



Central park bridge

Location : Olympic Park, London
Architect : Heneghan Peng Architects
Client : Olympic Games Commissioning Authority
Package : Cladding
Scope : Technical design
Date : 2011-2012

The Olympic Village for the London 2012 Olympic Games was built in a docklands area intersected by canals. Architects Heneghan Peng won the international competition to design a bridge extending the main plaza over a canal. During the Games, the bridge's surface needed to be large enough to accommodate crowds, but after the event, its footprint was to be drastically reduced to suit its regular use.

The architects' design features an N-shaped configuration, consisting of three twisted, triangular beams. During the Games, the open spaces between the beams were temporarily filled with scaffolding-type structures to create a large enough esplanade for spectators. After the Games, the temporary structure was removed, revealing the three elegant twisted beams. All exposed finishes were designed with a mirror-polished surface to reflect the surrounding environment. T/E/S/S was responsible for the polished cladding of the bridge.

Since the bridge surfaces had double curvature, flat panels could not normally be used for their construction. However, these surfaces were ruled surfaces, which could be generated by straight lines. The edges of the cladding panels and the mounting rails were therefore aligned along a series of these straight lines. However, defining the geometry of a cladding panel within its four non-coplanar straight edges remained a challenge. Empirical tests, first at a small scale and then at a larger scale, demonstrated that the smooth geometry allowed the panels to conform to the given edges. Nevertheless, the cutting layout of the panels required a thorough understanding of this imprecise geometry.

The cladding panels were made from 4mm-thick stainless steel plates, with hot-welded threaded rods on the back to enable hidden fixation. However, as the welding heat caused slight deformations, strict quality control of the panels' geometric precision was essential.

The handrails were made entirely of solid stainless steel profiles, which were polished after fabrication. The pre-stressed stainless steel infill grid was carefully detailed to conceal the pre-stressing system. The lighting was fully integrated into the vertical posts.

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