

Case Study

Doghmoeh Project Plot # 38 - Ain El Mraisseh

Beirut, Lebanon



Background

Doghmoeh Project Plot # 38 is a residential building consisting of 12 floors and three basements. It's located in the heart of the old "Ein El Mraisseh" seafront.

The project architectural design was directed by the luminous architect Bernard Khoury whose office has developed an international reputation and a significant diverse portfolio of projects both locally and abroad over the past 15 years.

Regarding the structural design, it was carried out by the specialized structural engineer Rodolphe Matar.

The contractor who's an active player in the construction industry required high quality work. Ensuring high quality construction requires high quality waterproof system that would guarantee the structure long-term performance and the ability to withstand the test of time.

Challenges

One of the concerns in this project was to provide an adequate and efficient waterproofing system for the basements, mat foundations, and the retaining walls due to the presence of a shallow water table with high hydrostatic head.

Solution

Having tried both Kryton's products and other products, the main contractor signified the efficiency and proficiency of KIM and chose to deal again with T.A. Group; Kryton's distributor in Lebanon. In order to improve concrete performance against waterproofing especially when it's subjected to hydrostatic pressure, TA Group recommended adding Krystol Internal Membrane (KIM®) admixture to the mix. KIM® would be added to concrete in order to improve its durability and protect steel from corrosion, as well as for basements, and mat foundations. KIM should be dosed at 2% by weight of cementitious materials to a maximum of 8 Kg/m³.

Krystol Internal Membrane or KIM is an integral crystalline concrete waterproofing admixture. When combined with water, KIM's proprietary chemicals react to form millions of needle-like crystals. These crystals grow and fill the capillary pores and micro-cracks in the concrete, blocking the flow of water. As time passes and stresses form new cracks, any incoming moisture causes the crystals to reactivate – ensuring continuous waterproofing over the years.



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.

In addition, and for better concrete strength and toughness performance, FORTA ULTRA-NET® fibers with distinctive characteristics were added to the upper 50 cm of the raft foundation. The added fibers control temperature shrinkage and settlement cracking thus improving long-term durability properties.

The client was satisfied with the products' superb waterproofing results and the considerable time savings. Kryton's products will withstand the high hydrostatic pressure from the nearby sea and provide a leak free basement for the life of Doghmosh Project.

Location:

Ain EL-Mraisseh

Owner:

Doghmosh Real Estate Investments

Contractor:

RAMCO Trading and Contracting S.A.L.

Architect:

Bernard Khoury /DW5

Structural Engineer:

Bureau d'Etudes Rodolph Matar

Waterproofing subcontractor:

T.A. Group S.A.R.L.

Products used:

KIM-HS, Krystol Waterstop Grout, Krystol T1, Krystol Repair Grout, Krystol Waterstop Treatment, Krystol Bari-cote, Krystol Plug
Forta Ultra-Net®