MIEBACH
INGENIEURBÜRO

New Development of timber bridges

Inventive design by block-gluing and timber-concrete-composite

Ingenieurbüro Miebach

Timber Engineering

Haus Sülz 7, D-53797 Lohmar
Germany

Foundation	April 2005
Director:	Dipl.-Ing. (FH) Frank Miebach
Personnel:	5 Engineers
Software:	Statik - RFEM (Dlubal)
	CAD - cadwork

Core area:
Planning of timber bridges

- Analysis & conception
- design & forming
- construction supervision

www.ib-miebach.de

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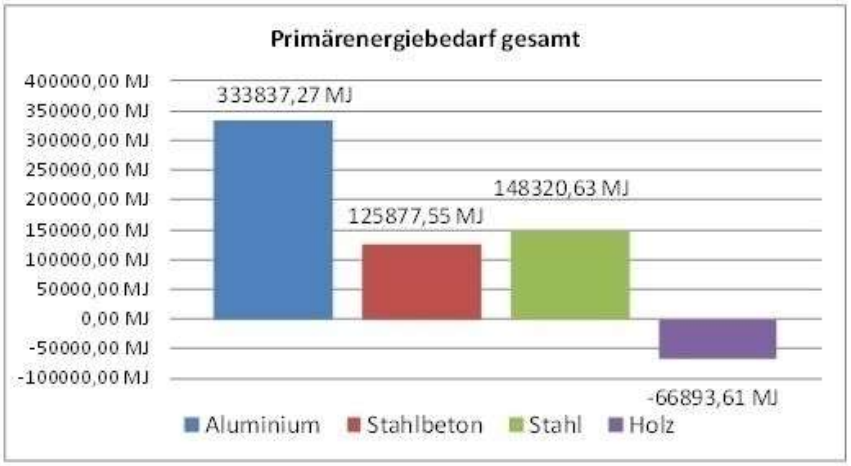
Why timber bridges?

Ecobalance different materials in bridge constructions

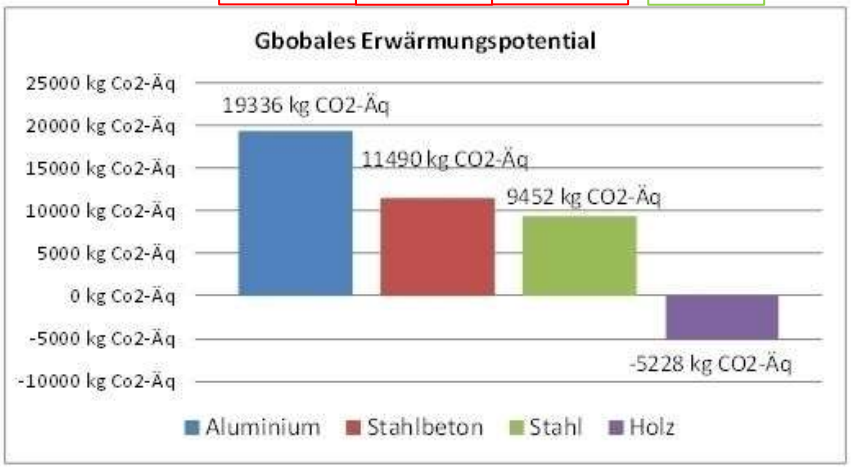
reference bridge 25m span x 3m width

Input primary energy



-5,1	-3,0	-2,5	1,2

CO^2 Balance



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Design flexibility: Block-laminated-Timberbeam

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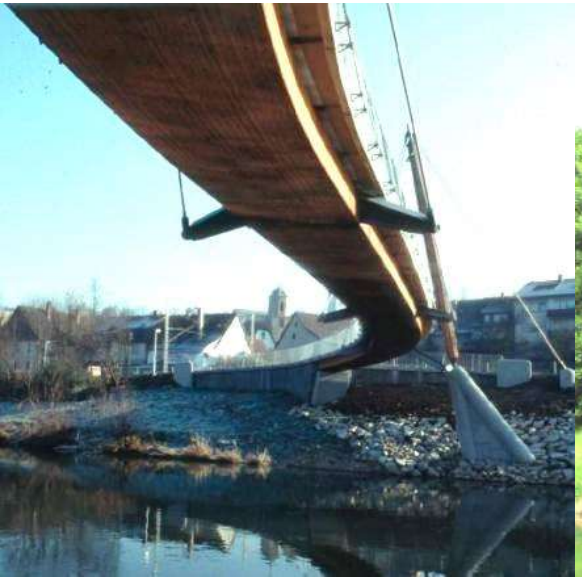
Durability of block-laminated structures



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Realized projects - selection

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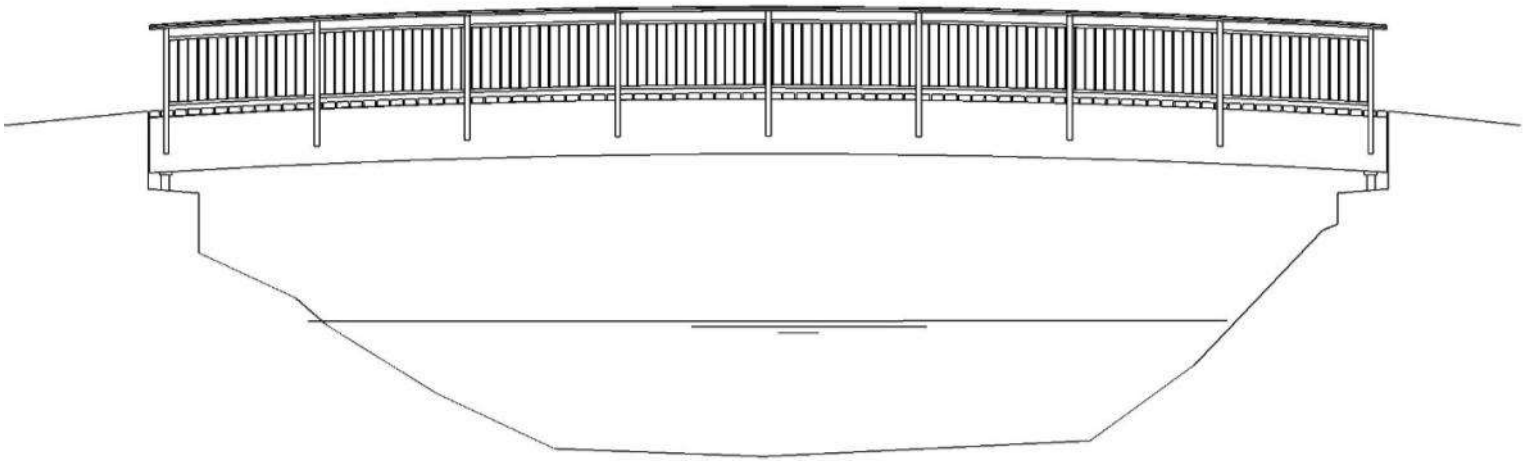
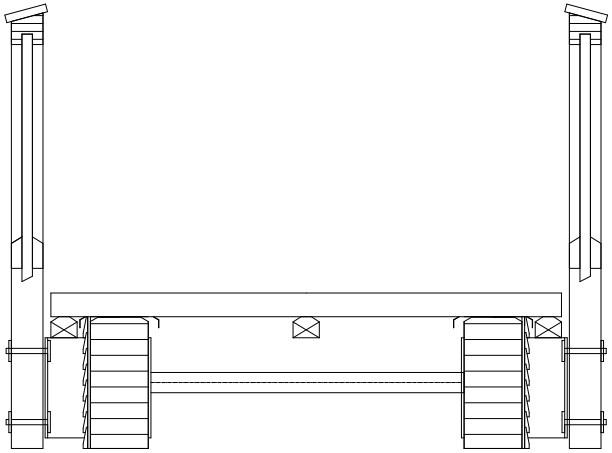
Deck bridges





