



Ripshorst Footbridge

Ripshorst, Germany

Consultant Schlaich Bergermann & Partner took advantage of the special load bearing behaviour of curved girders to design this footbridge for access to the exhibition building, Haus Ripshorst. Boundary conditions suggested the 77m span curved structure - on one side pedestrians approach the Rhein-Herne Canal at a skew on an old railway embankment and the path on the other side is almost parallel to the canal. The curved deck girder is supported over the main span by a steel arch which is also curved in three dimensions - this is vital in order that it works in pure compression. All tubular joints were made from cast steel, and the bridge was pre-assembled in the factory then erected in one night.

Kommunalverband Ruhrgebiet; Schlaich Bergermann & Partner; Strabag; E Rüter



Lahn Footbridge

Marburg, Germany

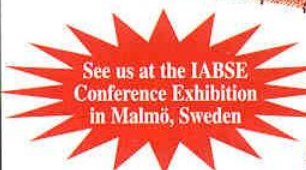
A single span suspension bridge over the river Lahn in Marburg was designed to fit in with the ancient Schlachthaus area of the town. It has twin pin-ended steel pylons at each end and a composite steel and concrete deck crossing its 56m span. The main cable creates a three dimensional system and the hangers are perpendicular to the deck girder. Apart from aesthetic benefits, these geometric properties provide complete longitudinal stability to the structure, and along with the uni-directional bearings at the abutments, also provide transverse stability. Foundation costs were minimised by having a pinned connection between the pylons and the foundations, but their stability relies on the main cable's three dimensional shape acting in conjunction with the additional pylon side stays.

IVG Investorengemeinschaft Schlachthof/Luisabad; Kanada-Bau; Lemberg-Freiherr von Dömberg; EHS Beratende Ingenieure für Bauwesen; TDV



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Application example:

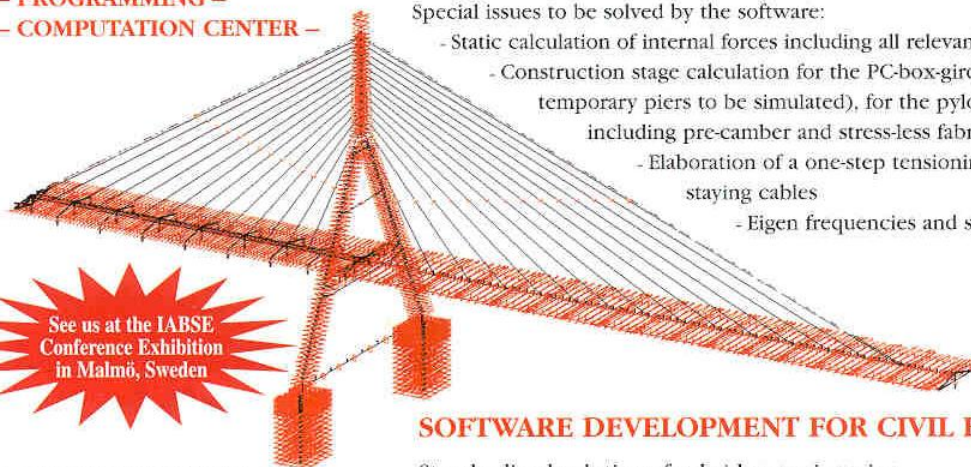
KAO PING HSI Bridge – Taiwan

Structural model:

- left span composite (180 metres), consisting of multiple cell PC-box and later casted slab
- right span (330 metres) multiple cell steel box

Special issues to be solved by the software:

- Static calculation of internal forces including all relevant design code checks
- Construction stage calculation for the PC-box-girder (removal of the temporary piers to be simulated), for the pylon and for the steel box including pre-camber and stress-less fabrication shape
- Elaboration of a one-step tensioning sequence for the staying cables
- Eigen frequencies and seismic analysis



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