Sydney Church of England Grammar School's Sports Complex

Sydney, New South Wales, Australia (2013)

PRODUCTS USED:

Krystol Internal Membrane™ (KIM®) Krystol Broadcast™

OWNER:	ARCHITECT:	CONTRACTOR:	APPLICATOR/DISTRIBUTOR:
Sydney Church of England Grammar School	Mayoh Architects	Novati Constructions	Krystol Group Pty. Ltd.

BACKGROUND

Established in 1889, the Sydney Church of England Grammar School (also known as Shore) has been dedicated to teaching their students how to be responsible citizens for over a century. As part of that effort, they offer an extensive collection of facilities to support education, administration, arts, culture, and sports. All of which caters to 1,600 students annually.

Over the years, a number of these facilities have been updated, and in the early 2010s, it was now time for the school's Northbridge sports complex to get an upgrade.

It was part of the school's original master plan for the area, and it would include a number of quality improvements. Some of these improvements involved developing a two-story soccer and tennis pavilion with a spectator area that holds 213 seats, nine new tennis courts, a three-megaliter water storage tank, modern change rooms, a medical center, and a kitchen.

Out of all these new developments, the pavilion and the water tank in particular were the most at risk for water concerns. If water entered the pavilion, it could weaken the bond between the concrete structure's cement paste and aggregate, harming the pavilion's structural integrity. A similar concern for structural integrity surrounded the water tank. As it was meant to support the school's water harvesting strategy, it needed to collect subsoil drainage from the surrounding playing fields. To do that effectively, the tank had to be able to withstand a high level of hydrostatic pressure that it would encounter during this process. Otherwise, under such stress, it could end up cracking and losing the collected water.

SOLUTION

To prevent these possible issues, the school worked with Kryton's Australia distributor, Krystol Group Pty. Ltd.

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Under the distributor's recommendation, the school chose to apply Kryton's KIM admixture to the pavilion's retaining walls and to the water tank's base slab and walls. They also went on to apply Kryton's Krystol Broadcast to the pavilion's concrete slab.

Using Krystol® technology, both KIM and Krystol Broadcast provide the concrete with the ability to block water on its own. As a result, in the presence of the slightest moisture, the concrete will chemically react to create crystals with the water and surrounding unhydrated cement particles. These crystals then fill up the concrete's capillaries and micro-cracks to prevent water from entering.

Once there is no more moisture nearby, this chemical reaction stops and becomes dormant, only activating again in the presence of moisture so that the concrete remains efficient at blocking water for the rest of its life span.

It's a great way to provide concrete with permanent and full-depth waterproofing without the extra steps, labor, or application risks that come with other waterproofing methods like external membranes.

More specifically, it was great at preventing water from weakening the Shore's new pavilion and from escaping or cracking the Shore's new water tank. The method worked so well that the structures remained standing perfectly two years later, helping Shore earn the Master Builders Association's 2015 awards for sporting facilities and excellence in resource efficiency.

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Kryton International Inc.

1645 East Kent Avenue, Vancouver, BC, Canada, V5P 2S8 | T 1.604.324.8280 | F 1.604.324.8899 | W kryton.com | E info@kryton.com