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Block girder bridge Schwäbisch Gmünd, DE

length: 27,10 m width: 2,50 m

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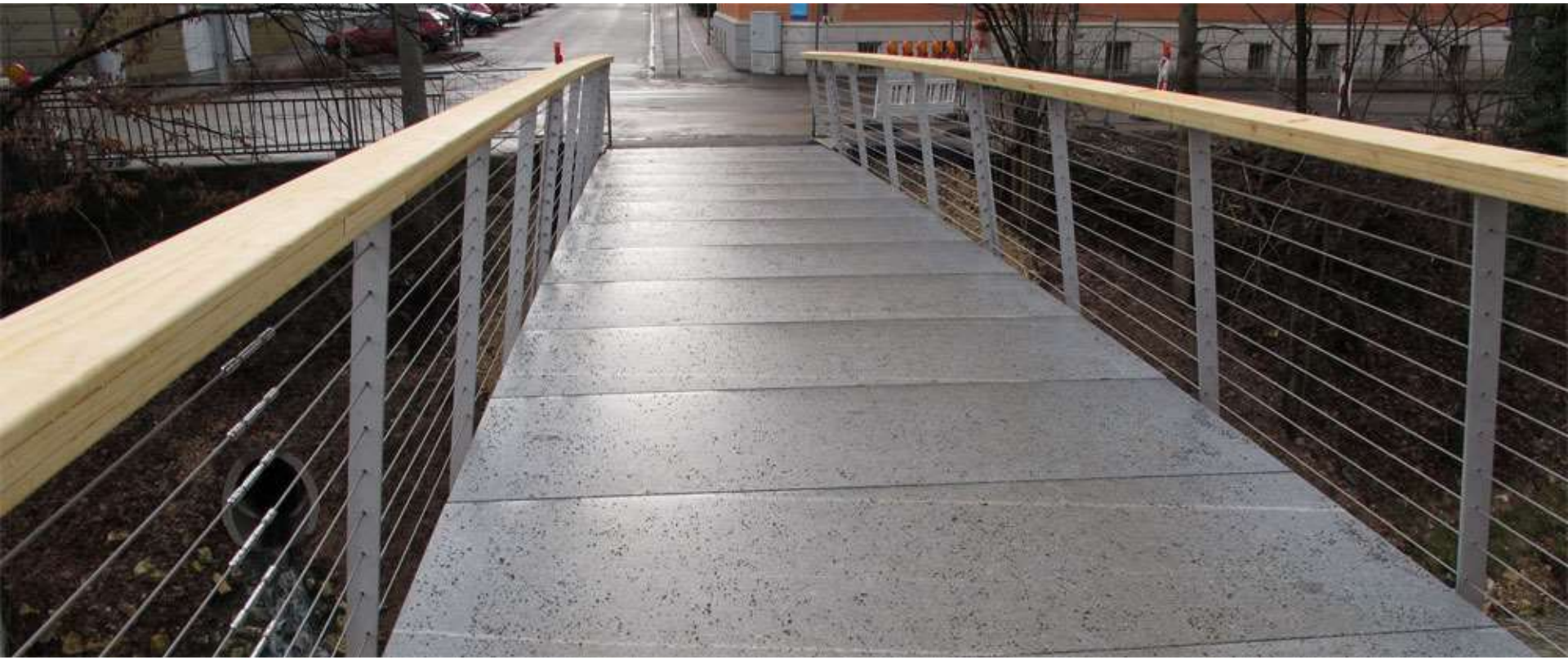

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Box girder bridge Ijsselstein, NL

length: 117,00 m width: 3,00 m

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Box girder bridge Ijsselstein, NL

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Block girder bridge Leewarden, NL

Length: 26,00 m Width: 3,50-5,50 m

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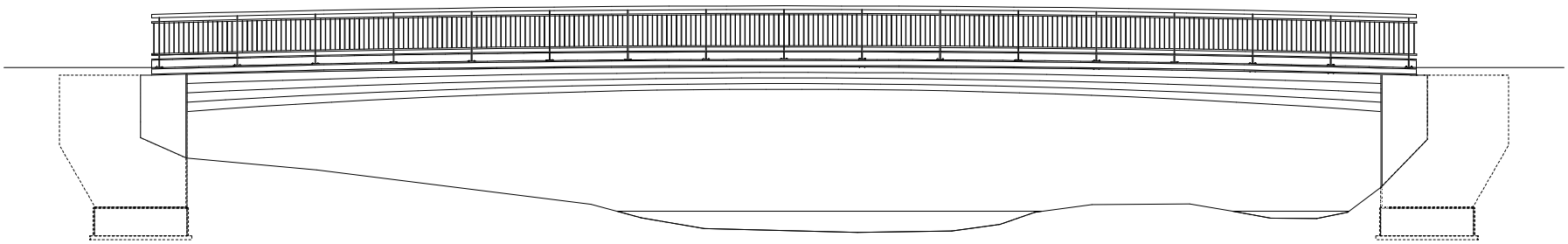
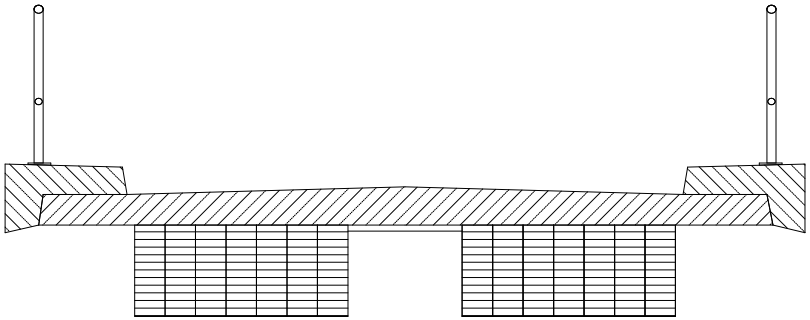
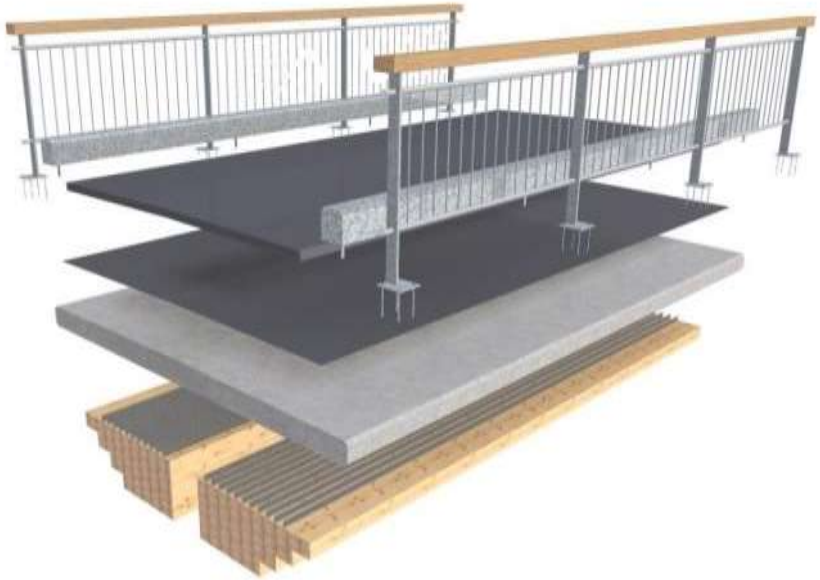
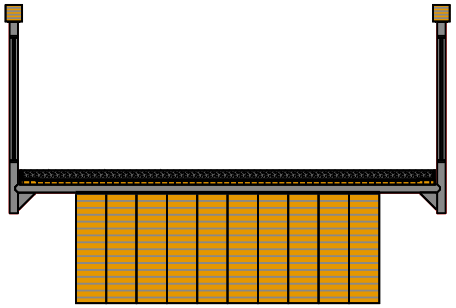
Timber-concrete-composite bridges





