

# TATA STEEL



## Building envelope case study

### London Victoria Station

Client: Network Rail

Main contractor: May Gurney

Design engineer: WSP

Installation contractor: Everlast  
Waterproofing Ltd

Cladding system: R46, C19, PM13 profiles

Colorcoat® product: Colorcoat HPS200 Ultra®

**London Victoria Station is one of the busiest railway terminals in the UK.**

Victoria is the start or end for over 70 million journeys a year.

The Grade II-listed original roofs over the Eastern "Kent" side of London Victoria Station had protected travellers for 150 years, but required extensive renovation.

Network Rail commissioned an up to the minute solution, complementary to the original design, featuring 10,000m<sup>2</sup> of Tata Steel products.



Telephone: 0845 30 88 330



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London Victoria Station is one of the busiest railway terminals in the UK. Victoria is the start or end for over 70 million journeys a year.

There are effectively four railway stations on the site: two serving main line routes in south eastern England, one underground station serving the District and Circle Lines, and one deep-level tube line station.

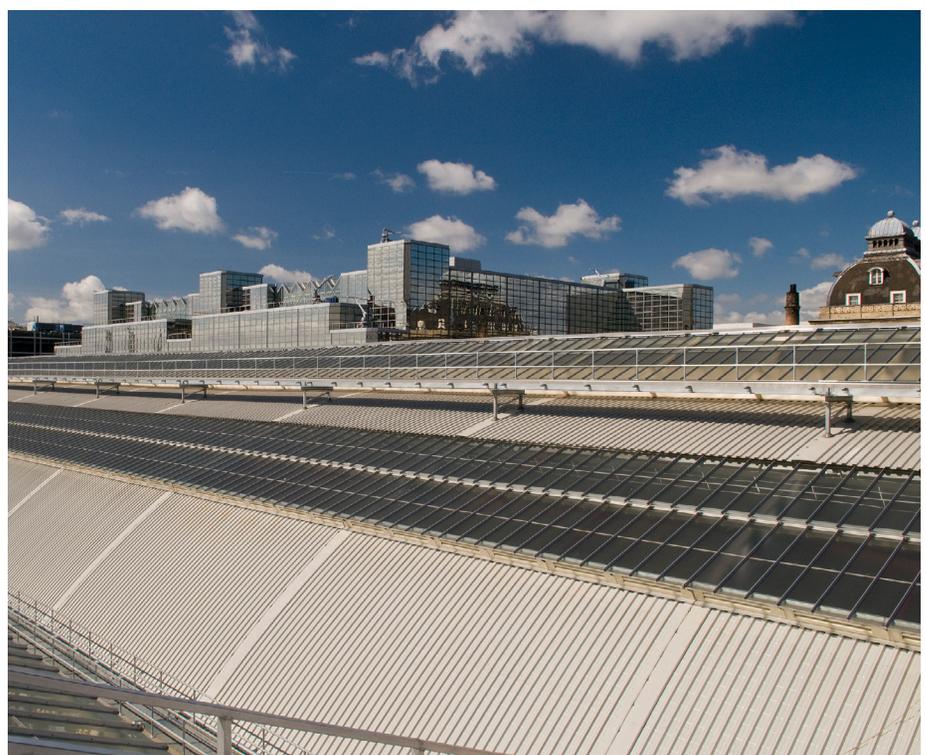
The station has dedicated platforms for passengers travelling to Gatwick Airport on Gatwick Express Services. The area around the station has also become an important interchange for other forms of transport: a local bus station is in the forecourt, and a terminal for nationwide long-distance road coaches at Victoria Coach Station is nearby.

A Grade II listed building, the mainline station serves a range of longer-distance destinations in Kent and Sussex, including Brighton, Hove, Worthing, Eastbourne, Canterbury and Dover.

The station has a segmental tied arch roof with light iron tie rods arranged polygonally between radian iron struts. It comprises two spans, the first of which is 38m by 138m, the other is 39m by 117m.

After 150 years of protecting the travelling public from the elements, the original pitched roofs on the concourse and two main barrel-vaulted roofs over the Eastern “Kent” side of the station had reached the end of their working lives.

