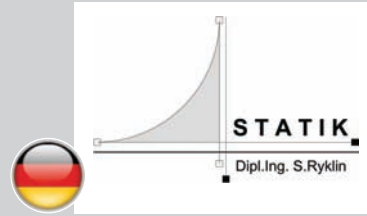


Dipl.-Ing. S.Ryklin STATIK

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Personal Information

Sergej Ryklin
 Born in 1963 Moscow

- Project consultancy;
- Building physics calculations;
- Dynamics calculations.

Philosophy

Flexibility in planning due to an integrated 3D-Design and the ability to find feasible and low-cost solutions already in the draft stage.

Experience

About 800 different projects processed - a.o. residential- and industrial buildings, park decks, pedestrian bridges, swimming pools, silos, membranes...

References

Daimler AG, John Deere AG, SAP AG, DB AG, Siemens AG, Henkel AG, Formel 1...

Equipment

2 Workstations, 2 Notebooks with following software: Scia Engineer, Nemetschek, Autocad, Dicad, Prosteel 3D, Kretz, LSS, Pcae, ForTen, Adobe.

1981-1985: Diploma Study of Civil Engineering at the Automobile and –Road Institute, Moscow; speciality "Bridges & Tunnels".

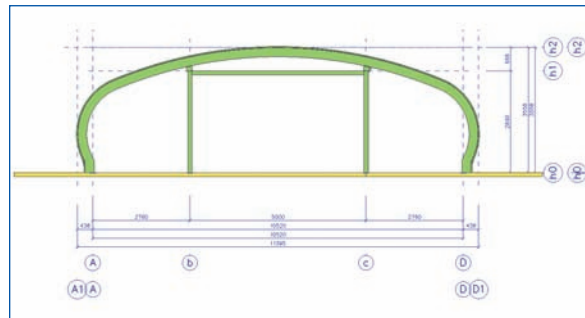
1985-1991: Repair and maintenance of automobile bridges in Moscow.

Since 1993: Structural designer and verifier by "Römhild & Hecker" Consulting Engineers in Landau, Germany.

Since 1997: Currently self-employed Structural designer.

Specialization

- Planning and optimisation of Steel-, Aluminium-, Solid-, Timber- and Membrane Structures;



Short Description

Formula 1 - Bridgestone Flying Stand

This project regards a movable stand in the shape of an ellipse tube to promote the Bridgestone products during the F1 and DTM car races in Europe in 2008.

The support steel structure had to be very light for transportation reasons and it had to be able to be mounted and dismantled quickly. The design of the removable membrane roofing for the ellipse tube form with all the connection details and the optimization of the steel supporting structure was required. The steel supporting structure was created and calculated with the general 3D-Modelling tool of Scia Engineer.

Forten software was used for the estimation of the membrane, cable and connection forces.

For the output, PDF documents in English and German (as Scia Engineer) were created.

Membrane drawings with compensation, detailed production drawings for the connections including 3D-PDF model have been done with the Scia Engineer construction drawing tool.

Project Information

Owner: Fa. Objektbau Jung

Architect: Fa. Objektbau Jung

General Contractor: Fa. Objektbau Jung/Fa.

Welcomp AG/Fa. Planex Technik in Textil GmbH

Engineering Office: Dipl.-Eng. Sergej Ryklin STATIK

Construction Start: 26/04/2008

Construction End: 31/10/2011

Location: Flying Stand with Formel1 and GTM Car Races in Europe

Client

Formula1 is one of the most famous car races in the world. Each year these big events are attracting a lot of people. A lot of movable structures from different promoters are presented there. The promotion of the Bridgestone products was organized by the company Objektbau Jung Messe/Shop/Event.

The Order

The company Objektbau Jung has conceived a movable stand in the form of an ellipse tube in order to organize the promotion of Bridgestone products during the F1 and DTM car races in Europe in 2008. The support steel structure needed to be light for transportation and it had to be able to be mounted and dismantled quickly.

The design of removable membrane roofing for the ellipse tube form with connection details and optimization of the steel supporting structure was needed.

Technical data

The support structure consists of six ellipse shaped, steel arches with a distance of 3.50 m which are fixed in two points to the middle frame construction. The trestle stability is achieved through the middle frames

and lengthways roof bracing.

The membrane canvas is stressed over the steel arches and fixed on the trestle by means of the rand cables and edge steel plates with bolts.

Heavy weight movable foundation elements were used for the bearing safety.

The structure has the general dimensions of 12.0 m x 17.5 m x 4.0 m.

The membrane material is Ferrari Type 502.

Software and Model

The steel supporting structure was created with the general 3D-Modelling tool of Scia Engineer. The Forten software was used for the estimation of the membrane, cable and connection forces.

The foundation consists of proved unified parts and it was not calculated.

The bearing safety was verified through the comparison of the calculated design and the resisting weight forces.

DIN 4112 Flying Buildings was assumed for wind loads.

In addition to the supporting structure model 1D/2D models of connection parts with cables, plates and bolts were created for the further making of the construction drawing with Scia Engineer drawing tool.

Calculation steps

Calculation of the membrane covering with form finding and estimation of the reaction forces with Forten.
Design and optimisation of steel structure with verification according to the 1st Order Theory with Scia Engineer and verification of the heavy weight foundation elements.
Design of cables and connections.

Presentation

The PDF document in English and German (as Scia Engineer files) has been created for the output.
The membrane drawing with compensation, detailed production drawing for the connections including 3D-PDF model have been done with the Scia Engineer construction drawing tool.

