Marine-strength waterproofing for Thailand's largest aquarium

Project	Aquaria Phuket
Owner/operator	Aquawalk Thailand Co. Ltd.
Contractor	Aquablu Technologies Sdn. Bhd.
GCP Solutions	SILCOR® liquid-applied waterproofing

Project

Slated to open in early 2019, Aquaria Phuket will be the largest aquarium in Thailand. Located inside the Central Phuket megamall, the aquarium is expected to house some 25,000 marine creatures. Once opened, Aquaria will be more than a tourist attraction. It is expected to become a working research and breeding centre through a partnership with Chulalongkorn University in Bangkok.

Malaysian company Aquawalk Thailand Co. Ltd., the owner and operator of the new aquarium, tasked Aquablu Technologies Sdn. Bhd. to design and build the aquarium, including finding a high-performing waterproofing solution that would be safe for the marine life that will soon call estimated 60,000-square metre aquarium home. Aquawalk is an expert in managing and operating aquariums, as the company also owns and manages the oceanarium Aquaria KLCC in Kuala Lumpur, which opened in 2005.

When it comes to waterproofing, especially an aquarium, the biggest challenge is delivering a solution that is safe for marine life without compromising the waterproofing integrity.

Typically most waterproofing solutions fail at terminations, joints and penetrations.
For Aquaria, Aquablu wanted a high-performing solution that would address waterproofing vulnerabilities, offer flexibility in application and be easy to install. Advanced planning was important for Aquaria to ensure they could meet the project's overall schedule.

"SILCOR® waterproofing provided huge advantages for us," Boyle said. "One of the challenges we face in the construction phase of any aquarium projects is the timing and the speed that we're able to apply the waterproofing. With the SILCOR® system we found we had a lot of flexibility. Plus the speed that we're able to apply it gave us a lot of advantages with our project schedule and the timing of the overall work. We believe SILCOR® waterproofing offers a huge advantage over many other systems available on the market."

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Aquablu Chief Operating Officer Matthew Boyle

After researching liquid waterproofing systems for the tanks at Aquaria, Aquablu selected the following SILCOR®liquid-applied waterproofing products from GCP Applied Technologies:

1. SILCOR® primer BS – A fast-drying, single-pack modified polyurethane primer for elastomeric polyurethane membranes
2. SILCOR® 990 MP – A two-part, fast-curing, pure polyurea, spray-applied elastomeric coating
3. SILCOR® LM PU sealant – A joint sealant based on proven polyurethane elastomer technology

The SILCOR®system comprises liquid waterproof membranes, top coat, primers and detailing products. Its flexibility in application protects vulnerable joints and protrusions without compromising waterproofing integrity. The SILCOR® membrane delivers excellent adhesion to concrete and steel, and offers flexibility through spray as well as trowel application.

The specially formulated SILCOR®liquid membrane incorporates advanced polymer resin to optimise product application and durability. This liquid waterproofing system cures rapidly to form a seamless, monolithic membrane that is fully bonded to the substrate. It's highly durable with excellent wear and chemical resistance to offer long-lasting waterproofing protection.

Results

The SILCOR®liquid-applied waterproofing system in ocean blue and blue black were applied on two of the largest tanks at Aquaria to deliver marine-strength protection.

The durable SILCOR®system, fully bonded to substrates, eliminated water migration and prevented water tracking. The elastomeric system is able to accommodate structural movement, enhancing the durability of the waterproofing and the structure. The system also offers excellent resistance against wear and abrasion to reduce damage by other trades during construction.

"We received a lot of information early on about SILCOR®waterproofing, which helped us select the correct products and application methods to overcome challenges on the site," said Aquablu Chief Operating Officer Matthew Boyle. "The technical support we received from GCP was excellent. They helped us to tick all the boxes."

Aquablu say they appreciate the system's fast cure time, which resulted in faster return-to-service time and made it easy to start other phases of the construction. Applied by spray or hand, the SILCOR®system enabled Aquablu to boost productivity and achieve maximum waterproofing coverage per day to speed up the application process.

"One of the huge advantages of SILCOR®waterproofing is the speed of applying the product and the curing time," Boyle said. "Once we apply it, we can work within the area in a very short window of time. This enables other contractors and other works to be scheduled ahead and completed on time."

With a wide application temperature and humidity range, SILCOR®liquid waterproofing provides a seamless, continuous waterproof barrier on the tanks to ensure waterproofing integrity. Available in low volatile organic compound grades, the SILCOR®system provides Aquablu with peace of mind.

"One of the other huge value-adds for us with the SILCOR®990 MP system is that it has potable water certification," Boyle said. "All of the tanks that we apply waterproofing technology to, at the end of the day, are used for fish, marine mammals and other animals, so we have to make sure that the construction materials and the systems that we install are safe for them."

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