



# PROTECTION FOR A NATIONAL LANDMARK IN AN AGGRESSIVE WIND AND SEA ENVIRONMENT

An incredible 119 years old, the Forth Rail Bridge was constructed from 53,000 tonnes of steel. Standing 110 m high and 2,467 m in length, the structure requires enough protective coating to cover 230,000 m<sup>2</sup> of steel.

Subject to coastal conditions with moderate to high salinity the steel of the Forth Rail Bridge needs to be protected against a very aggressive environment; including high winds and sea mists. Network Rail required a system that would provide a minimum of 25 years protection against corrosion.

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**AFTER CAREFUL CONSIDERATION AND DETAILED DISCUSSIONS, NETWORK RAIL OPTED FOR A GLASS FLAKE EPOXY BASED SYSTEM, WHICH COULD BE APPLIED TO A HIGHER FILM BUILD, RESULTING IN A SYSTEM COMPRISING OF THREE COATS COMPARED WITH THE FOUR COATS OF AN EPOXY MIO SYSTEM.**

**CLIENT:**  
Network Rail

**MAIN CONTRACTOR:**  
Balfour Beatty

**CONSULTANT ENGINEER:**  
Pell Frischmann

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**SHERWIN  
WILLIAMS®**

# FORTH RAIL BRIDGE, EDINBURGH



## SOLUTION

The selected system consists of a higher build blast primer (Transgard™ TG223), an epoxy glass flake build coat (Transgard TG123) and an acrylic urethane finish (Transgard TG168\*), as well as a stripe coat of epoxy glass flake.

The glass flake epoxy system was selected due to its excellent adhesion and anti-corrosion properties, acting as a powerful barrier against the harsh weather conditions. Transgard TG223 has an anti-corrosive pigment and can be applied at 60 um dft, providing additional protection to a blastcleaned surface, without adversely affecting the intercoat adhesion on the system.

Transgard TG123 is a high solids material with glass flake particles, providing excellent barrier protection. The particles align themselves within the film, parallel to the substrate, to give barrier and physical reinforcement. Transgard TG123 can be applied through smaller spray tips, giving a smooth finish, excellent mechanical properties and outstanding corrosion resistance.

It was very important to maintain the striking red oxide colour of the Forth Rail Bridge, and so together the team ensured that the primer, stripe and intermediate coats had a sufficient colour contrast, whilst complimenting the traditional Forth Rail red finish.

The finish coat (Transgard TG168\*) is based on an acrylic urethane resin system manufactured to the required gloss level and colour shade. It has very good colour and gloss retention properties and is indefinitely re-coatable, which is advantageous for future repaints as surface preparation can be kept to a minimum.

\* Now superseded by Acrolon™ C137V2.

## SUBSTRATE

Steelwork.

## REQUIREMENTS

To provide 25 years protection in a highly corrosive environment.

## AREA COATED

230,000 m<sup>2</sup>.

## FEATURED PRODUCTS

- Transgard TG223
- Transgard TG123
- Transgard TG168\*

## THE SHERWIN-WILLIAMS DIFFERENCE

Sherwin-Williams Protective & Marine delivers world-class industry subject matter expertise, unparalleled technical and specification service, and unmatched regional commercial team support to our customers around the globe. Our broad portfolio of high-performance coatings and systems that excel at combating corrosion helps customers achieve smarter, time-tested asset protection. We serve a wide array of markets across our rapidly growing international distribution footprint, including oil and gas, water and wastewater, bridge and highway, steel fabrication, flooring, food and beverage, rail and power, marine and passive fire protection.

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06/21 EMEA10057/V03/PC

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