

Case Study

FreeGoZone

Beirut, Lebanon



Background

FreeGoZone is a third-party cold logistic company located inside the free zone of Beirut Port at the core of the capital. The facility is equipped to handle a wide range of storage requirements from Deep Freeze to dry. FreeGoZone is a leader in Warehouse Management Systems which provide continuous measurement of key performance indices for all operation processes.



This facility, having one basement, needed solid construction and waterproofing to maintain its desired industrial status. Leaks would not be acceptable especially in such a critical-use structure.

Challenges

The critical location of the facility in the port in addition to its high importance factor as a cold logistic company, were realized to be the main challenges. Indeed, the structure would be subjected to very high hydrostatic pressure for it would be submerged in water. Unless waterproofed properly, FreeGoZone warehouse would expectedly show leakage.

Solution

TA Group, Kryton's distributor in Lebanon, rose to the challenge. They decided to add Krystol Internal Membrane™ (KIM®) admixture at a rate of 7 KG/m³ directly to the mix for construction.



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 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.

For added protection, Krystol Waterstop Grout™ and Krystol Waterstop Treatment™ were applied to the construction joints to fully waterproof the structure. Besides, T1 was applied at the top of piles and upstanding area and Ultra Net fiber reinforcement from Forta Ferro had been added to concrete at a rate of 1 Kg/m³ in the raft foundation and in the foundations on piles as well. These fibers reduced the shrinkage cracking of the concrete and added strength resulting in enhanced durability.



The owner and the contractor was very pleased with the work completed on the structure and appreciated the time and labor savings gained from eliminating the need for external membranes.

Owner:

Imad Balhawan Company

Owner Rep. / Contractor:

Project Mangement Professional
(PMP)

Consultant: Kamil Hashem

Waterproofing subcontractor:

TA 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