

The ELIMINATOR[®] bridge deck waterproofing system protects China’s newest superstructure, the Hong Kong–Zhuhai–Macao Bridge



Project	Hong Kong–Zhuhai–Macao Bridge
Owner	Hong Kong–Zhuhai–Macao Bridge Authority
Lead Design Firm	China Communications Construction Co.
General Contractor	China Communications Construction Co. Project Management Dept.
Engineers	AECOM Asia Co. and COWI A/S Denmark
GCP Solutions	ELIMINATOR [®] bridge deck waterproofing System, Zed S94 Primer, Tack Coat No.2.
Waterproofing applicators	Shenzhen Asianway Corrosion & Protection Engineering Co. Ltd. and Zhenjiang Lanbo Technology Inc.
Paving Contractors	Chongqing Zhixiang Paving Technology Engineering Co. Ltd. and Guangdong Provincial ChangDa Highway Engineering Co., Ltd.

Project

Hong Kong–Zhuhai–Macao Bridge

At 50km in length, China’s Hong Kong–Zhuhai–Macao Bridge is currently the world’s longest sea-crossing bridge and the third longest bridge structure in the world.

The super structure is expected to reduce travel times from over three hours by land or one hour by ferry to just 30 minutes.

"ELIMINATOR® bridge deck waterproofing system is based on the company's unique ESSELAC® resin technology, which protects against corrosion and contributes to achieving a predicted minimum 120-year design life."

Carl Pearce, Regional Manager, Asia Pacific.

Protecting the superstructure

The chosen waterproofing solution would need to meet the construction standards of China, Hong Kong and Macao and offer the highest quality and durability. The waterproofing system also needed to withstand the warm marine climate both during application and for the long term.

The chosen provider would need to be able to meet the huge capacity of the structure within a tight delivery programme, and manage aspects the project's commercial, logistical and technical support and quality assurance.

After extensive review and analysis of bridge deck waterproofing systems, the Hong Kong-Zhuhai-Macao Bridge Authority found that the ELIMINATOR® system was the ideal waterproofing solution.



ELIMINATOR® bridge deck waterproofing system

The ELIMINATOR® bridge deck waterproofing system was applied to approximately 500,000m² of the three steel navigation bridge sections in mainland China waters. The use of Zed S94 enhances the strong bond of the ELIMINATOR® membrane to the deck.

Working in Asia's warm climate means that the fast curing, flexible resins harden within minutes and are fully cured in just half an hour. The membrane can be trafficked if needed after just one hour, allowing trades to carry on working.

To complete the waterproofing, a thinner layer of red Tack Coat No.2 was applied. This tack coat dries quickly to a hard surface, which is resistant to the wheel loads of the asphalt paving plant. When the 230°C hot-poured asphalt is applied directly to this heat-activated tack coat, as it cools a strong chemical bond is formed, allowing the whole surface pavement system to work compositely in transmitting and dissipating the considerable stresses and strains induced by traffic loading and structural movements.

Such a momentous project relied on the highest levels of integrity, performance, service and quality, and GCP Applied Technologies proved that it was able to deliver.

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