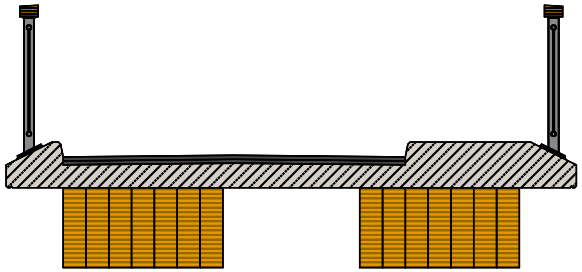


Timber-concrete-composite bridges



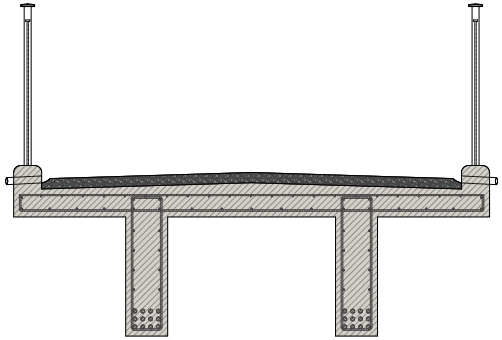
Block girder bridge

- greater construction height
- complex waterproofing
- complex parapet attachment
- distribution of concentrated loads



Timber-concrete-composite bridge

+ low constructionheight
+ constructional weatherprotection
+ crossbracing
+ concrete construction details
+ low overall weight
+ simple shuttering works



Concrete bridge

- complex shuttering
- extremly hight weight
- complex dismantling
- high cross sections
- high primary energy demand

Timber-concrete-composite bridges

Advantages over standard timber :

- higher load capacity
- solid weather protection by concrete slab
- even load distribution of concentrated load
- easy cross bracing
- standadized details for connection details

Advantages over concrete bridges:

- lower weight
- high degree of prefabrication
- cheaper abutments
- better ecological balance and CO_2 storage

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Timber-concrete-composite bridge Winschoten, NL

Length: 40,00 m Width: 4,00 m

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Montageablauf innerhalb weniger Stunden

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Errichtung ohne Gerüststellung im Wasser

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MIEBACH INGENIEURBÜRO

Holz-Beton-Verbundbrücke Winschoten, NL

Length: 40,00 m Width: 4,00 m

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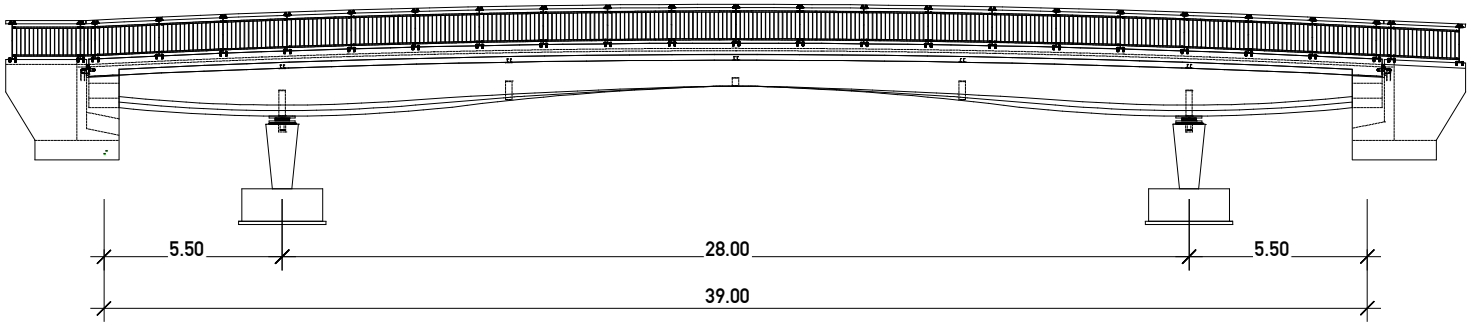
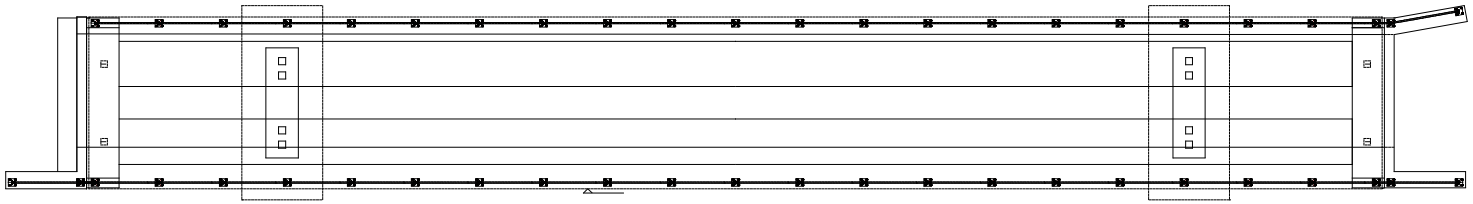
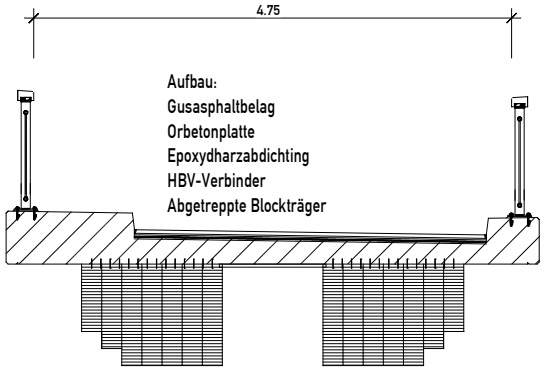
MIEBACH INGENIEURBÜRO

