Carbonation Coatings

**Sikagard® Facade Coatings** have been proven for more than 20 years as protective and decorative coatings for facades and soffits to prevent the ingress of water, carbon dioxide (carbonation) but will still allow the structure to breathe and move thermally and dynamically.

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