MARINEDA FOOTBRIDGE IN A CORUÑA (SPAIN)

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Summary

Designed with smooth and slender forms, Marineda footbridge in A Coruña (Spain) is a composite structure for pedestrians and cyclists that solves the access to one of the largest shopping centers in Spain, flying above a high-traffic highway.

The maximum deck height and the geometry in plan were established by the necessary vertical clearance over the highway and the situation of the starting and end points. In this way, and with the idea of avoiding structural elements over the deck to minimize visual impact, a three-span curved slender beam was designed. The main span is 85.8 meters long and comprises a composite airtight box-girder deck with variable depth from 1.75 meters near piers to 1.00 meter in midspan section. The cross section is composed of a concrete slab with a depth of 0.20 meters over a steel girder formed by two plates; a straight plate at the top and a curved plate with variable radius at the bottom. The two lateral spans, one on each side, are formed by a post-tensioned voided slab rigidly connected to pier and abutment, and with a strut element underground forming a rigid frame. In these spans the maximum deck height is 1.90 meters and the minimum is 1.00 meter. The deck width is 4.00 meters to accommodate both cyclists and pedestrians and has a transverse slope of 1.5% from the centerline to each side.

The curved geometry in plan, with a radius of 55 meters, and the stiffness of the lateral spans allow for an integral structure design without joints, that, along with the slenderness of the main span, give an unique appearance to the footbridge.

Fig. 1. General view

Fig. 2. Night view

Keywords: composite; slenderness; integral; dynamics; curved geometry; load tests; damping.

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