

Suspension footbridge over the River Tajo in Toledo

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 aforementioned footbridge, it included an already existing lift which allowed access to a higher area of more than 10.00m difference in relation to the starting point of the footbridge.

The proposed solution is based on integrating the demolished and reconstructed lift structure into the design of the footbridge, so that the first will be able to withstand the loads from the second. Consequently, new structural elements which would modify the landscape, which is of great cultural value to the City of Toledo, would be avoided.

Following technical and landscape-conservation rules, the final project consists of a footbridge hanging from a suspension system made up of two sets of cables inclined at an angle of 10.95° from the horizontal. Each set is composed of two parallel cables 95mm in diameter. Hangers, placed every 5.0m between axes, suspend from the main cables and are affixed to the deck. The deck itself is composed of 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 architectural and structural integration of the lift tower into the design of the footbridge.

The lift tower, whose structure is conceived as two steel elements clad in facing brick up to the lookout point, where it becomes a pre-stressed element on reaching two curved walls that limit the local square, which serve as a smooth landing for the footbridge on the left riverbank.

On the right riverbank, the footbridge takes a conical shape when meeting the concrete anchorage. Also at this point the two sets of main cables are anchored via means of steel elements.

The composite concrete and steel deck of the footbridge has a minimum width of 6.0m and a maximum depth of only 0.6m at its central cross section which gradually decreases to 0.25 at the intersection between the ribs and the hangers. The total depth includes a concrete slab 0.15m thick, which provides the structure with its necessary weight.



Spain /2004 Project data

Structural type:
Suspension footbridge 85.00m in span
Location:
Over the River Tajo in Toledo
Opening Date:
Tender organized in September, 2004
Proprietor:
Empresa Municipal Vega Baja
Construction:
Juan Nicolás Gómez e Hijos
Construcciones, Contratas la
Mancha y Juan Belichón
Scope of Works:
Tender Project