

INTEGRITANK[®] system overcomes tough environmental challenges

Yas Island Southern Crossing protected with INTEGRITANK[®] waterproofing



Project	Yas Island Southern Crossing, UAE
Client	Aldar Properties PJSC
Contractor	Taisei Corporation
Authorised Contractor (Waterproofing Applicator)	ASTEL
GCP Solutions	INTEGRITANK [®] system

Project

Choosing the highest quality products

Yas Island, home of Abu Dhabi's Formula 1 'Yas Marina' circuit, is a luxurious development with decadent shopping malls, championship golf courses, marinas, theme parks and spectacular hotels that are within easy reach of the rest of the Emirate. The high quality finish throughout the project is a testament to the client, Aldar Properties PJSC.

Unseen elements, such as the infrastructure, have also been protected by the highest quality and most suitable materials. The INTEGRITANK[®] system was chosen to protect the Southern Crossing Tunnel linking Al Raha Beach to the Yas Marina Circuit.



Choosing a high-performance waterproofing solution

The project had a strict timeframe for completion in time for the inaugural 2009 Formula 1 Grand Prix. Another potential issue for the project's success was Abu Dhabi's climate. The hot, humid weather can cause problems for installation of other liquid applied waterproofing systems. The INTEGRITANK[®] system is extremely tolerant of climatic conditions, in excess of 40 °C. Developed by Stirling Lloyd (now GCP Applied Technologies), this spray applied waterproofing system is based on proprietary ESSELAC[®] technology.

To demonstrate the INTEGRITANK[®] system's capabilities, representatives of Aldar and TAISEI Corporation visited another prestigious project, the New Doha International Airport in Qatar, where the same waterproofing system was being applied. During this site visit they were able to see the INTEGRITANK[®] system being applied and backfill placed directly against the cured membrane, proving its robustness. The team also saw the system being applied in hot, windy conditions surrounded by dust and sand, and observed that the weather conditions did not cause any detriment to the performance of the membrane.

Cold, spray-applied waterproofing helps meet project schedule

The INTEGRITANK[®] system was chosen based on its track record of success in protecting both cut-and-cover and immersed tube tunnels.

The system can be over coated after any interval, with no critical overcoating time. This fast curing system enabled quick progress in line with the tight program schedule.

The concrete substrate was primed with the PA1 primer system, and then two coats of the INTEGRITANK[®] system were applied. The completed system provided a seamless finish, with no potential weak joints for water penetration, even at the complex detailing, corners and overhead applications found on the project, which would have been the undoing of other systems. When the application of the membrane to a particular section was completed, it was electrically 'holiday' tested for integrity.

When the tunnel was complete, the cofferdam keeping water out from the construction bay was deconstructed and the Southern Crossing Tunnel was submerged with a 25m head of water at the deepest point. The INTEGRITANK[®] membrane was left exposed and was subjected to significant pressure. The strong bond between the membrane and the tunnel aids in long-term protection.

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