

Dawlish Station Footbridge



Overview

A footbridge linking the platforms at the railway station of the coastal town of Dawlish. The bridge is right on the coastline, exposing it to the elements and salt water in the form of high waves.

Details

Location	Dawlish, Devon, UK.
Description	All composite footbridge spanning a coastal railway line.
Client	Network Rail.
Date of project	February – December 2011.
Where FRP composites are used and why	<p>The coastal railway line at Dawlish, part of Network Rail's mainline network is noted for its particularly scenic qualities and for being one of the most exposed in the country, constantly battling the effects of coastal erosion and salt spray induced corrosion.</p> <p>The station, on the south coast of Devon, was originally designed by Isambard Kingdom Brunel in 1830 and is grade II listed. Unfortunately the station's 17.5 metre long covered steel footbridge, reconstructed in 1937, had deteriorated beyond repair and any similar form of replacement would probably meet the same fate in due course. Its replacement is a lightweight structure weighing only five tonnes, approximately one third that of the existing bridge.</p> <p>The bridge, which was constructed using modern advanced materials technology and is the first Fibre Reinforced Polymer (FRP) composite bridge installed at a mainline station in the UK and notably the first Grade II listed FRP bridge. The structure aesthetically replicates the character of the original steel structure, but provides a much lighter and more durable solution and is expected to result in considerable through-life cost savings due to reduced maintenance expenditure.</p>
Specific design details	17.5m span.
Type of composite used	It utilises mainly standard GFRP structural profiles, produced by the pultrusion process, combined with parapet glass fibre sandwich panels moulded by film infusion. The stairs at each end of the bridge are also moulded FRP units.
Performance in service	In February 2014 several severe storms battered the coastal railway destroying large parts of it and the station. The FRP footbridge remained totally undamaged despite being battered by rocks and sand tossed from the adjacent beach.
Project partners	Manufacturer – Pipex. Designer – Tony Gee and Partners with sub-consultant Optima Projects. Contractor – Bam Nuttall.

Contact