

Refurbishment SBB service facility, Biel

2018/2019



The approximately one hundred year old service facility of the SBB in Biel is a listed building. Timbatec analyzed the condition of the wooden roof structure and worked out the renovation options in cooperation with the monument preservation authorities.

The project

The wooden structure of the Biel service facility was generally in good condition during the inspection. The existing shrinkage cracks have no influence on the load-bearing behavior and the residues of mold are negligible. However, the condition survey and the structural calculations showed that action was needed in the arch trusses, purlins as well as the wind bracing. Due to the lack of bracing, the overall stability as well as the structural safety in the load cases earthquake and wind was not guaranteed.

The construction

The supporting structure was strengthened with transverse tension reinforcements, additional rafter purlins made of GL70 beech and new tie rods. Where necessary, a secondary supporting structure consisting of under-spanned arched trusses with rafter purlins was installed. Furthermore, various structural elements were replaced.

The challenge

As the building is a listed building, the structure was to be upgraded with minimal intervention. In order to satisfy the different needs of the parties involved (engineer, client, preservation of historical monuments), Timbatec worked out various renovation options. In the end, a coherent solution was found.



Arch truss with drawstrings



Interior view roof



Replacement rafter purlins



Fastening tie rods

Construction Data

- Beech GL70 14 m³

Construction costs

- BKP 214 (timber construction): 210'000.Swiss francs

Services of Timbatec

- SIA Phase 41 Call for tenders and comparison of offers
- SIA Phase 51 Implementation project
- Statics and construction
- cost estimation
- Site supervision and site inspections

Client

SBB Immobilien Development Bahnproduktion 8021 Zurich

Timber construction **engineer**

Timbatec Holzbauingenieure Schweiz AG 3012 Bern

Timber **construction**

Herzog Bau und Holzbau AG 3066 Stettlen