

The La Mer Condominiums

Stucco and Concrete Repair

By Victor Perez

The La Mer Condominiums complex consists of three buildings: a 20-story tower and two 18-story sister buildings. It was part of the first wave of condominium construction on Hallandale Beach—oceanfront property between Miami and Ft. Lauderdale, FL. The three buildings are all concrete frame construction with concrete masonry unit (CMU) exterior walls. At locations other than windows and balconies, large areas of façades were covered by a heavily-textured stucco finish. During the last 35 years, exterior maintenance of the La Mer properties had been mainly cosmetic, consisting only of repainting and buttering over existing sealant with new caulk. Over the years, building residents routinely complained about water intrusion into living spaces through walls and around windows.

Problems that Prompted Repair

In 2004, those concerns, coupled with the potential for structural problems exhibited by spalling concrete and exposed reinforcing steel, prompted members of the condominium association to take action. They hired an experienced restoration engineer based in South Florida to

perform extensive field surveys of each of the buildings. Façades were rigged with scaffolds, and the engineering team conducted extensive visual examinations and physical sounding of large expanses of the façade, balconies, slab edges that projected beyond the façades, and columns. Results were compiled and the condominium Board gathered to discuss the results of the inspections. With three very large high-rise buildings in the complex, the association was made to understand the necessary restoration would be disruptive to residents for an extended period. Given the hundreds of thousands of square feet of surface area on the three buildings, any recurring concrete failures, stucco delaminations, sealant deterioration, or other erosion of building components would add up to a demanding job.

In addition to the obvious failed concrete locations at the slab edges and cracked stucco façade areas, the engineers noted another problem at the tops of the building: metal frame and metal lathe architectural adornments covered with stucco. Through the years, these aesthetic features had deteriorated from continuous exposure to the sun, salt, and moisture.

The buildings' conventionally reinforced concrete slabs suffered deterioration typical of the Florida environment. Concrete cracks in the slab surfaces allowed moisture penetration, causing the reinforcing steel within to rust. The high salt content of both air and rain accelerated the corrosion. The rust buildup on the reinforcing steel of the building floor slabs displaced the surrounding concrete, which eventually cracked and then spalled. Balcony slab edge deterioration was largely caused by embedded railings. Like the rusting reinforcing steel, rust buildup on embedded rail posts caused cracking and concrete spalls around the rail posts, damaging balcony slab edges.



Building with old finish and deterioration

Scope of Repairs

Following the survey of the building exterior, the restoration engineer prepared a scope for repairs to combat the problems the investigation had documented. The detailed specifications called for the removal of all stucco from the façades of all the buildings (a total of almost 100,000 ft² [9290 m²] of stucco) and the removal and replacement of the stucco and metal frame arches on top of each building. Additionally, the precast concrete sills at



Removal of old stucco

every window had to be closely inspected, and if cracked or damaged, they needed to be repaired or replaced. Balconies and slab edges would be examined and sounded, and all failed concrete would be demolished and replaced.

The La Mer Condominium Association also decided to take the opportunity to address the appearance of the complex. The most recent repainting of the three buildings, now several years old, left them finished as primarily dull gray, with slab edges and other framing trim painted white. The plain scheme made the buildings look drab and dilapidated compared with the vibrant, bold colors being used on Art Deco buildings in Miami Beach to the south and along Ft. Lauderdale's upscale Los Olas Boulevard, just 5 miles to the north. In early 2005, bids were taken from several restoration contractors. Following meetings to discuss qualifications and project plans, a contract was awarded to a restoration contractor with a branch office in nearby Pompano Beach, FL.

In planning to execute the project, the contractor realized that the use of swing stages to access the building would have been a very slow process. The removal of all the stucco facing on the buildings alone would mean handling hundreds of tons of stucco debris! The limited carrying capacity of swing stages (typically only about 200 lbs [90 kg] capacity above the weight of the two stage operators) would have required thousands of trips up and down the buildings to dispose of all the removed



Repairing deteriorated balconies

stucco. The cost of the nonproductive vertical travel time, in addition to the already substantial costs for demo and repair of the stucco areas, would have added hundreds of thousands of dollars in cost to the project. The selected restoration contractor brought value to the project because it owned several mast climber HEK machines—large-capacity construction platforms that can carry up to 3000 lb (1360 kg) of materials. Mast climbers were used wherever possible to handle the debris and new repair materials and to reduce the number of trips up and down the exterior façades.



