

Estoppey industrial hall, Châtel-St-Denis

2018



The municipality and Estoppey-Reber AG had the industrial hall in Châtel-St-Denis in the canton of Fribourg renovated. The roof was insulated and reinforced so that it can withstand the heavy snow loads in the future.

The project

In recent years, the main roof structure was deforming severely due to accumulated snow. The owner hired several engineering firms to evaluate the load-bearing capacity of the structure. All analyses showed the same results: a severe undersizing of the existing structure. Estoppey-Reber SA contracted sdi Biel-Bienne SA to manage the rehabilitation project. Timbatec performed the structural calculations to reinforce the main timber structure, as well as all structural physics considerations.

The construction

Reinforcement was provided by means of an additional beam in the insulation layer. This was connected to the underlying layers with fully threaded screws. In this way, the new structural system functions as a composite cross-section. Thanks to additional insulation, cantonal subsidies could be claimed for the renovation.

The challenge

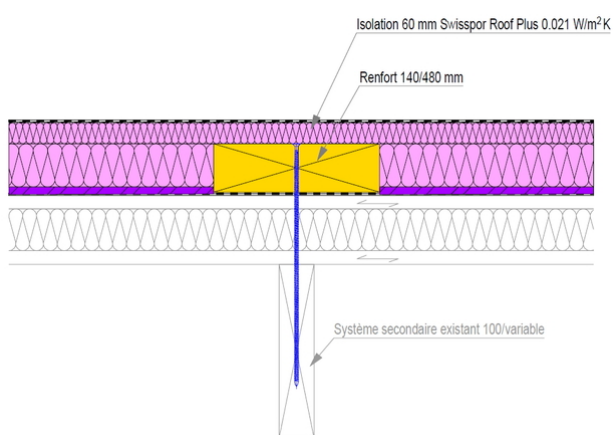
The challenges for this project were numerous. The premises had to remain usable during the entire construction period. This meant that the retrofitting had to be carried out from the outside of the roof.



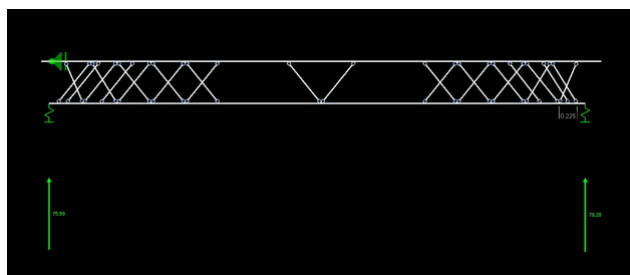
Reinforcement from above



Crossing beams



Construction detail



Reinforced static system

Construction Data

- Beam doubling 70 m³
- Fully threaded screw 13x700 approx. 6000 pieces
- Structural steel 1.5 tons
- Insulating glass/insulating panels 1250 m²
- Subsidy building program 250'000 CHF

Services of Timbatec

- SIA Phase 31 Preliminary design
- SIA Phase 32 Construction project
- SIA Phase 41 Tendering and comparison of offers
- SIA Phase 51 Implementation project
- Statics and construction
- Cost estimation
- Site supervision and site inspections

Architect

LZA Architecte 1700 Fribourg

Client

Commune Chatêl-St-Denis et Estoppey-Reber SA 1618
Châtel-St-Denis

Timber construction engineer

Timbatec Holzbauingenieure Schweiz AG 3012 Bern

Timber construction

Vuichard Charpente SA 1623 Semsales

Civil engineer

sdi biel-bienne sa 2503 Bienne