Timber-concrete-composite bridge Schiffarth, DE

Length: 39,00 m Width: 4,75 m







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MIEBACH INGENIEURBÜRO

Timber-concrete-composite bridges Schwäbisch Gmünd, DE Length: 27,66/25,29 m Width: 3,00/2,50 m

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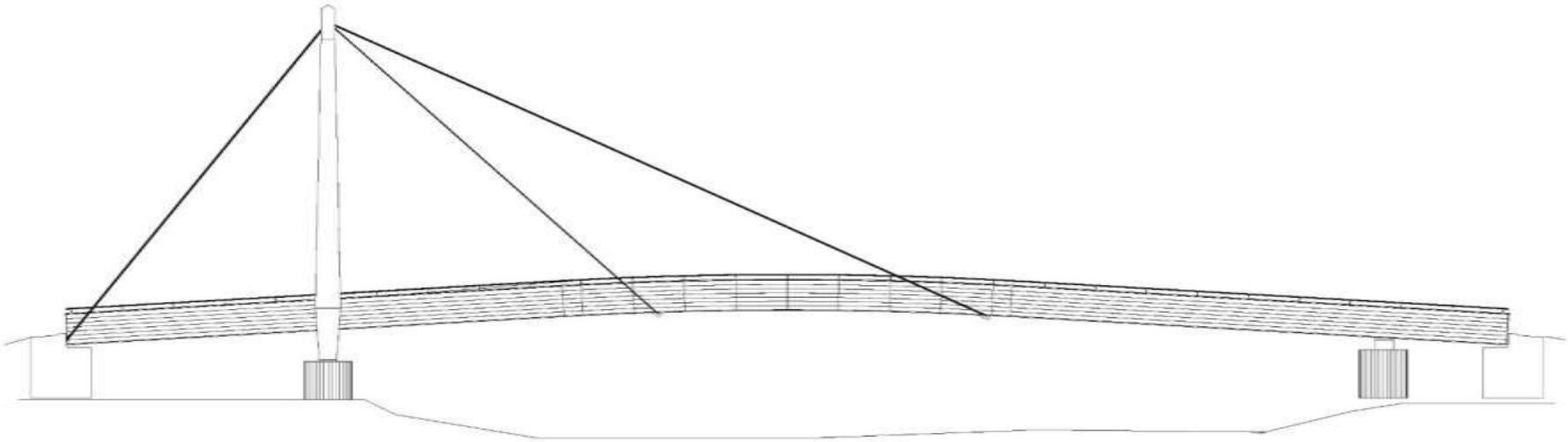
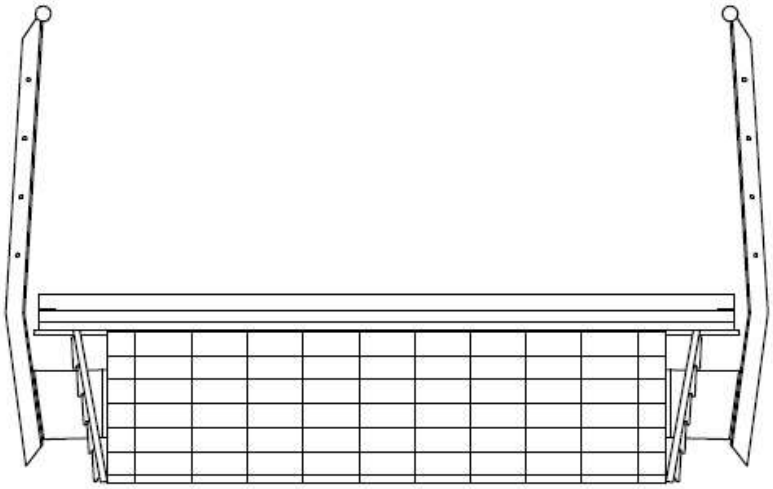
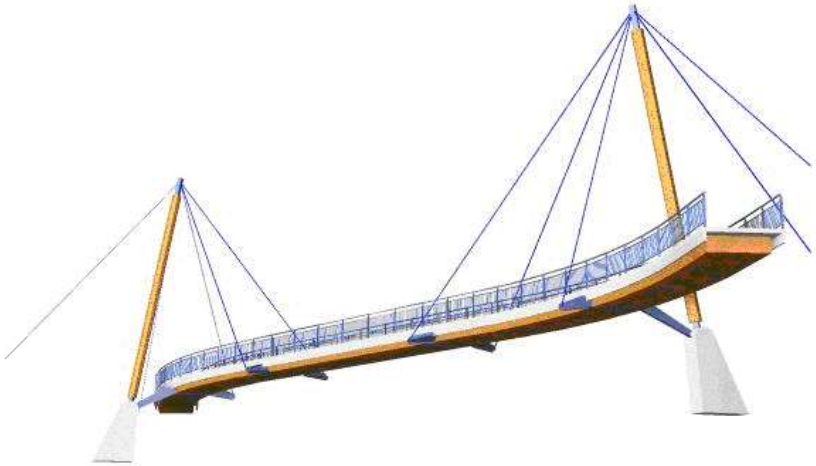
Cable-stayed bridges







