



“Pedro Gómez del Bosque” Pedestrian Footbridge over the Pisuerga River in Valladolid (Spain)

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Summary

This urban pedestrian and bicycle bridge crosses the River Pisuerga in the historic city of Valladolid. A marked difference in the ground elevations between the riverbanks enabled a stress-ribbon type suspended footbridge. The total footbridge length is 110 m including the two anchor abutments and the central 90 m long suspended deck with a sag of only 1.72 m (1/50L).

To simplify the erection and the marked geometrical and material non-linear response, the supporting tensile force in this work is provided exclusively by means of a continuous 3600x35 mm S355 weathering-steel plate. This arrangement enabled us to place the concrete platform directly over the plate without a longitudinal collaboration between the two elements.

Due to the flexible response of these structures, special attention was paid to the dynamic analysis under pedestrian-and wind variable loads. Detailed dynamic tests were carried out to verify that real accelerations matched the estimated analytical values.

Keywords: suspension structure, stress-ribbon, light concrete, precast slab, weathering steel, pedestrian-induced vibrations, dynamic behavior, dynamic test, careful equipment design.

1. Introduction

The new “Pedro Gómez Bosque” footbridge is part of a new pedestrian itinerary commissioned by the Valladolid City Council to connect the neighborhoods of Arturo Eyries and La Rubia, heretofore connected by bridges located 2 km apart.



Fig. 1 Lateral view and general elevation