



New conceptual design for two signature footbridges recently built in Spain

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Summary

Two signature footbridges are introduced. Both built in Spain in 2006 and 2008, designed by Arenas & Asociados and commissioned by the cities of Logroño and Zaragoza, represent different typologies and approaches to footbridge design, first one as a glazed closed and curved spatial steel truss, and the second one as a curved self anchored hanging bridge.

Keywords: footbridge design; spatial truss; self anchored hanging bridge; lightweight structures; urban integration.

1. Introduction

The cities of Logroño and Zaragoza have commissioned Arenas & Asociados the design and construction of two footbridges with special architectural and urban values. In the search for new structural and aesthetical solutions we have designed two original footbridges which solve in different ways its crossing. Engineering ethics and aesthetics compels us to limit unjustified costs to create affordable quality urban environments.

2. La Cava Footbridge in Logroño

2.1 Location and design

In Logroño, capital of La Rioja, being now a red spot in Spain for symbolic, modern architecture, the pedestrian bridge of la Cava is the result of a contest launched by the Logroño City Council. The span to be covered by the structure was about 60 meter and the minimum vertical clearance over the highway level being 530 cm. Both ends of the pedestrian bridge were green park areas with enough space for developing the access ramps.

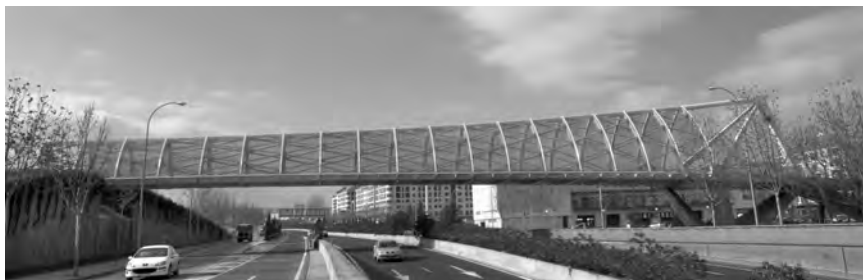


Fig. 1: Elevation view of the finished La Cava footbridge (Logroño)

2.2 Geometry of the structure

The structure was conceived like a steel three dimensional truss, spanning 61 m over the highway, with a cross section of curved members and triangular shape, with variable height and width. The fact of covering the lateral curved façades with glass creates a pedestrian space fully protected from the rain, the wind and, very important detail, from the noise and disturbances of traffic. Ramps adopt different solutions, with a new created artificial hill with different paths at one end, and two structural ramps with 6, and 9% slopes and different plan axis at the other end.

3. Delicias Footbridge in Zaragoza

3.1 Location and design

Zaragoza needed for 2008 a new footbridge to cross over an important traffic junction next to the high speed train station. This delicate location due to the proximity to the station and its architectural value, and not far from the Third Millennium Bridge and the EXPO 2008, asked for a footbridge up to this design standards but not competing with the train station and the rest of the elements.

3.2 Geometry of the structure

A self-anchored curved hanging footbridge is designed with a main span of 90 m. The steel mast is inclined towards the footbridge and anchored to the back to a buried counterweight. The lightness of this structure makes it completely transparent, but at the same time creates interesting surfaces and volumes due to the three-dimensional character of the cable net. The access ramps solve the technical problems related to be supported on the Station concrete slab, and they constitute urban design elements, at the same time their presence and dimensions do not compete with the architecture of the station. A modular building with elevators and stairs completes the access at the opposite end from the station.



Fig.2: Perspective of the main span and inclined mast in Delicias Footbridge (Zaragoza)

4. Conclusions