

Innovative materials for the Fifth Bridge in San Sebastian, Spain

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Summary

The Fifth Bridge over Urumea river in San Sebastian is a singular structure in which the materials have been optimized and used with their last constructive innovations in order to design a technological and slender arch bridge.

Keywords: Asymmetric composite arches; high performance self-compacting concrete HPC100; composite post-tensioning deck; stainless steel.

1. Introduction

To complete the urban development of the city of San Sebastián (North of Spain) on the right bank of the Urumea River, the City Council decided to undertake the construction of three new bridges that formed the road network between the two banks. One of those bridges was the so called Fifth Bridge or Lendakari Aguirre Bridge.

2. The bridge

2.1 Conception

The conception of the Fifth Bridge was ruled by the need of crossing the 80 meters' river width without any support, and by the requirement of having the maximum visual permeability and formal integration into the urban environment.

The proposed solution is set to the specific geotechnical and urban surroundings, where the principal constraints concur on the left bank of the river.

With this conditions the solution projected is an asymmetric structure that concentrates the flow of loads on the right bank in a huge counterweight cell and has simple supports at the opposite.



Fig. 1: Elevation from downstream.