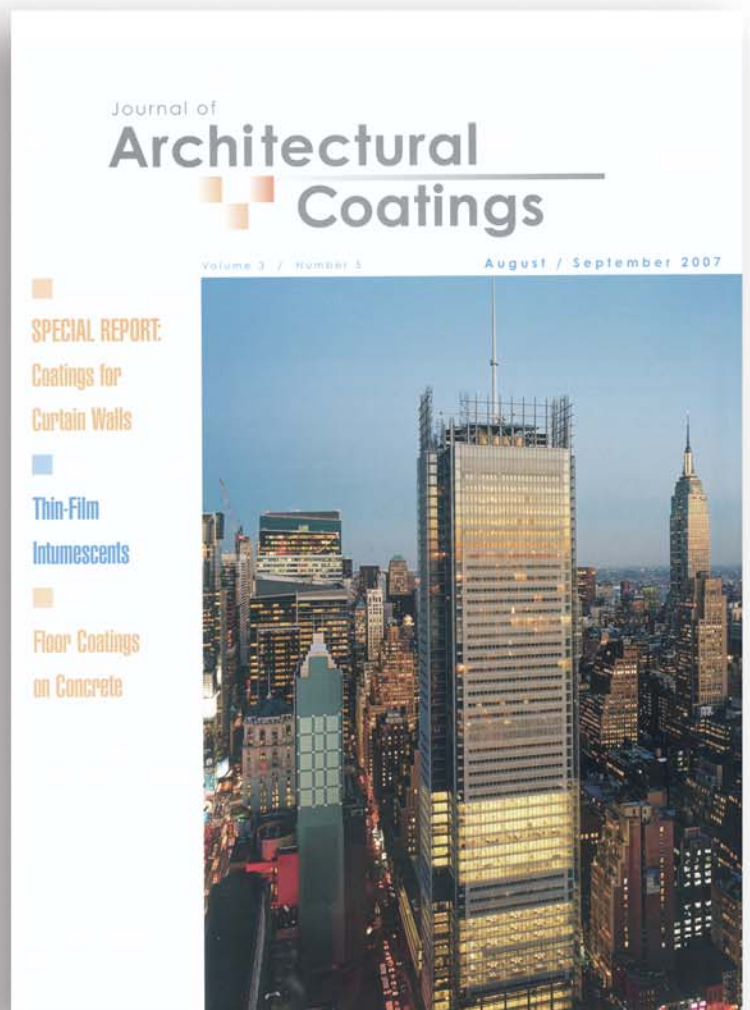




Taming the Tentacles of an Exotic Urban Waterworld

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Taming the tentacles of an exotic urban waterworld

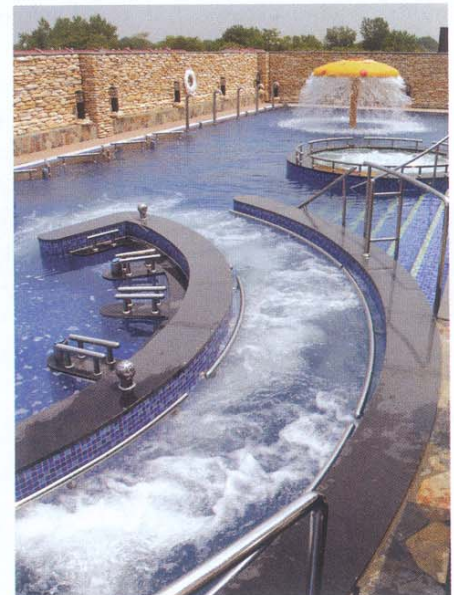
With a variety of pools, spas, saunas, fountains, and other aquatic features spread over 60,000 square feet of floor space and four building levels, waterproofing safeguards loomed large in design and construction plans for the sprawling new InSpa World in Queens, NY. Needless to say, the waterproofing task left no room for error, what with millions of gallons of water to be circulated and contained within the Asian-style resort spa.

Clearly, yesteryear's hit single, "Raindrops Keep Falling on My Head," didn't figure into the audio programming soundmix at this crown jewel of Queens business partners Victor and Steve Chon.

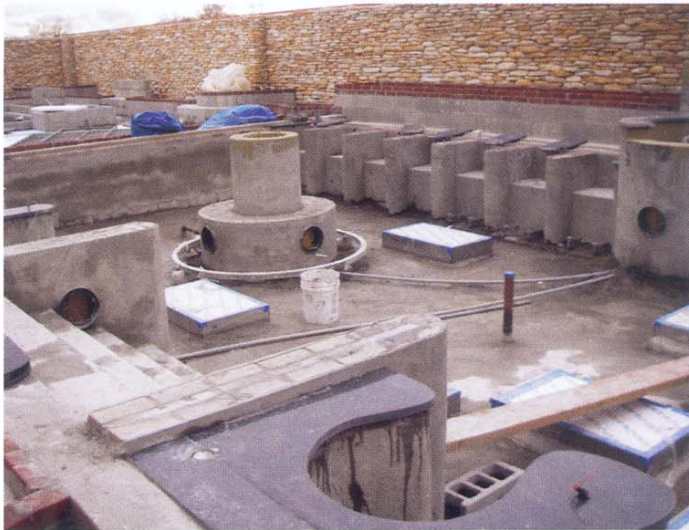
Victor Chon, chief architect for New York-based Nova Construction and the designer of InSpa World, realized the significance of the waterproofing challenge on his hands. He had studied similar facilities in his native South Korea, and had learned that failures could typically be attributed to the unique and intensive engineering and operational demands of these spa facilities.