MIEBACH INGENIEURBÜRO

Cable-stayed bridge Winschoten, NL

Length: 70,00 m Width: 3,00 m

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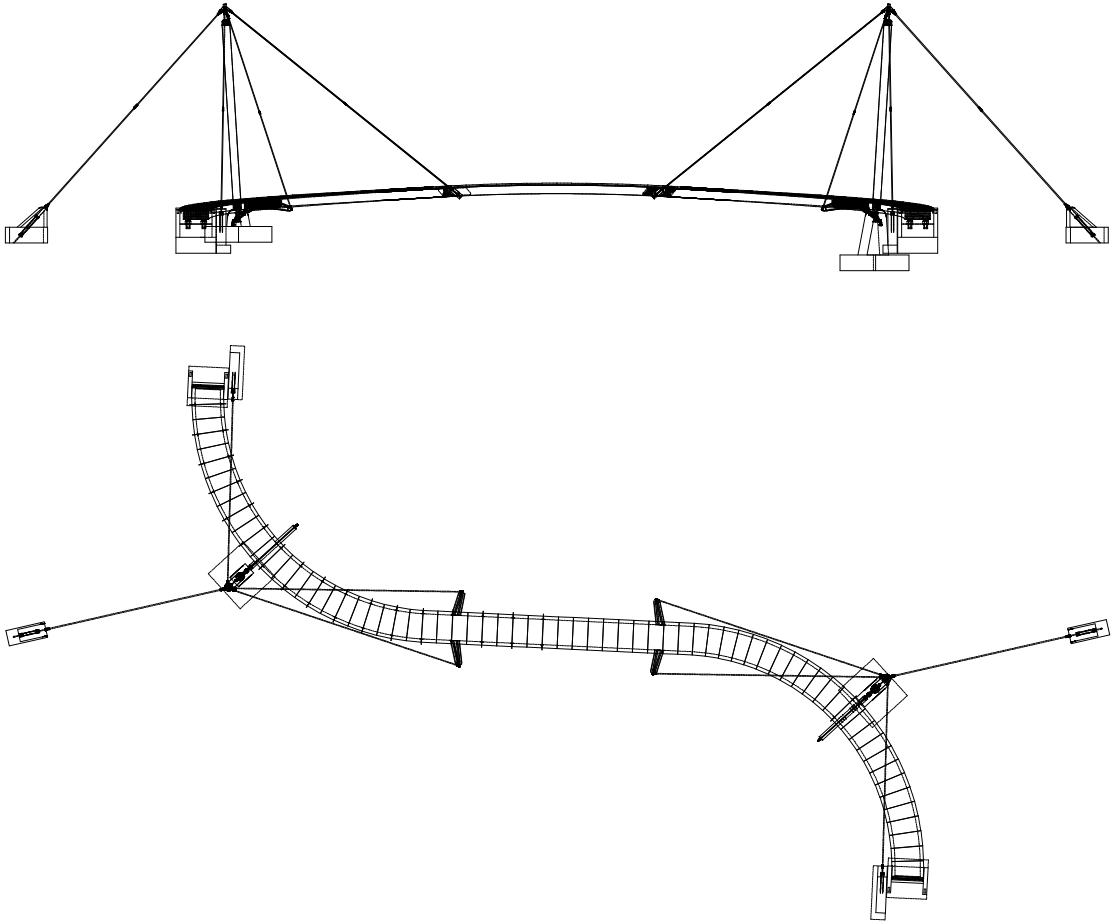
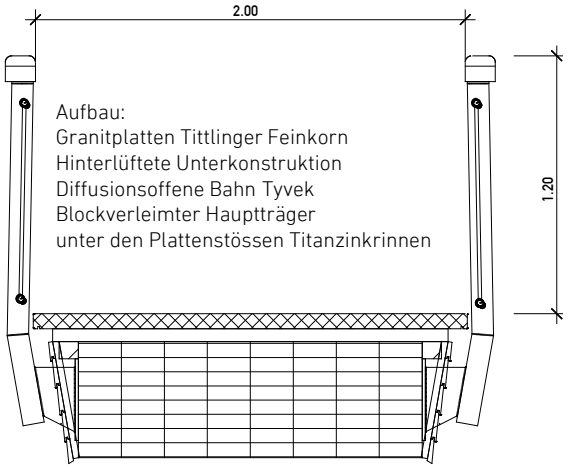
MIEBACH INGENIEURBÜRO

Cable-stayed bridge „Aggerbogen“ Lohmar, DE

Length: 63,32 m Width: 2,00 m





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INGENIEURBÜRO

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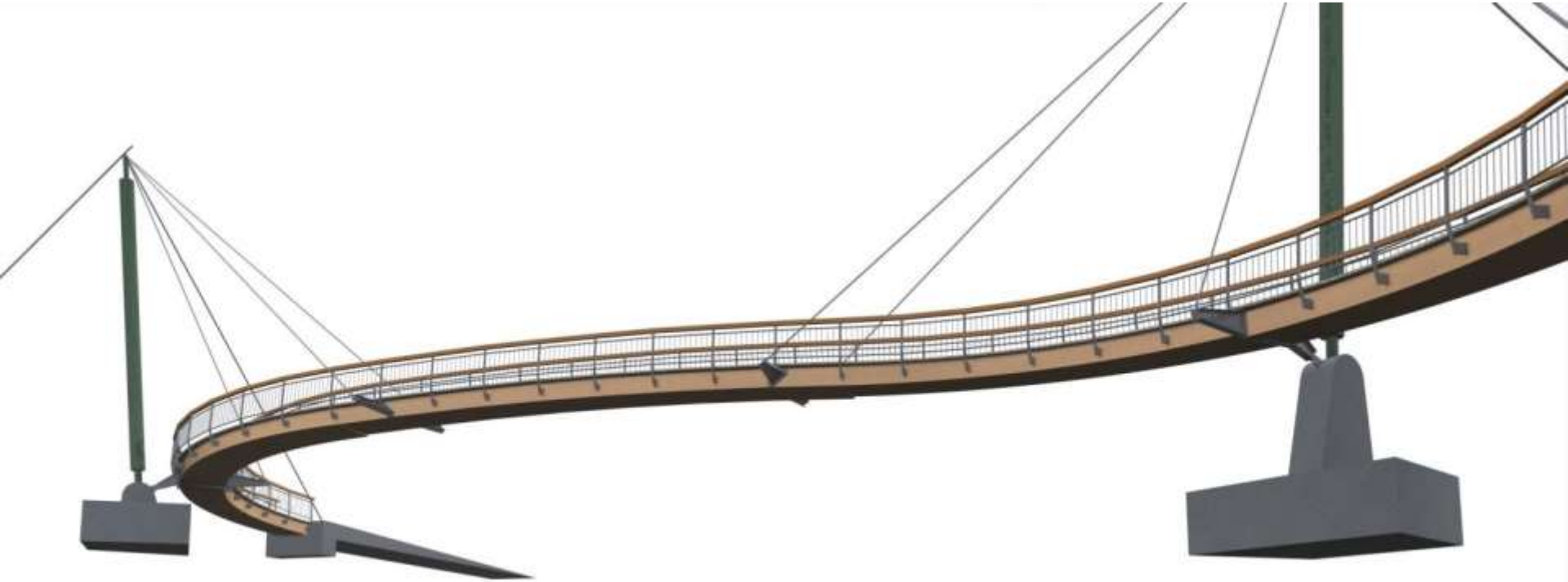

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MIEBACH
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Cable-stayed birdge Wolfratshausen, DE

Length: 47,00 m Width: 3,00 m

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Cable-stayed birdge Wolfratshausen, DE

