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SUNSET GARDENS

Beirut, Lebanon



CONCRETE
WATERPROOFING

Page 1 of 1

QUESTIONS: 1-800-267-8280 or www.kryton.com

BACKGROUND

Sunset Gardens is located on the coast of Ramlet el Bayda in Lebanon's capital. Each apartment of the fourteen-story luxury complex stretches 555m2 offering a tranquil view of the Mediterranean Sea, overlooking prestigious hotels in Raouché and only minutes away from Verdun, one of Beirut's trendiest shopping destinations.

Sunset Gardens offers its residents a lavish common area equipped with a charming swimming pool and a graceful garden.

SOLUTION

Having tried and experienced the peace of mind of using Kryton's systems and dealing with the TA Group, the developer and main contractor of this prestigious project decided to add Krystol Internal Membrane™ (KIM®) admixture directly to the mix for the construction of the below grade, ground entrance, pool, gardens, water reservoir, and patio.

By simply adding KIM to the concrete mix at the time of batching, waterproofing concrete becomes a quick and easy process that won't hold up the construction timeline. The Krystol system uses advanced integral crystalline waterproofing technology to transform porous concrete into a permanent, water-resistant barrier and provide a guaranteed defence against water damage and steel reinforcement corrosion. If cracks later form, the incoming water will react with KIM and trigger further crystal growth, filling cracks and keeping the structure watertight.

The TA Group supplied and supervised the addition of KIM-HS and the installation of the Krystol® Waterstop system (KWS). The client was satisfied with the waterproofing results and the considerable time savings. The concrete contractor was content that his team did not have interference from membrane applicators and was able to work without worrying about damaging fragile conventional membranes. They can instead, concentrate on producing their usual high-quality concrete at an accelerated pace.

KIM-HS and the Krystol waterstop system were the major products used to waterproof this project. The fact that a huge garden was constructed over a suspended slab at the ground entrance level, the TA Group resorted to adding structural fibers to all suspended concrete members.

The project's expected completion date is December 2010.



PROJECT CASE STUDY

LOCATION

Ramlet El Bayda, Beirut, Lebanon

OWNER/ENGINEER

A & H Construction and Development

CONTRACTOR/ARCHITECT

Haddad Engineering CO.

APPLICATOR/DISTRIBUTOR

TA GROUP SARL

The Kryton Group of Companies.

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Luxury Demands the Best in Waterproofing Kryton Crystalline Waterproofing System in Beirut Project

Residential developer, **A&H Construction**, is completing its latest Beirut project at the end of December 2010 – a project that will more than merit the adjectives used in the project's promotional materials such as "lavish," "luxurious" and "prestigious." Residents moving next year into the Sunset Gardens will indeed be able to watch the sun set over the Mediterranean, as this 14-storey complex nudges the seafront at Ramlet el Bayda, an elite area of Beirut. The list of amenities and fixtures includes the best of European manufacturing, from two-centimeter thick **Botoccino** marble tiles to hardwood parquet to **Valli & Valli** ironmongery décor. But best of all is the space – each 6,000 square foot (555 m²) apartment occupies an entire floor of the building.

For *Hani Haddad*, owner of A&H Construction and Development, this project involves everything he has built his reputation on over the last two decades – state-of-the-art development technology, high attention to detail and strict awareness of international construction standards.

The complex is built at sea level, with a huge garden constructed over a suspended slab at the ground entrance level, surrounding a circular pool. So waterproofing the concrete below grade, as well as ground entrance, the pool itself, the garden slab, water reservoir and patio, was essential and demanding. Based on his earlier experience with other residential projects, Haddad chose to use the crystalline waterproofing system manufactured by **Kryton International** based in Canada.

"Having tried Kryton in waterproofing different parts of three different projects before this one, I have to say that I felt quite comfortable using it in this project," says Haddad.

The construction team chose **TA Group**, Kryton's exclusive distributor in Lebanon, to waterproof the project. TA Group used Kryton's **Krytol Internal Membrane (KIM®)**, which is added directly to the concrete mix at the time of batching. The Krytol system uses advanced integral crystalline waterproofing technology to transform porous concrete into a permanent, water-resistant barrier. KIM is a dry powder composed of Portland



cement, fine silica sand and a specific proprietary blend of chemicals. When added or applied to concrete, the chemicals facilitate crystal growth. The new, long, narrow crystals block the flow of any water by filling the pores, capillaries and hairline cracks that naturally form in concrete. KIM provides a guaranteed defense against water damage and steel reinforcement corrosion. If cracks later form, any incoming water will react with the dormant KIM chemicals and trigger further crystal growth, filling cracks and keeping the structure watertight.

Although dependability was a huge factor in choosing Kryton's KIM waterproofing, another added benefit was saving construction time. Especially with residential construction, building quickly without sacrificing quality is ideal. The sooner a project can be turned over to its buyers, the less costly the project becomes for the developer. Again, Haddad was pleased to have chosen KIM.

"I must say, that in this respect, Kryton has served me well," says Haddad. "I continue to use it in many types of applications. What I like most about it is that it does not interfere with my construction schedule, and this is a major factor resulting in more efficient concrete work. The fact that there are no membranes that may be damaged during construction is just an added bonus."

Building below grade at sea level poses all kinds of problems for architects, en-

gineers and contractors who need dependable, fool-proof waterproofing solutions. The more traditional approach has been to use petroleum-based sheet membranes, in spite of the need for extra excavation, application errors and continuous disintegration of the sheets. The A&H approach was to look for the waterproofing system that combined state-of-the-art development technology with proven experience.

The TA Group supplied and supervised adding KIM to the concrete batches and installed the **Krytol Waterstop System** to seal the joints of existing concrete to waterproof them. Only one supervisor and two applicators were in charge of the waterproofing aspects of construction, adding KIM and applying the **Krytol Waterstop System**, plugging tie holes, and performing minor repairs as the need arose.

The developer couldn't have been more pleased with the outcome. "I demand the highest standards from the materials and workers on my projects," he says. "I do not have to worry about how well Kryton can perform in a certain location of the project, be it below-grade tanking (blindsided application), or in the garage entrance, roof, etc."

That kind of confidence is likely also reassuring for the new residents at Sunset Gardens, who will have invested more than US\$4 million each for their new homes. ■

REFER TO RIN 44 ON PAGE 82