

Alghanim Industries' Mega Garage

Shuwaikh, Kuwait City, Kuwait (2007)

PRODUCTS USED:

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

OWNER:

Alghanim Industries

BACKGROUND

In the late 2000s, Alghanim Industries chose to build a new garage for their business. Valued at \$45 million, this structure was set to be one of the largest garage facilities in the world. It would be extensive enough to service and park over 1,000 cars on its maintenance level.

However, the water-heavy maintenance services that would be employed there meant that the garage's concrete flooring would be constantly wet. To ensure the garage lasted for the length of its expected life span then, Alghanim Industries would need a waterproofing solution that could completely prevent water from seeping through the concrete to the floor beneath it.

This waterproofing solution would also have to be durable and efficient. After all, it would need to withstand the drilling required for adding mechanical mounts to the concrete flooring, which would help anchor heavy machinery. And it would need to do that soon as the builders for the garage wanted to start pouring the concrete for the project right away.

The plans for constructing this garage had already taken more time than estimated, so it was crucial for the builders to execute those plans as soon as possible. That made a waterproofing solution like external membranes less ideal to the builders due to their intricate, time-consuming application process. Such a solution became even less ideal when the builders considered the drilling. The membrane would need to fit around each drill opening, but there was no guarantee that it would remain watertight in such a situation. That could lead to potential leaks and costly, time-consuming repairs.

To prevent this concern, the builders wanted to look elsewhere for watertight waterproofing.

SOLUTION

The builders had plenty of waterproofing options to consider. These included the use of cementitious products, built-up systems, and sodium bentonite. However, none of these choices held as much appeal as an integral crystalline waterproofing (ICW) system.



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Unlike the other waterproofing options, the ICW system works by introducing chemicals into the concrete that will allow the concrete to grow crystals in response to the presence of water for the life of the structure. Those crystals go on to fill up spaces between concrete particles and to self-seal hairline cracks within the concrete. The application for the process is simple as construction teams either add the ICW system into the concrete mix or apply it directly to the surface of the concrete to get their desired waterproofing.

Because it does not require as intricate an application as external membranes do, it allows builders to reduce the potential for human error and to backfill early, shaving weeks off the overall construction schedule. What's more, the system does not deteriorate in dry and hot weather, is safe from physical damage, can resist up to 140 m (459 ft) of head pressure, and can be applied in damp or wet conditions.

Out of all these beneficial qualities and more, Alghanim Industries particularly liked the fact that the ICW system is meant to last permanently. Compared to waterproofing solutions with a finite life span and a weakness to UV light and hot, dry conditions, like external membranes, it was a significantly better investment.

Recognizing this value, Alghanim Industries went with an ICW system: Kryton's KIM solution. They chose KIM in particular as they knew it was an ICW system that had been tested and approved by notable authorities in construction, such as Kuwait University, the Dubai Municipality, and Saudi Aramco. As a result, KIM went on to waterproof 4,500 m³ (158,916 ft³) of concrete for the garage's ground floor and 12,000 m² (129,167 ft²) of concrete for the garage's first floor slab.

Then, to ensure the drill openings for the garage were equally watertight, the builders applied Kryton's Krytol Waterstop System.

With the help of KIM and the Krytol Waterstop System, Alghanim Industries was able to save \$69,000 as they didn't have to spend as much time and labor on waterproofing their garage. Additionally, this form of waterproofing enabled the builders to save two months of construction time, ensuring that Alghanim Industries could open their garage two months earlier than expected. Leveraging that chance to their benefit, the company gathered business opportunities that were worth around \$850,000 to \$1.7 million.



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