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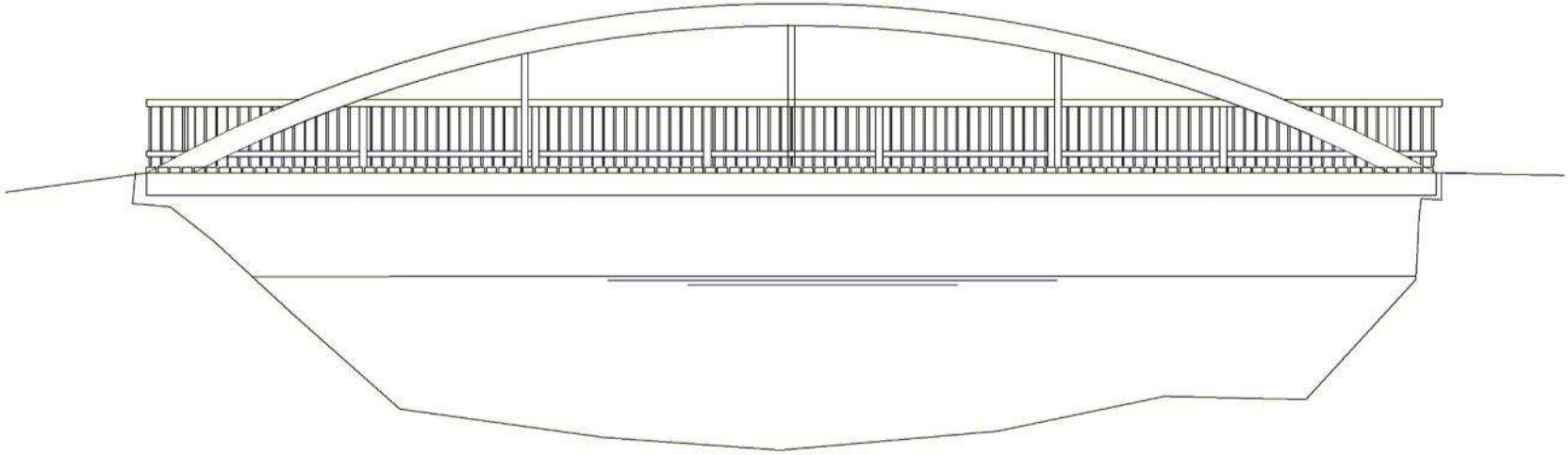
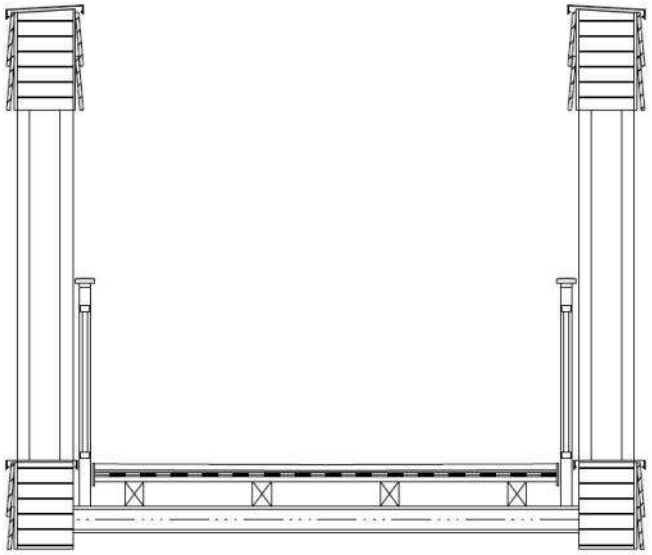
MIEBACH INGENIEURBÜRO

Arch bridges





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Arch bridge Gutenstein, DE

Length: 42,80 m Width: 5,75 m

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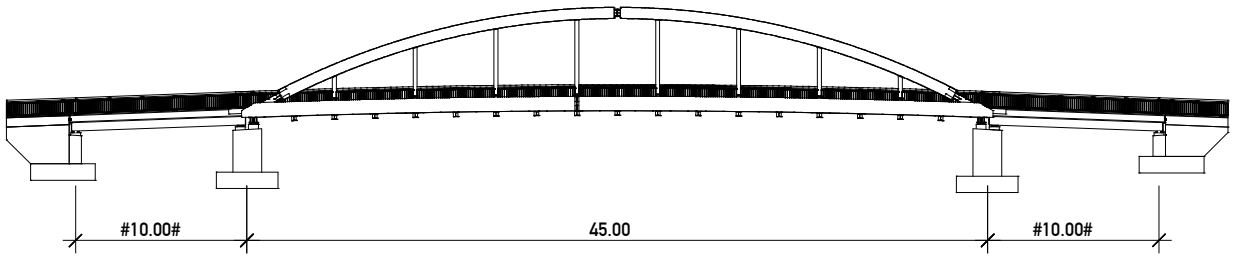
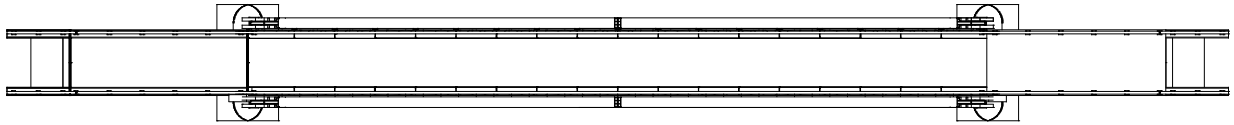
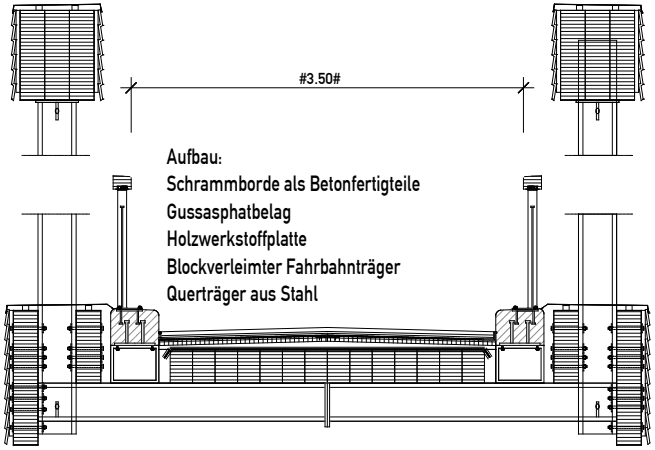
Arch bridge Lohmar Höngesberg, DE