Challenge number one was presented by the vast array of concrete-surface penetrations necessitated by

Sprawling web of intricate engineering and plumbing systems at giant NY spa leaves no margin for error in selection, application of waterproofing technologies



Pools, fountains, and other aquatic features at InSpa World. Photos courtesy of Kemper System



Piping systems, penetrations through the concrete, and mechanical systems complicated the waterproofing project.

the extensive water piping systems. With its assortment of spas, pools, and fountains, the InSpa facility would be dotted with thousands of penetrations, some of which would be located below grade, and others to be constantly submerged in the water. If the situation required, repairs or modifications to these systems would prove to be very difficult and expensive. And at this facility, these penetrations would be hidden beneath a massive overburden of pricey marble and granite tile that would help give InSpa World its exotic, palatial look and feel.

In addition, a sprawling network of highly technical mechanical equipment presented daunting challenges for waterproofing integration.



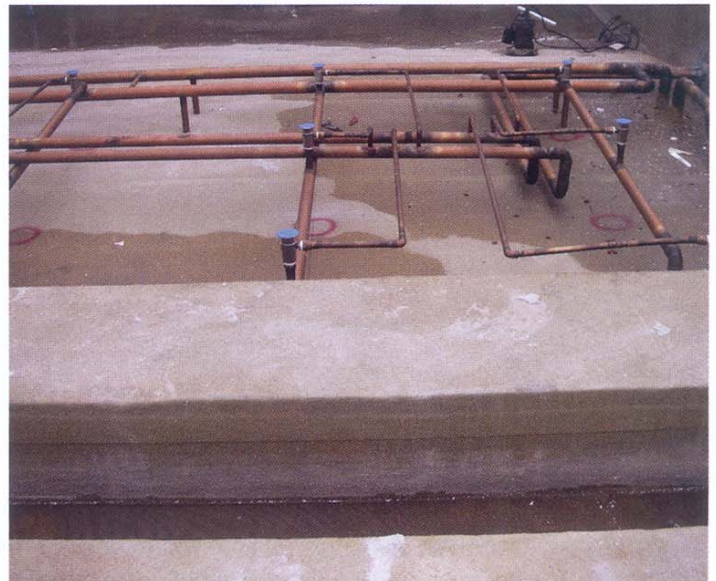
A second, perhaps even more serious challenge would be presented by the constant vibration and movement generated by water pumping systems and water circulation.

InSpa World is billed as the largest in-house spa resort in the U.S. The facility, featuring a traditional Asian flavor in a contemporary, urban American setting, offers heated water-massage Jacuzzis; herbal baths; a variety of saunas; Korean, Japanese, and Italian restaurants; a Starbucks; pools for adults and children; waterfalls and fountains; and a dining hall featuring Korean cuisine.

The materials

The polyurethane and polyester membrane systems are described as two-component, high-performance, seamless, cold fluid-applied materials, reinforced with polyester fleece. Use of the polyurethane resin is recommended where low or no odor is a priority. In exposed applications, the membranes can be surfaced with a polyurethane coating, light-reflective sand aggregate surfacing, or other granular materials to match the appearance of the surrounding substrate.

In the application process, the seamless, monolithic membrane is created in the field by combining the polyurethane or



polyester resin with polyester reinforcing fleece. Kemper System says cold-fluid application requires no torches or kettles, eliminating a potential fire hazard.

The membranes are described by their maker as: self-flashing and self-terminating, with no need for termination bars, fasteners, or adhesives; highly durable and flexible, providing resistance to substrate movement; consistent in thickness, due to the integral reinforcing fleece; resistant to weather extremes,



One of numerous water features at InSpa

ponding water, and ice; versatile, offering adhesion to various substrates; and resistant to chemicals, oils, and solvents.

The company says the membranes are also well suited for use in green-roof systems, due to durability and performance capabilities and resistance to rot and bio-deterioration.

The process

In all areas, the waterproofing process started with application of Kemperol®EP primer, a 100% solids, odorless epoxy, to clean, prepared concrete surfaces. A medium-coarseness, 0.5-grade, kiln-dried silica sand was broadcast onto the primer coat to enhance adhesion of the polyurethane membrane. To ensure the integrity and performance of the waterproofing, the pools on the lower level were filled and monitored for a week for any signs of leakage.

Following application of the polyurethane membrane, another coat of epoxy primer and 0.5 grade silica sand was applied. Installation of tile and other finishing elements then got under way. On the roof level, the process was essentially the same, with the polyester membrane substituted for the odorless polyurethane used for interior areas.



Jacuzzi in operation at the water resort.

To ensure effectiveness, every phase of the project was completely submerged in a minimum 48-hour water test and evaluated for leakage. No failures were detected, says Krzysztof Dobrzanski, a Kemper System New York Metropolitan area account representative.

Steve Cortazzo, Kemper System president, says the company's history of supplying high-performance waterproofing solutions proved decisive in InSpa World's specification of the polyurethane and polyester membrane systems. "They liked our extensive track record and our ability to provide long-term solutions for other clients," Cortazzo says.



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