

Seamless liquid waterproofing enables faster completion of garden forecourt.

Singapore's Esplanade: A home for the arts and nature



Owner	Esplanade Theatres on the Bay Singapore
Project	Forecourt Garden, Esplanade - Theatres on the bay
Architect	DP Architects Pte. Ltd.
Contractor	Incorporated Builders Pte. Ltd.
Applicator	Maxiseal Pte. Ltd.
GCP Solutions	SILCOR® waterproofing system

Project

Nature and the arts

Nature and the arts have long enjoyed a symbiotic relationship, with the natural world inspiring artists and the arts, in turn, interpreting nature in ways magical and unique. As part of Esplanade – Theatres on the Bay's refurbishment plans, the national arts centre of Singapore took the opportunity to revitalise its Forecourt Garden by embracing nature at its main entrance. The idea was to create an environment where the Forecourt Garden sits amid lush greenery, housing trees and plant life, some of which indigenous to the region, as well as flora that thrive well in our tropical climate. All this in the heart of the city.

"Spray application is very fast and we achieved very good and wide coverage on a per day basis, averaging 800 square metres per day."

Aric Ho, Director, Maxiseal Pte. Ltd.

The Project Timeline

The tight timeline was one of the main hurdles that the engineers and designers faced for this project. With a target to re-open in time for Singapore's 50th birthday in August 2015, the project required a waterproofing system that could be professionally applied in the shortest period of time possible.

Furthermore, the unique design of the Forecourt Garden posed a number of challenges for waterproofing works. To hold the various plants and trees, the architect designed several planter boxes set into the floor and flower beds with irregular curves. This demanded waterproofing that could adhere to vertical, horizontal and rounded surfaces without jeopardising its ability to repel water.



The Waterproofing System

The job therefore called for a waterproofing system that was quick to apply and would adhere to surfaces that were laid out in a number of directions and in a relatively tight construction space. The Esplanade's architects consulted with GCP, who devised a plan utilising its SILCOR® waterproofing system, specifically the SILCOR®780 HI-LP liquid-applied waterproofing membrane. To put the SILCOR® system in place, construction crews hacked through the existing waterproofing area before using a high-pressure spray equipment to apply the two-part, fast and self-curing, 100% chemically crosslinked monolithic elastomer coating once the underlying surface had been properly prepared.

Results

The ease of setting down SILCOR®780 HI-LP waterproofing membrane went a long way in making sure the Esplanade project was completed within the tight deadline. Spray application allowed the waterproofing contractor, Maxiseal Pte. Ltd., to coat a broad expanse of the site on a daily basis. The fastcuring properties of the SILCOR® waterproofing system also contributed to the speed of the project. Within 20 seconds, it transforms from a liquid to a gel and within 60 seconds it is no longer sticky. Heavy foot traffic on the surface can take place within two hours of application to the substrate. That meant the final top layer of concrete, the screed work, could be laid down that day or the next day, creating valuable time savings.

Finally, the liquid application of SILCOR®780 HI-LP waterproofing membrane meant it easily overcame the challenges presented by the garden design's variety of surface shapes and contours. From the bottom of a planter box to the curve of a flower bed, SILCOR® waterproofing seamlessly bonded to the substrate surface, providing a robust defense against water intrusion. Its root-resistance quality (through compliance to DIN 4062:1978 (adopted) test) lent itself well to this application. SILCOR® waterproofing was also ideal for the various overlaps and joints in the project. At the same time, as a Singapore Green Label endorsed product, SILCOR® liquid waterproofing is both safe for the environment and application workers. In the end, GCP had helped the designers achieve their goal of creating a lush, verdant landscape to augment the musical and visual performances at the Esplanade.

"The waterproofing progressed so well we could start pouring concrete onto it that same day which was a real time-saver for the project."

Aric Ho, Director, Maxiseal Pte. Ltd.

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