



“La Concordia” outstanding arch bridge in Valdebebas, Madrid

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Abstract

“La Concordia” Bridge, with a 162 m span, is due to become one of Madrid’s most relevant landmarks. Its conception was governed by the surrounding services constraints, aesthetical concern and structural efficiency. The result is a bowstring steel arch with composite deck, whose shape inspired in industrial design, blends with Barajas Airport’s T4 Terminal. The bridge also displays an innovative connection between arch and deck: diagrid, a steel mesh which, adequately combined with the lighting devices endows the bridge with unique personality.

Keywords: Diagrid, bowstring, lighting, industrial design, structural orthodoxy.

1 Introduction

In March 2007 the most renowned Spanish bridge engineers were forwarded an invitation to an exclusive tender for a singular bridge which will connect the new Valdebebas urban area with the Barajas airport’s T-4 Terminal. The bridge will span 162 m, approximately, over the M-12 road without any intermediate support so as not to pre-condition hypothetical road widening operations. The vertical clearance restrictions, relative to the M-12 road as well as to aeronautical prescriptions, were very stringent too.

The tender was not governed by strictly functional or structural parameters, being highly influenced by the surroundings where the undertaking would take place, the “Parque de Valdebebas” urban development plan. Therefore, the bridge is bound

to become a first-rank urban reference, Valdebebas’s calling card and also an access to the T-4 terminal from the new urban area in “Parque de Valdebebas”. The aim is to design a singular bridge with enough personality to stand out among urban and architectural landmarks such as the Madrid Community New Justice Town, Real Madrid’s new Sports Town, the Fair Facilities enlargement and the T-4 terminal itself, designed by the prestigious architecture bureaus Lamela and Richard Rogers.

IDEAM’s proposal, under the coordination of a team of engineers and architects, eventually won the tender (Figure 1). The construction project was carried out in 2008. The works started in 2016 and finished in 2021.