Waterloo International Terminal, Waterloo Station, London

For: European Passenger Services

AWARD

Architects:
Nicholas Grimshaw & Partners Ltd

Structural Engineers:
YRM Anthony Hunt Associates

Steelwork Contractors:
Westbury Tubular Structures Ltd

Construction Managers:
Bovis Construction Ltd

The Channel Tunnel Railway Terminal at Waterloo serves the same function as an airport. It is in direct competition with air travel, whereby which it will be possible to reach Paris in three hours. It has most of the services and facilities normally associated with an airport and all of the necessary back-up required to handle up to 15 million passengers a year. At the same time it remains a railway station on a constrained urban site, less than 10 minutes walk from Trafalgar Square, and has a taxi drop-off only 15m from the ticket barrier.

The site both complicates the project and gives it potency and significance. It is only just wide enough for both the terminal's structure and its five tracks, and is limited down one side by live electric rails and underneath by shallow London Underground tunnels. In spite of this, the terminal has been inserted in Europe's busiest railway station without any disruption of services.

The focus of both technical skill and architectural spectacle is the roof. Its tapering span (from 50m to 35m), and its narrow, sinuous plan, are determined by the site and track layout. Its most striking quality, the asymmetry of the trusses, derives from the position of a single track onto the western edge of the arch to rise steeply on the west to clear the structural envelope of the train and a more gentle incline over the platforms on the east.

Due to the twisting nature of the structure, a standard glazing system would have been extremely expensive involving potentially thousands of different sized and shaped components. This would have made construction extremely complex and difficult to achieve within the tight time scale. To overcome this, a 'loose fit' approach was adopted, in which a limited number of different sized glass sheets are used, each held in its own frame, and overlapping at top and bottom like roof tiles. These are joined at their sides by concertina-shaped neoprene gaskets, which can flex and expand to accommodate turn and varying widths.

The roof is the striking public face of the project, but it accounts for only 10 per cent of the cost. The rest of the project divides into three major parts: a basement car park which forms a raft that spans over the shallow Underground lines immediately below and forms the foundation for the terminal; a two-storey viaduct sits on this base and supports the platforms, forming the enclosure for two floors of passenger accommodation including the arrivals and departures facilities. The final component is works to the brick vaults under the existing station, much of which will be unseen by the public. Many of the vaults were badly damaged during the last war, and are now being extensively refurbished, to accommodate all the essential back-up operations, including an extensive catering suite.

Judges' Comments:

Advanced technology has been used to solve a complex problem and to create an exciting canopy to greet the international traveller.