

Bridge of Aspiration, UK



As part of the overall development strategy of the Royal Ballet School, the Upper School Royal moved to a new building in Floral Street, Covent Garden adjacent to the Royal Opera House. Although the distance between the two buildings is extremely small, the RBS required a covered bridge to provide direct access to the Opera House, and held a design competition in 2001. The brief called for a bridge which not only marked the school's presence within Covent Garden but was in itself a structure of beauty becoming a significant addition to the street scene. The competition was won by Wilkinson Eyre Architects with Flint & Neill Limited as structural engineers.

There were strict time constraints surrounding the construction and installation of the bridge and the design evolved around the need to avoid disruption to the work of the Royal Opera House, or the street below. The whole bridge was largely prefabricated and lifted into position by mobile crane. There were also limits on the loads that could be imposed on the RBS structure.

The structure consists of an aluminium box beam supporting a series of square frames with glazing in between. The unusual form of the bridge is generated by rotating each of the frames by about 4 degrees relative to its neighbour to form a 90 degree total twist over the length. The bridge is also skewed in plan with a slope in elevation, resulting in complex 3D geometry and a supporting beam of constantly varying cross-section. Aluminium was chosen for the beam to minimise maintenance and reduce weight.

The requirements for the internal environment and the largely transparent façade led to integration of mechanical services equipment within the structural beam which acts as a plenum for the heating and ventilation system.

The Bridge was completed in 2003 at a cost of approximately £450,000.

