



Recipient of the 2005 ICRI Award of Excellence,
High Rise Category!

Product Information

Market	Building
Application	Concrete Repair and Protection
Focus	Chloride and Carbonation Induced Corrosion

Project: One and Four Longfellow Towers
 Owner: Equity Residential Properties
 Assessment: Simpson, Gumpertz and Heger
 Design/Build Contractor: P.J. Spillane Co., Inc.
 Monitoring: C-Probe Technologies, Ltd
 Year: 2004

The Problem

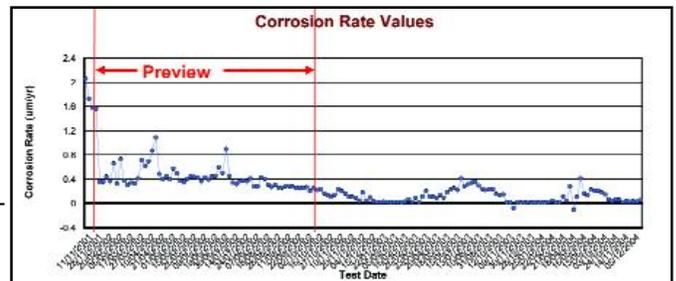
The prestigious Longfellow complex is located in the heart of downtown Boston on the Charles River. This case study focuses on two 38 story apartment buildings which were constructed between 1970 and 1972. Inspections conducted in 1997 identified numerous areas of spalls due to corrosion of the steel reinforcement. More recently, sealant joints at the sliding glass doors, ac units and windows were failing and allowing water to leak into the apartments.



In 2001, inspecting engineers carried out a comprehensive investigation to determine the extent of damage and the root cause. Among other things, they determined spalling had increased by 25% since 1996. Exposed column faces, balcony edges and floor slab edges had the least cover and most spalls. There was chloride contamination, carbonation and low cover throughout. Wherever the cover was less than 2" there was high levels of active corrosion. The goal of the Owner and the Engineer was to repair the spalled concrete and leaking joints and to provide long-term protection to the building.

The Sika Solution

The repair program design required Sika MonoTop 615 repair mortar for the spall repair. Reinforcing steel exposed while removing delaminated concrete was coated and protected with Sika Armatec 110 Epocem and leaking joints were sealed using Sikaflex 2c. Active corrosion was mitigated using Sika Ferrogard 903 surfaced applied corrosion inhibitor. The building was protected using Sikagard Elastocolor and Sikagard 550W elastomeric coatings. A preview was completed to confirm the design met the objectives. The contractor completed the installation using an orga-



nized work plan that was sensitive to the owners scheduling requirements, provided a comprehensive checklist for installation and involved an inspection engineer to confirm compliance with the design documents. Finally, areas of the building are remotely monitored to confirm effectiveness of the repair and protection program. All of this resulted in a repair program that will no doubt provide long-term durability for this Owner.

Case Study



Sika's System approach to Concrete Repair and Protection

Anti-Corrosion Primer and Bonding Bridge

Sika Armatec® 110 EpoCem® - protects rebar in areas of inadequate cover.

High-Performance Repair Mortars

SikaTop® PLUS - two-component, polymer modified mortar containing Sika FerroGard 901 corrosion-inhibitor.

Sikacem mortars are machine-applied by dry-spray equipment for large scale repairs.



Problem Joints/Cracks Sealing System

Sikadur® Combiflex® - a unique strip and seal system used to seal problem joints and cracks, even those undergoing extreme movement.

Hard Wearing Epoxy Overlay

Sikadur® 22 Lo-Mod epoxy resin will provide decorative hard wearing, slip resistant, overlay systems for balconies not requiring a crack bridge membrane.

Joint Sealing

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

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 protection coatings, available in a variety of decorative colors.

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.

Structural Strengthening Systems CFRP

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

SikaWrap® - Carbon and Glass Fiber Fabrics wrap around concrete and masonry structures for repair and strengthening.

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