

Market Application

High Rise Buildings

Concrete Repair & Protection

Focus

Chloride Induced Corrosion-Spall Repairs

Project:	Mellville Towers
Owner:	Dep. of Housing and Development (HUD)
Specifier:	Wessling Architects
Contractor:	Heritage Restoration
Year:	2005

The Problem



Mellville Towers is located in the center of the historic town of New Bedford, Massachusetts. This building is owned by the US Department of Housing and Development (HUD) and is used for elderly housing. The 12 story apartment building has 10 story's of apartments, a designated story for administration and one story of parking. This structure has a plaza at the ground level. The building built in the 1970's is a typical conventional cast in place concrete structure. Over the years the Plaza Deck suffered extensive deterioration due to the use of deicing salt during winter. This deck is used as the passage for elderly to move in and out of their apartment complex. Surface spalling, cracking, and failed joints were noticeable on the 40,000 sq. ft.

concrete deck. The plaza deck and the garage beams below were affected. The deterioration on the deck was to a point that it became hard for the handicapped and wheel-chaired residents to maneuver.

The Sika Solution

The repair strategy for the deck included fixing spalls and providing a positive drainage to the drains under the new slab. The versatility of thickness on the 40,000 sq. ft. slab was an integral part of the repair. The pitching of the slab from 1 ¼" down to ¼" was the key to remove the ponding of water, ice and salt on the deck by effectively directing the water to the drains.

SikaQuick 1000 was selected as the choice for the repair material for its low shrinkage and friendly placement characteristics. SikaQuick 1000 is a rapid setting material which achieves 1000 psi in 3 hours. SikaQuick 1000 was extended with ¾ pea-gravel for deeper than one inch repairs. SikaQuick 1000 was mixed with a mortar mixer in some locations and was pumped in others. Due to the fast setting property of the material, pumping of SikaQuick 1000 over a distance of 100 ft. was a challenge. Sika Plastiment, a retarder was added to SikaQuick 1000 in appropriate quantity to gain some additional working time for the pumping operation. The entire placement was done in --- days without having any problems. The contractor and his concrete crew were extremely happy with the placement and performance of the repair material.

The new repaired slab was then top coated with a flexible membrane system for additional waterproofing. Prior to installing the waterproofing membrane, SikaQuick 1000 was inspected after three months of its placement. There were no signs of any cracking on the slab.



Sika's System Approach to Concrete Repair and Protection

Anti-Corrosion Primer and Bonding Agent

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

High Performance Repair Mortars

SikaQuick® 1000 & 2500 - Repair Mortar single component, rapid hardening cement based patching material for concrete repair. Excellent physical properties coupled with very low shrinkage make these products very contractor friendly.

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 Elastocolor 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 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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