Baltimore Hyatt Garage Deck Concrete Repairs and Coatings

The Hyatt Hotel at Baltimore's Inner Harbor is located in one of the city's most popular tourist areas, directly across the street from popular tourist attractions. The high-rise Hyatt hotel is served by an adjacent six-story parking garage, whose top level consists of a pool deck and pool as well as tennis courts and other outdoor recreation space for hotel guests. In 2005-2006, a concrete repair and coatings project was conducted on the top level of the Baltimore Hyatt Garage to repair failed concrete and make the courts and recreation space more usable. The project was also designed to dramatically improve the appearance of the pool deck and playing surfaces and to stop water leaking through failed joints and cracks from the plaza down into parking area below.

The scope of work on the project consisted of:

- Removal and disposal of an existing plastic mat surface cover from the 29,000 ft^2 (2695 m^2) deck area;
- Demolition and disposal of a raised golf putting green;
- Removal and replacement of an expansion joint system through the deck;
- Concrete repairs as found necessary; and
- Application of a new multi-coat urethane pedestrian waterproofing coating system over the entire deck.

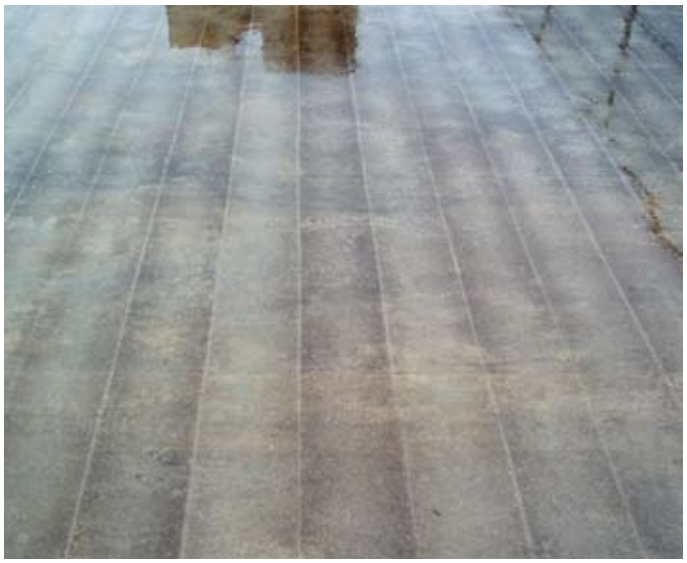
Project prior to repairs

Two different solid colors of the coatings were used to demark the tennis courts from surrounding out-of-bounds. A very unusual aspect of the coating was that, for the pool deck portion of the deck, rather than providing a sand texture intermediate coating of the urethane waterproofing and capturing it with a single-color topcoat, the pool deck area was to be cast with red and blue ground rubber granules for nonslip texture onto a green intermediate background coat of waterproofing. The entire assembly would then be captured by a clear urethane topcoat, providing not only effective waterproofing for the parking garage below, but a bright and lively appearance for the pool patrons.

The contract was awarded in September 2005 to an experienced restoration contractor, allowing the project to start later that same month. After removal of the plastic mat system and then covering the garage roof and pool deck, the contractor sounded the deck to identify areas of failed concrete. The contractor executed approximately 600 ft^2 (56 m^2) of partial depth concrete repairs in accordance with ICRI technical guidelines, demolishing the failed areas with clean corners to a sufficient depth below the underside of the top mat of reinforcing steel, cleaning the exposed steel to bright metal, coating it prior to placement of patching concrete, and placing/finishing specified bag-mixture repair mortar to ensure proper cover over the steel.

With the exposed surface of the courts and pool deck now bare concrete, the contractor brought a specialty shot-blasting subcontractor onto the job to prepare the area for coating application. Because there was no way to drive any ride-on shotblasters to the roof deck level, walk-behind equipment had to be hoisted by crane.

Concurrent with the execution of selective concrete repairs in the courts and pool deck area, the existing slab expansion joint was removed and a new wing-gland deck joint system was installed.



