



Glass Bridge, Centre For The Unknown of Champalimaud Foundation





BRIDGING THE UNKNOWN

On 5th October 2010 the President of the Republic of Portugal inaugurated the medical research community's latest facility, the Champalimaud Centre for the Unknown, on the waterfront of Pedrouços dock, situated in an exclusive district of Lisbon, Portugal. Sited at the historic area where the river Tagus meets the Atlantic Ocean, the centre links the pioneering spirit of the Portuguese sailors that set sail from this place for unknown lands to the same pioneering spirit of biomedical research.

The focal point of the development is a beautiful glass bridge which provides a link between the two main buildings of the facility. Constructed by Bellapart, the bridge spans 21 metres between the buildings and

weighs approximately 52 tonnes in total. The welded structure and tension cables, weighing 20 tonnes, provide a minimal and elegant structure allowing maximum sunlight penetration and natural ventilation through the envelope, balustrade and deck, which are made entirely of glass.

The steel structure, of grade S355 J2, is composed of twelve 30mm thick circular ribs joined together by means of 1900mm long free-form box girders connected to the ribs by full-penetration butt welds, and an additional substructure supporting the glass deck.

The box girders were fabricated by milling two U-shaped free-form profiles from 100mm thick steel

plate that were closed by means of a continuous longitudinal butt weld.

Stiffening the steel structure there are two 50mm diameter full-locked cables following a three-dimensional parabolic path. These are connected to the steel structure at both ends by means of fork terminals and special connectors milled from solid blocks of steel measuring up to 1610x615x220mm (1700 Kg) each. The cables are clamped to all intermediate ribs by means of a specially developed interface detail.

For visual reasons, the cables do not have a turnbuckle to adjust their length. Therefore, the structure was manufactured with very tight tolerances and a specific

erection method was developed by Bellapart to make sure that the bridge would remain flat once all glass and finishes were installed on site.

The glass deck is composed of a 52 mm thick multilaminate made up of five layers of low-iron heat-strengthened glass with an anti-slip top surface and a typical dimension of 1900x2150 mm. The glass envelope is composed of 10x10 curved laminated glass panes with a Sentryglass interlayer and fully tempered heat-soaked fritted components with a solar protection coating.



Owner
Champalimaud Foundation

Architect
Charles Correa Associates

Engineer
Schlaich Bergemann and Partner

Project Manager
Gintt

Bridge Contractor
Bellapart S.A.U.

Main Contractor
HCI Construções S.A.
Mota-Engil Engenharia e Construção S.A.