Length: 65,00 m Width: 3,50 m







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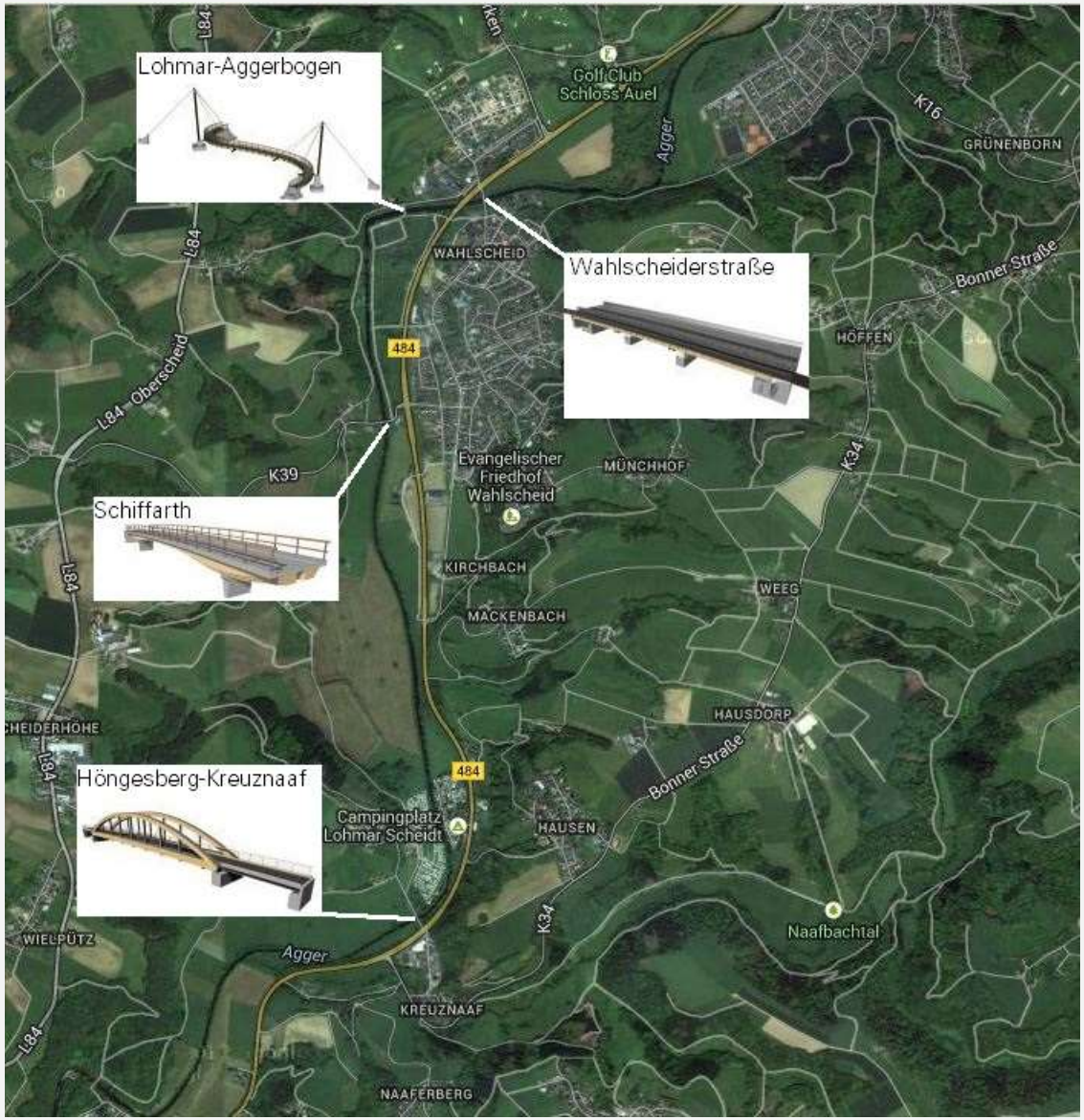
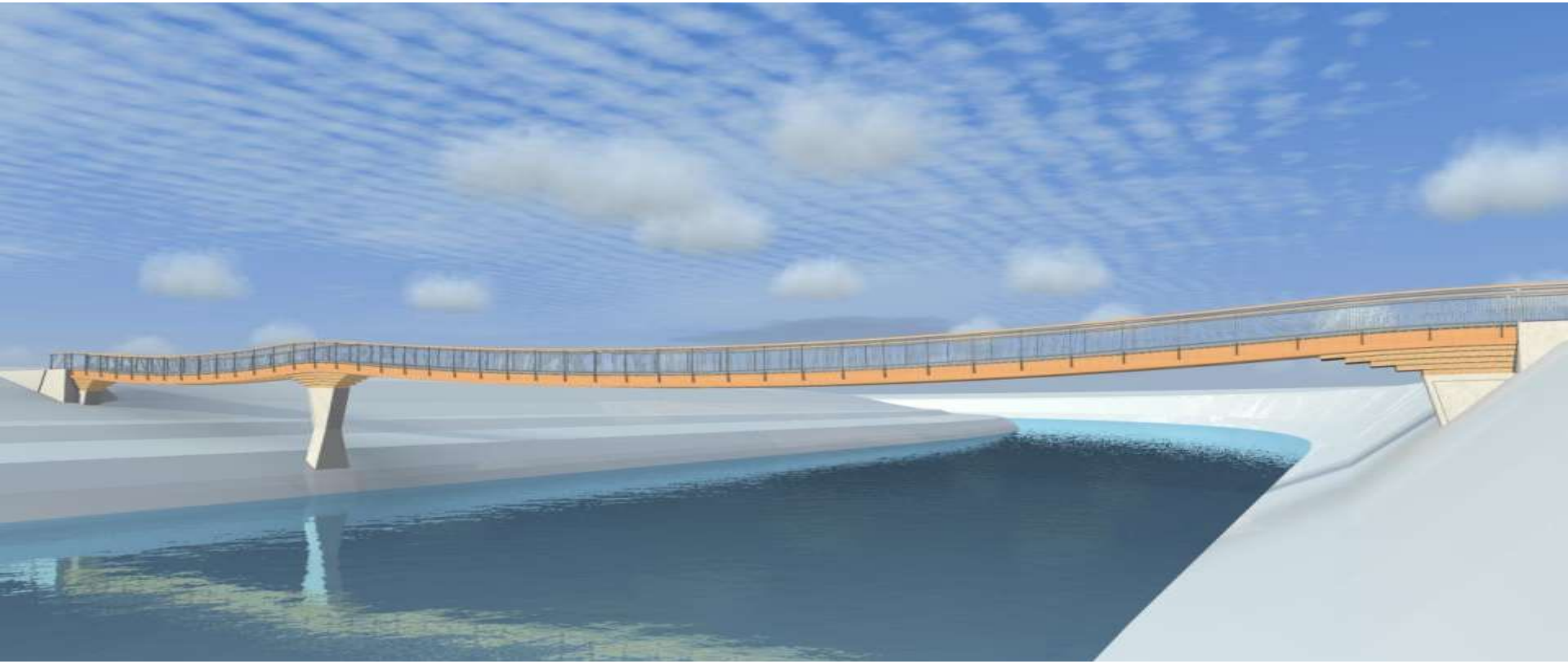
Timber bridges Lohmar, DE