Concrete surface after shotblasting

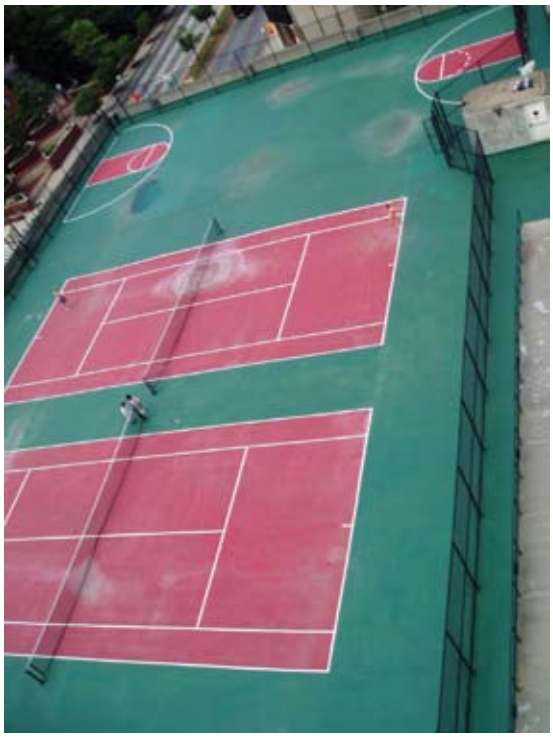
Tennis court coating

The joint was completed with field heat-welding of horizontal-to-vertical upturns at the two ends of the joint. The joint was then water-tested to confirm function, completing that portion of the project and eliminating a major source of water leaking into the parking area below.

By the time the concrete repairs were finished and the expansion joint installation was complete, however, it was early December 2005, and daily temperatures were only around 30 to 40 °F (–1.2 to 4.4 °C) and colder at night. On consultation with the owner, the engineer, and the coatings manufacturer, it was agreed that conditions were not conducive to trying to apply the urethane coating system, so the project was shut down through the winter.

In April 2006, the contractor remobilized to the job site. The surface profile of the concrete deck left by the shotblasting performed the previous fall was still very good for new coating application, but the deck had accumulated a residue of dirt, salts, and pollution from rain and snow over the winter. An aggressive power-washing of the entire area cleaned it and was approved by the coating manufacturer's representative to allow application of the urethane coating system.

The playing courts, when finished, consisted of two tennis courts, as had previously existed, plus a basketball court in place of the putting green. The coating application for the tennis courts proceeded without great disruption. The entire area was base-coated; the intermediate coat was then placed for the tennis courts areas, and sand was seeded in the coat to excess. When that coating had cured, the excess sand was vacuumed and swept off the deck. The clay-red color topcoat for the tennis court playing surfaces was then applied, capturing the seed coat and providing UV protection for the waterproofing layers beneath. A similar process was repeated for the basketball court. The only complication experienced during the coating of the courts areas was that heavy springtime pollen resulted in heavy pollen buildup on the deck each morning, requiring power-washing to clean off so the pollen did not become a bond-breaker, and delaying coating work each day until the power-washer water could be blown off using leaf blowers.



Finished tennis courts

The pool area was to be more decorative, and proved to be more of a challenge. Equal quantities of red and blue rubber granules were mixed, and were then seeded into a green intermediate coating layer for the pool deck. The coating manufacturer

Pool deck coating

Finished pool deck

had provided a factory-created sample of the application that was to be matched by the production method in the field. When the contractor's crew tried to lightly spread the mixed red and blue rubber granules onto the green seeding coat in an even dispersion to recreate the sample, however, wind blew the very light rubber granules all around, resulting in a dramatically inconsistent dispersion of the color chips. Some areas of the pool deck received clumps of granules that resulted in lavender-colored solid blobs on the green background, while in other locations only a smattering of granules fell, providing a dappled appearance somewhat closer to the sample but with must less dense seeding of the color granules than was needed. The result was totally unsatisfactory, and the entire pool deck would have to be recoated.

The contractor's solution to the dilemma was to mix a much larger quantity of green rubber granules, matching the color of the background coating color into the even quantities of red and blue granules. Immediately after another application of the green color intermediate coat was applied, the entire mixture of green, red, and blue rubber granules could then be seeded to excess into it. Even if most of the urethane coat's color was blocked by seeded rubber granules, the majority volume of green rubber granules created the intended appearance of a green background with mixed red and blue highlight dots. The process worked perfectly this time, resulting in a finished intermediate coat consistent across the entire pool deck area whose appearance was a virtual duplicate of the factory-prepared sample. After loose rubber granules were vacuumed off, the entire pool deck area was topcoated with UV-resistant clear topcoat, which captured the granules and locked them into the coating system.

The new coating applications were completed for all pool deck and playing courts areas in time for the Hyatt's Memorial Day 2006 pool opening for guest use. The process dramatically improved the appearance of the recreation spaces and made them much more inviting for guest use. Subsequent to the completion of the project, the Hyatt at Baltimore's Inner Harbor again hired the contractor, this time to install several additional drains to eliminate ponding locations on the courts area, which had become evident following application of the new coating. The process and the appearance of the Baltimore Hyatt garage roof concrete repairs and coatings project is being considered by the Hyatt organization as a template for similar projects on other Hyatt properties around the country.

Baltimore Hyatt Garage Deck

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Baltimore Inner Harbor
Baltimore, MD

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Benchmark Engineering
Cedar Rapids, IA

Repair Contractor
C.A. Lindman, Inc.
Jessup, MD

Material Suppliers/Manufacturers
Neogard
Dallas, TX

Emseal Joint Systems, Ltd.
Westborough, MA