Footbridges - Small is beautiful
The original conceptual design of the footbridge envisaged a bold suspension bridge design made of steel and with a length of approximately 552 metres. In this design, the biggest span, of approximately 317 metres, would have been located in central section of the bridge. This design, however, by far exceeded the planned budget. The search therefore began for an alternative solution.

Eventually a cheaper solution involving timber was decided upon as an alternative to the steel structure. Leonhardt, Andrä and Partner (LAP) of Stuttgart (Germany), who had been chosen as planning partners, created a timber construction solution in cooperation with the German company Hess Timber. Before the design was finally approved by Georgian president Mikheil Saakashvili, several versions and suggestions had been worked out.

The final design was a multiple span system consisting of two haunched end spans of 36 metres each, six standard spans measuring 48 metres and a cable-stayed section consisting of the largest spans of, respectively, 64 and 84 metres. The total length of the bridge is 505 metres, which makes it Europe’s longest timber bridge.

The cross-section of the bridge reveals a spatial timber frame construction consisting of two trussed girders which are laterally inclined to 45 degrees as well as a horizontal panel construction consisting of cross-bars and wood-based boards. The glulam sections were joined by means of standard slotted plate and dowel joints.

Pompey’s Bridge stands on the river Mtkvari (Kura) in Mtskheta, the ancient capital of Georgia. It is partially submerged in the waters of a man-made lake. Although the present bridge is commonly referred to as Pompey’s Bridge both by the local population and in historical documents, a bridge stood on this site well before 65 BC, when the Roman commander Gnaeus Pompeius Magnus built a new bridge here. The origins of the first bridge are believed to date back to the fourth or third century BC.

In ancient times the old Georgian capital of Mtskheta lay at an important crossroads of international trade routes. Many historians mention these routes, among them Strabo, Pliny, Appian and Cassius Dio. The most famous road to cross ancient Georgia and pass through Mtskheta was the Silk Road, which began in China and crossed Georgia in the direction of the Black Sea and the Mediterranean. The road appears on the map of the ancient world drawn by the Roman geographer Castorius.

In the year 65 BC the bridge and the whole Mtskheta region became a battlefield in the war between Artag, king of Kartli (modern-day Georgia), and the Roman army commanded by Pompey.

In the fifth century AD the bridge was rebuilt by King Yakhtang Gorgasali. Its length was increased to 120 metres.

In the eighteenth century we find references to the bridge in the writings of the naturalist and explorer Johann Anton Güldenstädt. He described the bridge and the two defence towers, as well as the customs house.

In 1927 the bridge was submerged when the river was dammed to create a reservoir for the Zemo-Avchaly hydroelectric power station. From time to time it appears above the surface, depending on the water level.
Georgia

Originally it was planned to cover the entire timber frame structure with chestnut cladding. During assembly, however, the client was impressed by the timber frame construction and it was decided to clad the glu-lam elements with transparent polycarbonate plates so as to keep them visible.

Hess Timber decided to transport an entire carpenter’s workshop from Germany to Georgia in order to ensure the smooth realisation of the pre-assembly process and the necessary preliminary work. Assembly was carried out by German carpenters and Georgian support workers.

Assembly of the bridge: where possible, the timber frames (produced on site) and steel parts (produced in Germany) were pre-assembled on the ground and/or on the dam raised at the assembly site. Owing to the site’s special position (right beside the sea, on the river Inguri), the assembly work that took place in autumn and early winter was repeatedly affected by flooding, storm tides and violent storms.

Project data:
Owner: Georgia
General Contractor: CRP, Tbilisi, Georgia
Timber frame construction: Hess Timber, Kleinheubach, Germany
Design: Leonhardt, Andrä & Partner, Stuttgart, Germany
Timber frame structural engineering calculations: Fast & Epp, Darmstadt, Germany
Planning of sealing details: HSW-Ingenieure, Bad Oeynhausen, Germany
Structural engineering calculations for cables, pre-tensioning and assembly: Redaelli, Italy
Lighting design: Lunalicht, Karlsruhe, Germany
Structural engineering calculations and manufacture of neoprene bearings: ALGA (Freyssinet Group), Milan, Italy.