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MORE THAN A FOOTBRIDGE – THE NEW BAAKENHAFEN CROSSING

COMPLEXITY OF DEVELOPING A MULTI-FUNCTIONAL STRUCTURE IN AN URBAN CONTEXT

Thorsten HELBIG

Founding Partner
Knippers Helbig GmbH
New York, USA

t.helbig@knippershelbig.com

Thomas MÜLLER

Associate
Knippers Helbig GmbH
Berlin, Germany

t.mueller@knippershelbig.com

Matthias OPPE

Director
Knippers Helbig GmbH
Stuttgart, Germany

m.oppe@knippershelbig.com

Roman SCHIEBER

Associate Director
Knippers Helbig GmbH
Stuttgart, Germany

r.schieber@knippershelbig.com

Summary

In 2013 *Knippers Helbig* won together with the architects from Gerkan, Marg and Partners (*gmp*) the competition for the new footbridge across the Baakenhafen in Hamburg. Now four years later the bridge has been completed in the heart of Hafencity.

The process we are describing is an interdisciplinary design approach considering project specific goals which have been identified in the early design phase. These goals lead to the definition of project parameters which focus all members of the design team on the most important issues during the design process.

Based on our bridge project across the Baakenhafen we describe the identification of its project parameters and the resulting static and structural responses.

Keywords: footbridge; steel, multi-functional structure; interdisciplinary design process; semi-integral; trough bridge; human induced vibrations

Knippers Helbig, in cooperation with architects from Gerkan, Marg and Partners, won the first prize in the design competition for a new pedestrian and bicycle bridge across the Baakenhafen located in Hamburg's Hafencity district in 2013.

The project represents an important component in the development of the Baakenhafen district, where 1,700 residential units are planned and 5,000 new jobs will be created. The pedestrian bridge serves not only as a crossing over the Baakenhafen, but also additionally fulfills logistical functions, exclusively supplying the district with necessary energy and media access. Completion by mid-2017 is therefore a prerequisite for the urban development within this area.



Fig. 1 View from the southern waterfront in the Baakenhafen (gmp)

The bridge with a span of 62m and a width of 7.1 to 8.2m has been designed as a steel trough-section with a varying height, increasing towards mid-span. This allows the pipes required for energy and media access to be hidden below the bridge while still achieving a pretty and slender visual appearance.

The structure, as designed, will not only be a footbridge connecting two vital parts of the new central area of Hamburg but it will also be a discrete design element within a modern urban area as well as a necessary frame for the installation of pipes for the development of the outer Baakenhafen area.

The challenge faced was to incorporate all of the high-level requirements equally and to provide an integrated and holistic solution.

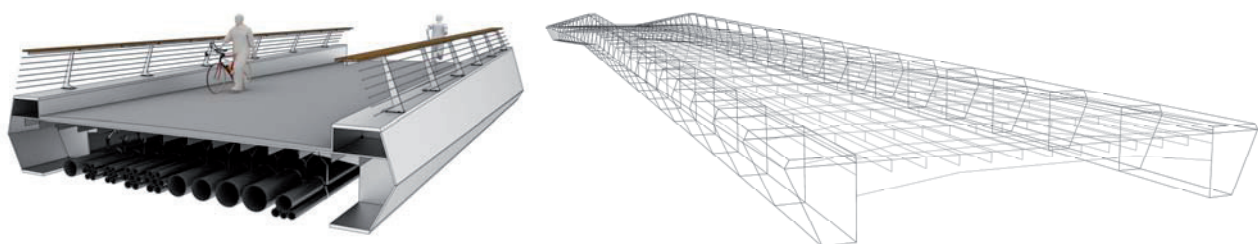


Fig. 2 Section of the bridge a) with installations b) 3D animation showing the progress of the section (Knippers Helbig)

The new footbridge for the Baakenhafen is the result of close interdisciplinary engineering and teamwork, an example of the benefits of setting project specific goals in the early design stages and following these goals through to completion. The bridge's multi-functionality was its main challenge, incorporating all high-level requirements equally and providing an integrated solution and hence creating more than just a footbridge.