The Arc

Vancouver, BC, Canada (2020)

PRODUCTS USED:

Krystol Internal Membrane™ (KIM®) Krystol Waterstop Treatment™
Krytonite™ Swelling Waterstop

OWNER/DEVELOPER:	ARCHITECT:	ENGINEER:
Concord Pacific	Francl Architecture Inc.	JRS Engineering Ltd.

CONTRACTOR:	DISTRIBUTOR:
Centerville Construction Ltd.	Cascade Aqua-Tech Ltd.

BACKGROUND

Seen as a stunning visual gateway for one of the entrances into downtown Vancouver, Canada, the Arc sits at the northern foot of the Cambie Bridge with two towers at 88 m (288 ft) and 29 stories. Initially, from the ground up to the 20th floor, the towers don't appear so different from other twin tower structures. They remain apart while still looking impressive with built-in curves that give them a visually wavy profile. However, by the 20th floor and higher, the towers are bridged, forming an arch that contains a suspended glass swimming pool. All of which creates a striking appearance that is hard to look away from.

On the inside of this construction marvel is approximately 37, 161 m^2 (400,000 ft^2) of residential space that holds over 500 suites for homeowners. However, despite the large residential space, the Arc still has room for commercial owners too. In combination with Concord Pacific's One Pacific building, the Arc offers 5,574 m^2 (60,000 ft^2) of commercial space at its ground level.

All of which was fast-tracked to creation in a 16-month construction timeline. To add to the challenge of the Arc's construction, the owner and developer of the project wanted the building to meet the 100-year flood event requirement. That meant the Arc construction team would need to find a waterproofing solution of the highest quality and durability that wouldn't add to their construction schedule.

SOLUTION

After a thorough review of its performance and long-term benefits, Kryton's KIM waterproofing system was chosen as the optimal solution.

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With KIM, the Arc construction team would be able to give their project permanent concrete waterproofing that can withstand heavy hydrostatic pressure and remain free from the risk of physical tearing and deterioration. And it would be possible thanks to the fact that KIM is a permeability-reducing admixture for hydrostatic conditions.

Because of that, KIM only needs to be added to the concrete mix. Once there, it will disperse Krystol® technology throughout the mix, making the concrete thoroughly waterproof. Then, once placed, the concrete will be able to chemically form insoluble crystals in reaction to light or heavy water ingress to stop it from passing through the concrete's pores, capillaries, and micro-cracks. This reaction will remain available for the life of the Arc and enable the structure's concrete to self-seal, independently protecting itself from incoming water and developing hairline cracks.

This process allowed the construction team to eliminate the need for surface-applied waterproofing membranes. As a result, they did not have to worry about their waterproofing system tearing like membranes often do. And they could expedite their work and save some of their budget as they no longer needed to spend time physically applying membranes or pay for extra labor to do the applying.

To complete this impressive waterproofing system, the Arc construction team applied Krystol Waterstop Treatment and Krytonite Swelling Waterstop to all the below grade construction joints.

Starting with the treatment, they coated the surface of the construction joints with it, allowing the treatment to provide those areas with Krystol technology protection.

Then, they applied the Krytonite Swelling Waterstop on top of the treatment. Using synthetic rubber, this waterstop creates a swelling pressure that seals concrete construction joints and stops water. Much like KIM, Krytonite Swelling Waterstop has proven itself to be extremely durable, remaining free from deterioration for the life of a concrete structure. This performance is ultimately better than what builders can expect from bentonite and other competing waterstops, which deteriorate over time.

Knowing this, the Arc construction team was pleased but not surprised when the Arc won multiple awards. Two came from the Canadian Home Builders' Association of BC in 2021 for best innovative feature and best multi-family mid- or high-rise development. And a year prior, one came from the Building Industry and Land Development Association for best international project of the year 2020. It all showed that the construction team had done their best to ensure they built the Arc with high quality in mind.

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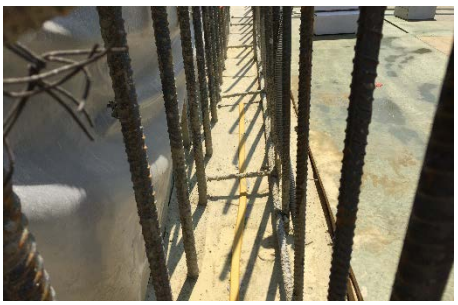

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