



Footbridge over Tajo river

Toledo, Spain / 2004

Owner
Constructor
Scope

empresa municipal vega baja
juan nicolás gómez e hijos construcciones, contratas la mancha y juan belichón
tender design

The footbridge over the River Tajo for the Vega Housing Estate has not been treated as an isolated element of the housing estate project. Apart from the mentioned footbridge, it included an already existing lift which allowed access to a higher area of more than 10.00 m difference in relation to the starting point of the footbridge.

The proposed solution is based on integrating the demolished and reconstructed structure of the lift into the design of the footbridge, so that the first one will be able to support the loads from the second one. In this way, new structural elements which would modify the great cultural value of the shape of Toledo town will be avoided.

Following technical and landscape-preserving rules, the final project consists of a footbridge hanging from a suspension system made up of two cable plans 10.95° inclined from the horizontal one. Each one of these plans is composed of two parallel cables of 95 mm diameter. Hanging from these main cables, contained inside their plan and separated 5.00 m between axes, there are hangers the deck of the footbridge is suspended from due to a system of transversal ribs.

The main cables are anchored in a block of concrete which forms part of the abutment on the right riverbank and in the tower of the lift on the left bank. This solution was chosen in order to respect the already mentioned architectonical and structural integration of the lift tower into the design of the footbridge.

The tower of the lift whose structure is conceived as two steel, brick veneered elements until it reaches the level of the upper lookout point, is transformed into a pre-stressed element once it reaches the two curved walls that limit the square which serves as a soft landing for the footbridge on the left riverbank.

On the right riverbank, the conical shape of the footbridge leads to the block of concrete of the anchorage where the two main cables of each plan are anchored by means of steel elements.

The deck of the footbridge is of a 6.00 m minimum width and its composite structure (concrete and steel) of a total depth of only 0.60 m in the central part of the section, which is gradually decreased to 0.25 m at the meeting point of the ribs and the hangers. The total depth of 0.60 m includes a concrete slab of 0.15 m thickness which provides the structure with its necessary weight.

The tower of the lift as well as the embankment walls next to the left riverbank allow the location of an outlook point in the upper lift area where a privileged view onto the footbridge and the town of Toledo can be enjoyed from.



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