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## 9. Steel Railway Bridge on the Baikal-Amour Railway Line

*Contractor: Ministry for Transport Construction*  
*Dimensions: spans 110 x 132 x 110, space between trusses*  
*5,8 m in width and 15 m in height*  
*Materials: steel grade 10 XCHD, minimum yield limit*  
*40 kg/mm<sup>2</sup>*  
*Designed operating T<sup>0</sup>: - 55 °C*  
*Metal consumption: 5,1 t per 1 m/span*  
*Terms of construction: 2 years in operation since 1975*

The bridge is built up on the Baikal-Amour railway line now under construction in the Siberia. Cast in place massive pier foundations rest on natural grounds. They were cast in open pits protected with a sheet piling wall. Foundations were embedded for 13 m.

A steel continuous bridge superstructure 110 x 132 x 110 m with the bottom floor crossed the river bed. All the truss elements are of welded type, bolt joints fitted with high-strength bolts. Panels are 11 m long. Booms and braces in main trusses are box-shaped, struts and counter struts are

H-shaped. Transverse and longitudinal welded girders under the deck are of I-form.

The main feature of this type of bridge superstructure is that its deck gets in operation together with the main trusses. Their mutual operation is secured with the help of special ties which tighten the continuous longitudinal girders to the bottom booms.

The bridge superstructure is calculated through computer as a three dimensional design.

Application of a continuous design compared with a non-continuous one reduces metal consumption for 7 o/o.

The bridge superstructure is assembled by cantilevering procedure.

The bridge superstructure being tested, designed predictions including the mutual operation of the carriageway with the main trusses proved to be correct.

(A. Potapkin)



Steel Railway Bridge on the Baikal-Amour Railway Line