Saadiyat Rotana Hotel and Resort Complex

Saadiyat Island, Abu Dhabi, UAE (2017)

PRODUCTS USED:

Krystol Internal Membrane™ (KIM®) Krystol® Waterstop System

OWNER:	DEVELOPER:	PROJECT MANAGER:
Rotana Group	Tourism Development & Investment Co.	EC Harris
ENGINEER:	**CONTRACTORS:**	**DISTRIBUTOR:**
Khatib & Alami	Ali & Sons Contracting L.L.C. Kier Construction L.L.C.	Cristal Line Water Proofing Trading L.L.C.

READY-MIX SUPPLIER:

Xtramix

BACKGROUND

Rotana Group's majestic new oceanfront hotel and resort complex has been designed to attract thousands of travelers from across the globe annually. Standing at six stories on Saadiyat Island, the complex offers plenty of space that's surrounded by lush greenery and crystal clear water. Visitors who choose to experience this luxury for themselves may find themselves in one of the complex's 291 standard guestrooms, 33 standard suites, royal suite, two ambassador suites, 11 one-bedroom villas, or two two-bedroom villas.

All of which comes with a large below grade area with over 700 piles in the ground.

Because of that, the hotel and resort complex had extensive concrete waterproofing needs. To resolve those needs, the construction team for the complex originally specified that it should have two layers of an ethylene propylene diene terpolymer (EPDM) membrane system.

Such a system would require significant labor and time to install, however, considering the complex has over 700 pile heads. Additionally, the construction team was concerned that the complex would have a higher risk of corroding because of its oceanfront design.

SOLUTION

For a less labor- and time-intensive waterproofing solution that could eliminate the risk of corrosion, the contractors and the engineer of the complex had another set of products in mind.

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Having worked with Kryton's Smart Concrete® products previously, they knew that these could provide them with permanent waterproofing and corrosion protection while also reducing the time and labor needed for waterproofing. So they chose to go with these products over the EPDM membrane system. As a result, they added over 100 tons of KIM to their concrete mix for all below grade areas and water features.

That gave the mix Krystol® technology, which remains dormant until it encounters the presence of water. Once water is present, the Krystol technology will chemically react to it and nearby unhydrated cement particles to form insoluble needle-shaped crystals. These crystals will then fill in the pores and capillaries of the concrete to block any pathways for water. That means the waterproofing is built right into the concrete, which eliminates the time and labor spent on manually applying a membrane.

That technology would only protect the concrete, however. So to ensure that the whole complex and not just its concrete was waterproof, the construction team treated over 2,800 m (9,186 ft) of construction joints and details with the Krystol Waterstop System. With that system in place, the construction joints and details would have full waterproofing protection, ensuring that the reinforcing steel within the concrete will remain free of corrosion.

Such waterproofing protection was successful and contributed credits to the complex's Estidama Pearl Building Rating System requirements, proving the Saadiyat hotel and resort complex would be watertight and sustainable.

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