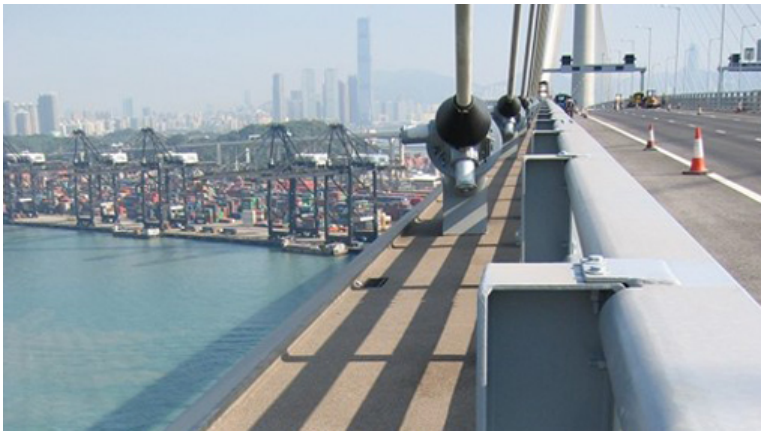
Stonecutters Bridge chooses high performance waterproofing system

ELIMINATOR® system protects mega structure in extreme weather conditions.



Project	Stonecutters Bridge, Hong Kong
Client	Government of Hong Kong Special Administrative Region, Highways Department
Contractor	Maeda-Hitachi-Yokogawa-Hsin Chong Joint Venture
Authorized Contractor (Waterproofing Applicator)	ASTEL
GCP Solutions	ELIMINATOR® Bridge Deck Waterproofing, ZED S94, Tack Coat No.2, BRIDGEMASTER®, METASET® Concrete

Project

Second longest cable-stayed bridge spans the Rambler Channel

Stonecutters Bridge in Hong Kong, the second longest spanning cable-stayed bridge in the world, epitomizes the latest in bridge engineering. The dual three-lane crossing utilizes 33,500 tonnes of structural steel in the bridge deck, 32,000m^3 of concrete in the towers, and the 65 steel deck units rely on 224 cables.

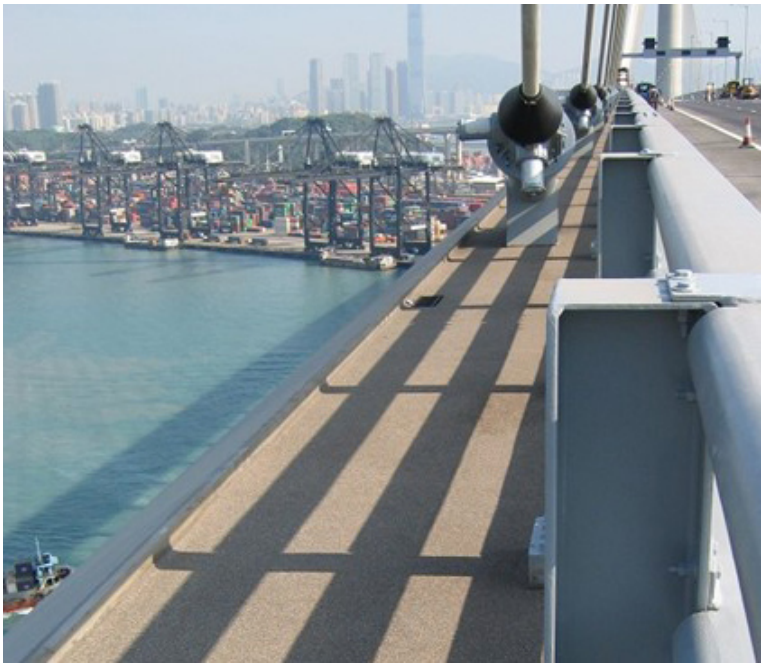
The waterproofing system chosen was required to effectively protect the new mega structure from the weather extremes experienced in Hong Kong, from monsoon rains to extreme heat, as well as the high levels of traffic travelling to and from Chek Lap Kok airport and the region's container port. This elegant asset will fulfill its important strategic function for many years to come.

Waterproofing system withstands harsh climate

The ELIMINATOR® waterproofing system has been used to protect numerous new steel highway bridges in Hong Kong. Developed by Stirling Lloyd (now GCP Applied Technologies), this spray applied waterproofing system has a notable track record of performance in these challenging conditions such as high temperatures.

Extensive pre-construction testing confirmed that the ELIMINATOR® system could achieve the specified tensile and shear adhesion strengths to the mastic asphalt used in the surfacing material. Based on unique ESSELAC® advanced resin technology, the ELIMINATOR® system's conformance to the bridge deck waterproofing standard BD47 meant it met the strict criteria for the Stonecutters project.

The BRIDGEMASTER® system was also used on the "outer edges" of the decks which are used by maintenance personnel. Specification in this area not only required an effective waterproofing system but one that incorporated an anti-skid surface. Consequently, the BRIDGEMASTER® lightweight waterproofing and wearing course system was selected.



Spray applied products simplify application

The deck was primed with anti-corrosive ZED S94 primer, and the ELIMINATOR® system was sprayed on 47,500m^2 of surface area. Electrical holiday testing was done to confirm the integrity and water tightness of the system. Tack Coat No.2 was then roller applied onto the ELIMINATOR® membrane. Adhesion tests were completed to confirm the high adhesion values between the waterproofing and surfacing achieved in the pre-construction testing were also met on-site.

The BRIDGEMASTER® system was spread on 5,000m^2 of the outer edges of the deck up to the stainless steel parapet that separates the main carriageway. In addition, METASET® resifilla repair mortar was used to build up the 1,000m^2 of the inner edge of the bridge's two decks. Its viscosity enabled a triangular shape to be created, so that water travels away from the deck.

The ELIMINATOR® system met the strict design criteria led for important, high profile structure. The quick curing nature of the products and their rapid application ensured that this element of the project was completed ahead of the scheduled programme and within budget.

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