HEK platform used to execute repair work

Repairs Begin

Once the removal of existing stucco had started, the contractor found that in many locations, the building exterior block walls had been set back from the slab edges. In such cases, the original constructor, or subsequent repair contractors, had simply applied multiple layers of stucco to build the wall face out to align with the balance of the façade. At many such locations, the built-up stucco had cracked, and intruding water had eroded the material behind the exterior surface to cause voids. The engineer's direction was to use polymer-modified patching material, which would give proper bond to the existing masonry surfaces and would allow for custom variation in lift thickness to suit the needs of each location. In early phases of the project, it was found that the precast window sills were almost universally cracked and deteriorated. These sills were removed or partially repaired. A mixture of new sills and restoration occurred on 7000 lineal feet (2135 m) of area.

The stucco was removed on each face of the building and the existing surfaces were prepared by means of mechanical preparation and high-pressure, low-volume power washing to remove all contaminants. Once preparation was complete, a base coat of new stucco was troweled on the building walls. The treatment was misted with water to stop too-rapid hydration of the base stucco coat materials. In the heat of South Florida,

using a misting rig that controlled overspray was critical. The repair technicians on site took the original rig and perfected the process throughout the job. The result was precise control of the curing mist, dramatically limiting shrinkage cracks. The second and third coats of stucco were applied, with expansion joints cut into the façades to allow expansion and contraction of the large expanses of façade areas. When the stucco had cured adequately, urethane sealant was installed into the joints to limit moisture penetration into underlayers of the stucco at the joints.

The contractors had to continually protect the buildings from water intrusion—a real threat due to unpredictable but frequent South Florida afternoon rains. Along the Florida coast, it is common to have isolated thunderstorms pop up with less than 90 minutes of warning and have heavy rain and 50 to 60 mph (80 to 97 kilometer/hour) winds. Because of this, no temporary waterproofing could be left on the ground to be retrieved upon the threat of heavy rain. Temporary waterproofing meant leaving an area exposed for less than 4 hours before it could be made watertight.

Once the stucco was in place, the arches on the upper portion of the building were removed. The areas the arches had previously occupied were prepared and new arches made of preformed foam were installed. The foam shapes were factory fabricated, including surface stucco finish, when delivered



One side complete façade repaired with new appearance

to the job site. The only finish requirements for them were mounting and painting. The contractor fastened the replacement arch foam pieces into place, caulked perimeter joints of the shapes, and made them ready for finish coating.

Where railing post grout material had cracked, deteriorated, or was lower than the level of the surrounding balcony decks, the old grout material was removed and replaced with nonshrink grout to stop moisture intrusion. At all opportunities where grout pockets were opened, the exposed rail posts were cleaned of rust and coated with a rust-inhibitive prime paint. Where expanding rail posts had spalled slab edges, the failed concrete was demolished, the slabs prepped for repair per ICRI Technical Guidelines, and new concrete was placed to match the existing slab edge dimensions and geometry. The prepared balcony surfaces were then repaired using various techniques such as forming and placing ready mixed concrete pumped to the needed location (typically at the lower floors of the buildings), forming and placing bagged mixtures, or hand-troweling overhead repairs.

As concrete and stucco repairs on each elevation of the building were completed, the repair contractor relocated the heavy-capacity HEK platforms to the next façade to execute repair work and ceded the finished building side to a specialty coatings subcontractor working under the supervision of the restoration contractor. The corner tiers of each

façade, solid expanses of stucco, were painted in a bright and appealing peach color, with bold horizontal accent bands of adobe red at three floors and across the parapet cap. The clean, new appearance of the buildings now compared favorably with any in South Florida.

When the structural and architectural concrete repairs were completed, the contractor had performed over 100,000 ft² (9290 m²) of stucco removal and new stucco coating application, over 7000 lineal feet (2135 m) of patching or replacement of precast window sills, and over 5000 ft³ (142 m³) of partial depth, full depth, slab edge, and balcony soffit concrete repairs. The festive new paint scheme celebrated a renewal of the three-building complex's exterior condition.



Victor Perez is a member and past officer of the Southeast Florida ICRI Chapter. He served as Project Manager on the La Mer project. Perez has over a decade of experience in the South Florida concrete repair market, having spent the last 6 years with C.A. Lindman Companies, where he currently serves as Business Development Manager for the South Florida branch.