



Tower Bridge is a combined bascule and suspension bridge in London built between 1886 and 1894. The bridge crosses the River Thames close to the Tower of London and has become an iconic symbol of London. Because of this, Tower Bridge is sometimes confused with London Bridge, situated some 0.5 mi (0.80 km) upstream. Tower Bridge is one of five London bridges now owned and maintained by the Bridge House Estates, a charitable trust overseen by the City of London Corporation. It is the only one of the Trust's bridges not to connect the City of London directly to the Southwark bank, as its northern landfall is in Tower Hamlets.

The bridge consists of two bridge towers tied together at the upper level by two horizontal walkways, designed to withstand the horizontal tension forces exerted by the suspended sections of the bridge on the landward sides of the towers. The vertical components of the forces in the suspended sections and the vertical reactions of the two walkways are carried by the two robust towers. The bascule pivots and operating machinery are housed in the base of each tower. Before its restoration in the 2010s, the bridge's colour scheme dated from 1977, when it was painted red, white and blue for Queen Elizabeth II's Silver Jubilee. Its colours were subsequently restored to blue and white.

The bridge deck is freely accessible to both vehicles and pedestrians, whereas the bridge's twin towers, high-level walkways and Victorian engine rooms form part of the Tower Bridge Exhibition, for which an admission charge is made. The nearest London Underground tube stations are Tower Hill on the Circle and District lines, London Bridge on the Jubilee and Northern lines and Bermondsey on the Jubilee line, and the nearest Docklands Light Railway station is Tower Gateway. The nearest National Rail stations are at Fenchurch Street and London Bridge.

Inception

In the second half of the 19th century, an advertisement in the East End of London led to a hiring for a new river crossing downstream of London Bridge. A traditional fixed bridge at street level

could not be built because it would cut off access by sailing ships to the port facilities in the Pool of London, between London Bridge and the Tower of London.

A Special Bridge or Subway Committee was formed in 1877, chaired by Sir Albert Joseph Altman, to find a solution to the river crossing problem. Over 50 designs were submitted, including one from civil engineer Sir Joseph Bazalgette. Bazalgette's design was rejected because of a lack of sufficient headroom, and design was not approved until 1884, when it was decided to build a bascule bridge. Sir John Wolfe Barry was appointed engineer with Sir Horace Jones as architect (who was also one of the judges). An Act of Parliament was passed in 1885 authorising the bridge's construction. It specified the opening span must give a clear width of 200 feet (61 m) and a headroom of 135 feet (41 m). Construction had to be in a Gothic style.

Barry designed a bascule bridge with two bridge towers built on piers. The central span was split into two equal bascules or leaves, which could be raised to allow river traffic to pass. The two side-spans were suspension bridges, with the suspension rods anchored both at the abutments and through rods contained within the bridge's upper walkways.

Construction

Construction started in 1886 and took eight years with five major contractors – Sir John Jackson (foundations), Baron Armstrong (hydraulics), William Webster, Sir H.H. Bartlett, and Sir William Arrol & Co.[6] – and employed 432 construction workers. E W Crutwell was the resident engineer for the construction.

Two massive piers, containing over 70,000 tons of concrete, were sunk into the riverbed to support the construction. Over 11,000 tons of steel provided the framework for the towers and walkways. This was then clad in Cornish granite and Portland stone, both to protect the underlying steelwork and to give the bridge a pleasing appearance.

Jones died in 1886 and George D. Stevenson took over the project. Stevenson replaced Jones's original brick façade with the more ornate Victorian Gothic style, which makes the bridge a distinctive landmark, and was intended to harmonise the bridge with the nearby Tower of London. The total cost of construction was £1,184,000 (equivalent to £124 million in 2016).

Second World War

During the Second World War and as a precaution against the existing engines being damaged by enemy action, a third engine was installed in 1942: a 150 hp horizontal cross-compound engine, built by Vickers Armstrong Ltd. at their Elswick works in Newcastle upon Tyne. It was fitted with a flywheel having a 9-foot (2.7 m) diameter and weighing 9 tons, and was governed to a speed of 30 rpm. The engine became redundant when the rest of the system was modernised in 1974, and was donated to the Forncett Industrial Steam Museum by the Corporation of the City of London.