Design suspension bridge crossing the river Sieg

Length: 94,0m Width: 2,5m



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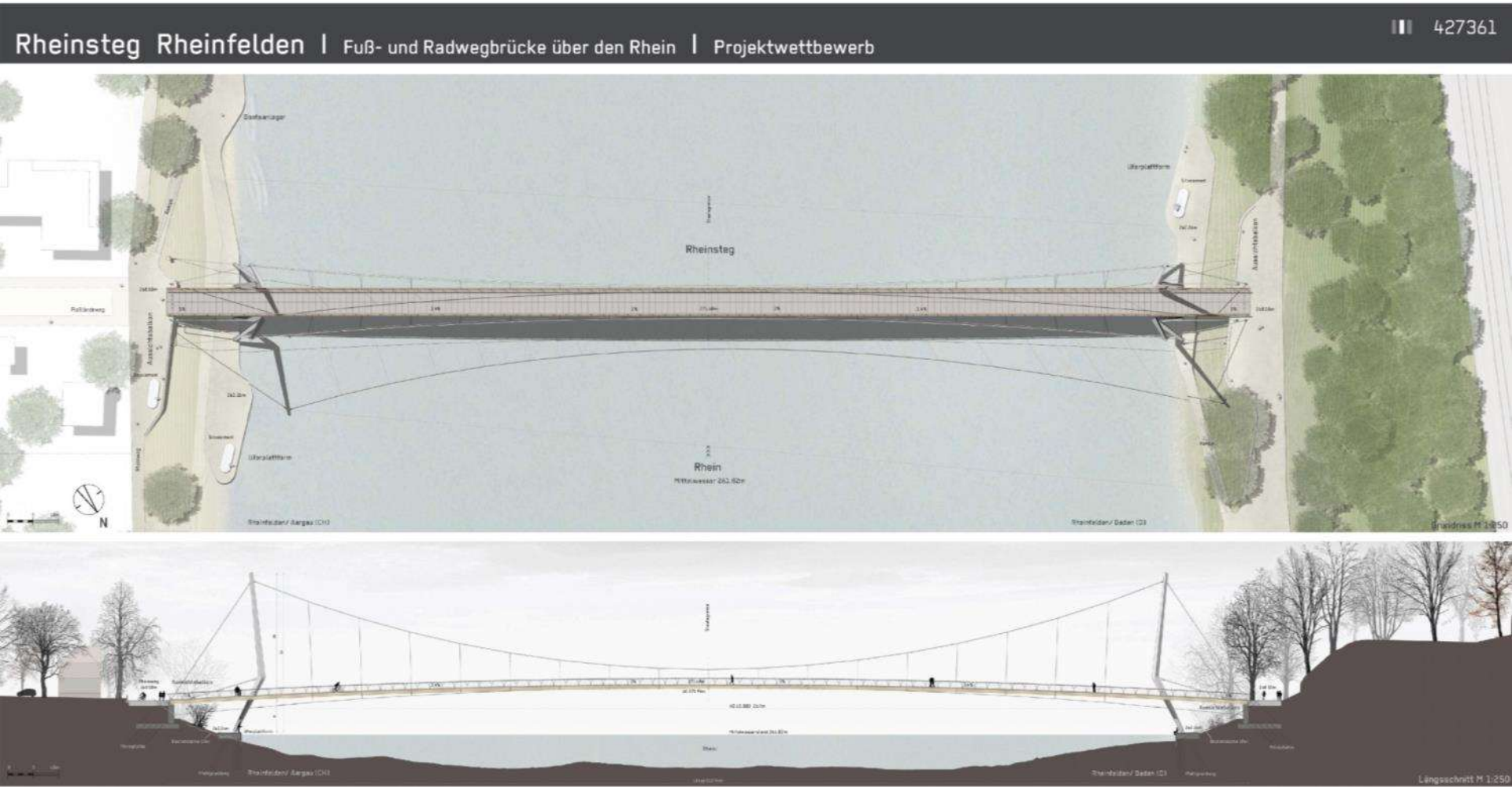
1. Prize competition Rhine bridge Rheinfelden, DE/CH

Length: 94,0m Width: 2,5m



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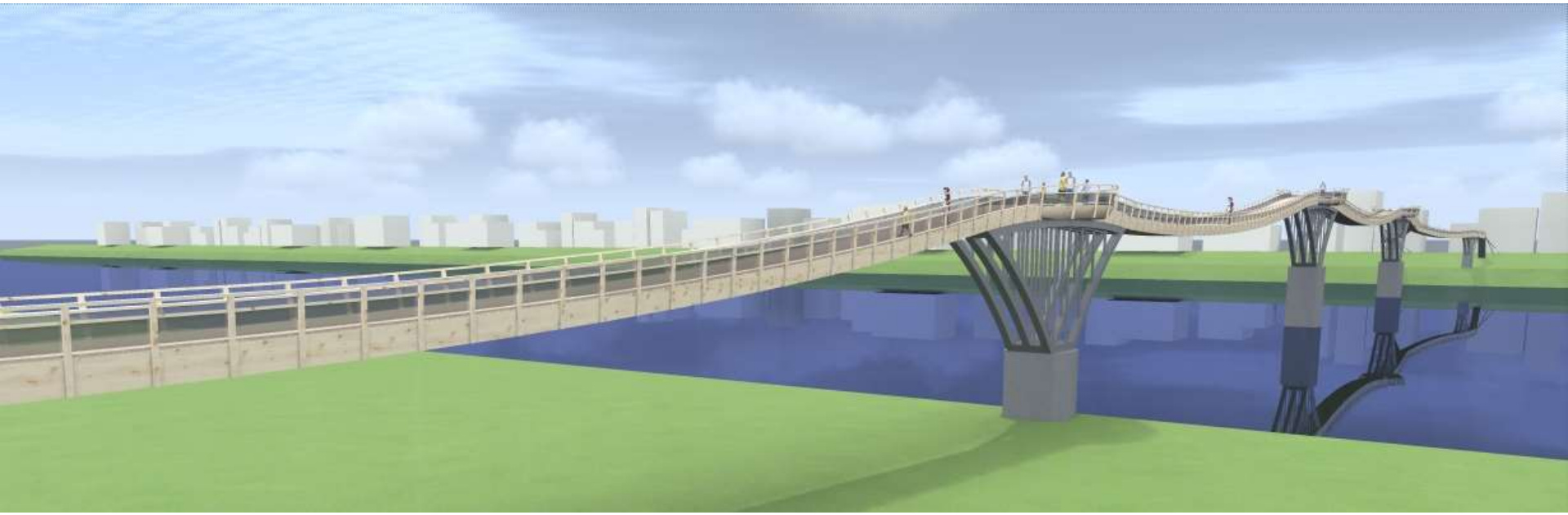
Design Rhine bridge Cologne, DE

Length: 425,0m Width: 4,0m



Design Rhine bridge Cologne, DE

Length: 425,0m Width: 4,0m