

Landmark Superstructure Bridge Uses ELIMINATOR[®] Waterproofing

New York Metropolitan Transport Authority invests in long-term protection of landmark bridge



Project	Verrazano-Narrows Bridge, New York
Client	New York Metropolitan Transport Authority (NYMTA)
Contractor	Tutor Perini
Authorized Contractor (Waterproofing Applicator)	Venture
GCP Solutions	ELIMINATOR [®] Bridge Deck Waterproofing System

Project

Refurbishing vital bridge

Built in the late 1950s, the Verrazano-Narrows Bridge is an imposing sight in New York Harbor. The longest span bridge in the country, it connects Staten Island and Brooklyn across the narrow body of water. This double-decked suspension bridge allows ship traffic to pass below it into the ports of New York and New Jersey.

In 2008, 190,000 vehicles were recorded passing over the bridge every day – making it a key route on the east coast. The result of this large volume of traffic and heavy use is that the 50-year old upper level deck required replacement to make way for a lighter weight, more durable steel orthotropic deck. The refurbishment work also involved the creation of a seventh lane to be used as a bus and high occupancy vehicle lane.



Challenge



Protecting major steel bridge decks

The general contractor, Tutor Perini, had a challenging construction schedule in one of the most densely populated cities in the world. They required a product that could be installed quickly and perform in both extremely high summer temperatures and extremely cold winter temperatures.

The ELIMINATOR[®] system from Stirling Lloyd (now GCP Applied Technologies) was chosen based on its history of protecting many of the world's biggest steel deck bridges.

The system acts as a barrier across the expanse of the bridge deck, preventing steel corrosion of the structure. Based on unique ESSELAC[®] technology, the system enhances the membrane's bond to both the asphalt paving and the deck. This strong bond throughout allows the steel deck, waterproofing and paving to act as a composite – another key specification requirement. Given the dynamic forces constantly at work, this composite action is the key to long-term performance. Ease and speed of installation of the waterproofing system to allow project progression was another major factor.

Solution

Minimizing traffic disruption

The work was carried out during restricted timeframes to minimize disruption to traffic on the major bridge. The fast curing ability of the ELIMINATOR[®] system allowed other trades to access the site, enabling a rapid return to service.

To facilitate the short working windows, the deck was cut, removed and replaced in sections as part of a staged process. The 55,000m² of new deck was prepared by shot blasting using metallic blast medium. Spot adhesion tests were then conducted to assess the bond the waterproofing system would achieve to the deck. This is an extremely important step in the quality control process because, as previously stated, the bond to the deck is key to the long-term performance of the waterproofing.

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