



Royal Albert Bridge

United Kingdom



Image courtesy of Taziker Industrial Limited.

Project

The Royal Albert Bridge is one of legendary engineer Isambard Kingdom Brunel's most famous creations.

A railway bridge spanning the River Tamar between Devon and Cornwall, it boasts a unique design featuring two 139m lenticular iron trusses positioned 30m above the water.

Completed in 1859 and opened by Prince Albert, it now stands as a monument to its creator and still carries trains between the two counties across its 666.8m span.

The bridge stands in an aggressive environment with relatively high levels of humidity and salinity from the tidal river below. Network Rail required a 25 years' anti-corrosive paint protection system.

Based on the protection afforded on other major bridge protection schemes including the Forth and Tay Rail Bridges, Network Rail specified a glass flake epoxy system. The Principal Contractor, Taziker Industrial Limited from Horwich, Bolton, UK, selected Sherwin-Williams as its paint supplier.

Substrate: Cast/Wrought Iron.

Requirements: 25 years protection against high humidity and salinity levels.

Specifications: Macropoxy™ L674 Epoxy Blast Primer, Macropoxy™ C123 Glass Flake Epoxy, Acrolon™ C137V2 Acrylic Urethane Finish.

Area coated: 50,000m².

Client: Network Rail.

Main contractor: Taziker Industrial Limited.

Consultant engineer: AECOM.

System

The existing paintwork was totally removed by abrasive blast-cleaning to Sa2½ surface standard (BS EN ISO 8501-1).

The coating system comprised Macropoxy™ L674 Epoxy Blast Primer at 50µm minimum dry film thickness (mdft), Macropoxy™ C123 Glass Flake Epoxy at 400µm mdft and Acrolon™ C137V2 Acrylic Urethane Finish at 50µm mdft.

A stripe coat of Macropoxy™ C123 Glass Flake Epoxy was applied at 250µm mdft between the first and second coats to all rivets, sharp edges and joints, etc. A total minimum dry film thickness of 500µm was applied.

The system eliminates the need for ongoing maintenance, significantly reducing environmental impact, saving on expensive maintenance costs and extending asset life.

This three coat system provides excellent adhesion and anti-corrosion properties and acts as a powerful barrier against the harsh weather conditions in this aggressive marine environment.

Benefits to the asset owner of adopting this three coat system to the bridge and highways sector comes in terms of labour costs, lower energy usage and volumes of paint required. In addition, the higher volume solids coatings means that fewer volatile organic compounds (VOCs) are emitted during the process.



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