

German railway bridges – new paths of conceptual design

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Summary

Railway bridges were a symbol of technical progress and innovative engineering at all times. As an important piece of our infrastructure they dominate our natural and urban environment for very long periods. Therefore, railway bridges have to meet high requirements of aesthetic and design value in addition to the basic demands of safety, functionality and economics.

Designing engineers have to take reasonable care to the safety and the comfort of the users of railway bridges and similarly to the environmental impact of the bridge and their social consequences for the people, who live in the surrounding area.

Keywords: railway bridges; conceptual design; innovations; integral bridges

1. Introduction

The Deutsche Bahn AG, Europe's biggest owner of and investor in infrastructure, is responsible to promote building culture in Germany.

When the Humboldt harbour bridge in Berlin received the German Bridge Award 2008 it proved that innovative and sophisticated designs could become reality even in the case of railway bridges.

Railway bridges are subject to high requirements relating to their load bearing capacity, durability and serviceability. They are high performance structures with special demands according to the construction technology and the operational availability. But in particular railway bridges are large structures, which dominate our natural and urban environment for very long periods. They are an important piece of our infrastructure and so they have to meet high requirements of aesthetic and design value in addition to the basic demands of safety, functionality and economics.



Fig 1: Humboldt harbour bridge at the Berlin main train station

In 2007 the Deutsche Bahn AG, fully aware of these requirements and in order to promote innovative developments and good design in bridge building, invited renowned engineers and architects to join the then newly created *Brückenbeirat* (bridge council).