Network Rail obtained Listed Building Consent for the roof refurbishment through the City of Westminster and English Heritage.



The £35 million roof refurbishment at London Victoria presented special challenges, as Alan Clarkson, Project Manager for main contractor May Gurney, explained.

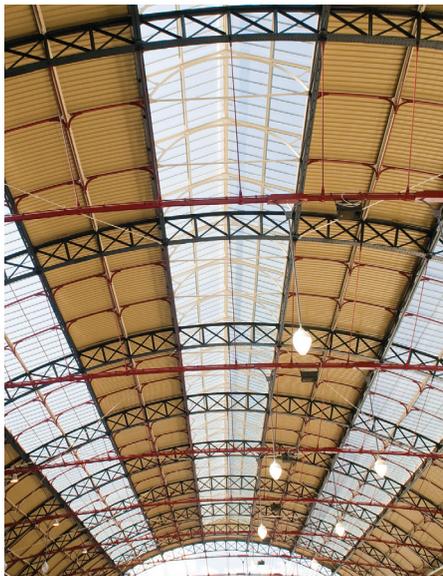
“This was a complete structural refurbishment, not just cosmetic. We were working to original 1860’s drawings, which were all found to be incorrect as the work progressed.

“The biggest challenge was in enabling the station to continue normal operation during the refurbishment, isolating it from the roof works.

“To facilitate this, a temporary roof was constructed under the existing structure to prevent debris from falling onto the station concourse. It also helped that the project was undertaken in 1200m<sup>2</sup> phases.

“Tata Steel products were part of the formal project proposals from a very early stage.”

Installation contractor Everlast Waterproofing Limited fitted R46 profile to the two approximately 40 metre span, over 100 metre long main barrel-vaulted roofs, to a 26 metre radius curve, incorporating stippolyte obscure glazing, to match the original patent glazing system.



The replacement roof featured R46 profile in double-sided Colorcoat HPS200 Ultra®, with a Goosewing Grey finish on the external face and a Straw finish on the internal face. The R46 profile was selected by Network Rail due to its ability to span approximately 2.8m from purlin to purlin.

On the concourse, the existing felt roofing laid on timber purlins was replaced by steel purlins and C19 profile in Colorcoat HPS200 Ultra® in Goosewing Grey, laid over purlins at nominal one metre centres, with an internal PM13 profile in Colorcoat HPS200 Ultra® in Straw, providing a like-for-like tongue and grooved boarding effect when viewed from the underside.

The existing translucent corrugated sheeting was replaced with stippolyte glazing mounted within a patent glazing bar system.

The internal colour choice of Straw was arrived at following extensive research into the concourse colour scheme, to ensure that replacement colours accurately interpreted the original Victorian paints.

Colour matches were also achieved on decorative spandrels, gutter mouldings, the maintenance access system, columns and low-level canopies.

Backed by a Confidex® guarantee and available in 40 standard colours, Colorcoat HPS200 Ultra® pre-finished steel combines outstanding performance with unrivalled reliability and impressive sustainability credentials.

Made in the UK to ISO 14001, for a lower carbon footprint, Colorcoat HPS200 Ultra® is the most durable pre-finished steel on the market. It incorporates advanced coating technology, providing superior corrosion resistance, especially in challenging environments like the station, with twice the colour and gloss retention of standard plastisol products.

“The roofing profiles were fixed to wrought iron tied arch trusses,” continued Alan Clarkson.

“We had to grit blast up to 30 layers of old paint off the trusses, as well as undertaking considerable fatigue testing.

“The roof and wall profiles from Tata Steel performed exactly as we hoped they would. Their fast installation properties enabled us to keep on track with the project. It was a trouble-free installation that was the least of my problems.

“The project has been successfully completed without any effect on train services.”

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**Tata Steel**

Shotton, Deeside, Flintshire, CH5 2NH

T: +44 (0) 845 30 88 330

F: +44 (0) 845 30 11 013

sales.theworks@tatasteel.com

www.tatasteelconstruction.com/theworks