

## Case Study

# SEQUOIA-Ashrafieh 1046

Beirut, Lebanon



### Background

SEQUOIA-Ashrafieh 1046 is a prestigious office-composed building located at the heart of Lebanon's capital Beirut and spreading over a total area of 11,000 m<sup>2</sup>.

The project consisted of demolishing the existing building and reconstructing a new one. It was essential to preserve the diaphragm walls while adding two additional basements.

The contractor, who is also the owner of the project, is a renowned company and a major player in the local market. Hence, efficient operating timeframe and high working qualities were required in addition to low maintenance and construction costs.



### Challenges

The application challenges were many. The decision was taken to demolish the old building and keep the diaphragm walls. The building fundamentally contained five basements; three of them were under high hydrostatic pressure where the project was sitting on an underground spring (artesian well 150 m height). The water table was so high that the old owner was actually selling water which filled the old third basement. Thus, the structural engineer was concerned that the high hydrostatic pressure might lift the structure upwards.

### Solution

TA Group, Kryton's distributor in Lebanon was contacted to carry out the structure's waterproofing by installing Kryton's crystalline waterproofing system.

TA Group decided to add krystol Internal Membrane (KIM) admixture at a rate of 2% by cementitious materials directly to the mix for the construction of the five basements.

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 guarantee defense against water damage and steel reinforcement corrosion. Later, if cracks form, the incoming water will react with KIM and trigger further crystal growth, filling cracks and keeping the structure watertight. Unlike external membranes, Krystol will not deteriorate. It is guaranteed to last for a lifetime.

To fully waterproof the structure, TA Group applied the Krystol waterstop System to the construction joints. The Krystol Waterstop System, consisting of Krystol Waterstop Grout™ and Krystol Waterstop Treatment™, works where other waterstops routinely fail.

TA group team succeeded in stopping dewatering. Testing of concrete was done under high hydrostatic pressure and still results met the requirements.

The efficiency of the waterproofing system was not only an achievement but more likely a prize and a glory especially in such critical case. The client was satisfied with the waterproofing results and the considerable time savings.

**Location:**

Ashrafieh-Beirut

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**Owner/Developer:**

A.R. Hourie Entreprises

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**Architect:**

Youssef Haidar Architecte DPLG

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**Structure:**

Bureau d'Etudes Rodolph Matar

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**Waterproofing subcontractor:**

TA Group S.A.R.L.

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**Products used:**

KIM-HS, Kyrstol Broadcast, Krystol Waterstop Grout, Krystol Waterstop Treatment, Krystol T1, Krystol Repair Grout, Krystol Bari-cote, Krystol Plug